NEW MILFORD BOARD OF EDUCATION
New Milford Public Schools
25 Sunny Valley Road, Suite A
New Milford, Connecticut 06776

COMMITTEE ON LEARNING SUB-COMMITTEE
MEETING NOTICE

DATE: August 6, 2024
TIME: 7:30 P.M.
PLACE: Sarah Noble Intermediate School – Library Media Center

AGENDA

New Milford Public Schools Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family, and community is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

1. Call to Order

2. Public Comment

An individual may address the Board concerning any item on the agenda for the meeting subject to the following provisions:

A. A three-minute time limit may be allocated to each speaker with a maximum of twenty minutes being set aside per meeting. The Board may, by a majority vote, cancel or adjust these time limits.

B. If a member of the public comments about the performance of an employee or a Board member, whether positive, negative, or neutral, and whether named or not, the Board shall not respond to such comments unless the topic is an explicit item on the agenda and the employee or the Board member has been provided with the requisite notice and due process required by law. Similarly, in accordance with federal law pertaining to student confidentiality, the Board shall not respond to or otherwise discuss any comments that might be made pertaining to students.

3. Items for Discussion and Approval

A. Curriculum:

1. Art Appreciation
2. Basic Life Support
3. Concert Chorus
4. ESL 1
5. Exercise Physiology
6. Explorations in Science
7. French I CP
8. French IV/V College Prep
9. Integrated Science CP
10. Integrated Science Honors
11. Math Grade 7A

12. Nutrition and Wellness
13. PE Bootcamp
14. Physics CP
15. AP Physics 1
16. Spanish 1 CP

4. Items of Information

A. Report Card Revision
B. 6-12 Grading Practices

5. Public Comment

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6. Adjourn

Sub-Committee Members: **Tammy McInerney, Chairperson**
Sarah Herring
Brian McCauley
Dean Barile

Alternates: **Leslie Sarich**

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Art Appreciation

June 2024

Do Not Distribute Not BOE Approved

New Milford Board of Education

Mrs. Wendy Faulenbach, Chairperson

Mrs. Leslie Sarich, Vice Chairperson

Mrs. Tammy McInerney, Secretary

Mr. Tom O'Brien, Assistant Secretary

Mr. Dean J. Barile

Mr. Eric Hansell

Mrs. Sarah Herring

Mr. Brian McCauley

Superintendent of Schools

Dr. Janet Parlato

Assistant Superintendent

Ms. Holly Hollander

Authors of Course Guide

Kristi Soucie

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Art Appreciation

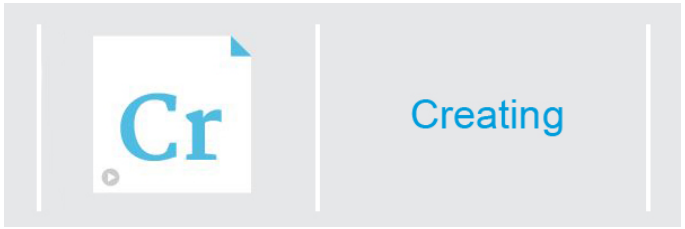
Grade Levels 10-12

The Art Appreciation course will introduce students to the visual arts and a variety of art mediums and techniques used to create two and three dimensional works of art. Students will analyze various purposes for the production of artwork as well as the historical and cultural context in which works of art were created.

The student’s understanding of art will be developed while creating visual art projects as well as through discussion, research, and writing assignments.

This is a semester course in which students will attend an 80 minute class period every other day based on the high school's A/B rotating schedule.

NATIONALCOREARTSSTANDARDS



Conceiving and developing new artistic ideas and work.

Presenting (visual arts): Interpreting and sharing artistic work.

Understanding and evaluating how the arts convey meaning.

Relating artistic ideas and work with personal meaning and external context.

The Vision of the Graduate articulates the school district, community and the Art Department aspirations for each student by developing and communicating the skills, dispositions, and specific attitudes which identify desired outcomes for students who graduate from New Milford Public Schools.

COMMUNICATION	CRITICAL THINKING	CREATIVITY	PROBLEM SOLVING	POSITIVE RELATIONSHIPS/SOCIAL AWARENESS	SELF MANAGEMENT	GROWTH MINDSET
Clearly articulate and express themselves orally, through various modes of written expression and other forms of communication.	The intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information.	The ability to think innovatively, generate original ideas, alternatives, possibilities and apply them in solving problems, creating solutions and communicating with others.	Defining a problem; determining the cause of the problem; identifying, prioritizing, and selecting alternatives for a solution; and implementing a solution.	The ability to demonstrate an understanding, acceptance, and respect of others' differences	The ability to set and pursue personal and professional goals through self-advocacy, time-management, preparation, and organization.	The ability to improve one's skills and/or situation through self-reflection, perseverance, and hard work

Many lessons in Art Appreciation connect with the characteristics identified in New Milford's Vision of a Graduate.

Critical Thinking - Students will engage in critical thinking throughout this course. They will analyze the form, function, content and context of various artworks. Relating these artistic ideas with the societal, cultural and historical context will deepen their understanding of art and the world around them.
Creativity - Within each unit students will have the opportunity to apply original ideas in the creation of an artwork allowing them to visually communicate with others.
Social Awareness- By looking at art from various cultures, eras and genres, students will increase their ability to understand, accept and respect each others' differences.

Pacing Guide

Unit Title	Days	Pages
1. Analyzing Art	5 days	pages 8-12
2. Create, Decorate and Embellish	8 days	pages 13-18
3. Ideals and History	8 days	pages 19-24
4. Spirit and Religion	8 days	pages 25-30
5. Political or Personal Statement	8 days	pages 31-36

The Art Appreciation curriculum focuses on thematic groupings of the purposes of art making. They encompass a variety of art styles and cultures. Teachers are encouraged to adapt the framework to their own and their students' diverse needs and interests; there are many different ways to organize and present a successful Art Appreciation course.

ESTABLISHED GOALS

VA:Pr6.1.HSII.a - Make, explain, and justify connections between artists or artwork and social, cultural, and political history.

VA:Cn11.1.HSII.a - Compare uses of art in a variety of societal, cultural, and historical contexts and make connections to uses of art in contemporary and local contexts.

SELARTS Competency: Social Awareness and Presenting
10 HS Understand different group dynamics and respond in accordance with social rules.

Transfer

Students will be able to independently use their learning to…

- Convey meaning through the presentation of artistic work.
- Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.
- Demonstrate an understanding of the need for mutual respect when viewpoints differ.

Meaning

UNDERSTANDINGS
Students will understand that…

Objects, artifacts, and artworks communicate meaning and a record of social, cultural, and political experiences resulting in the cultivating of appreciation and understanding.

People develop ideas and understandings of society, culture, and history through their interactions with and analysis of art.

Artists consider a variety of viewpoints and make choices about the selection and production of artistic works by considering cultural, historical, and social perspectives of the intended audience.

ESSENTIAL QUESTIONS

How does the presenting and sharing of objects, artifacts, and artworks influence and shape ideas, beliefs, and experiences?

How does art help us understand the lives of people of different times, places, and cultures? How is art used to impact the views of a society?

How does social awareness influence the criteria that artists use to select, prepare and produce artistic works?

	Acquisition	
	Students will know… ● Various artists and artwork ● Select social, cultural, and political history ● Various uses of art ● contemporary and local contexts ● Art vocabulary ● social rules	*Students will be skilled at…* ● Making, explaining, and justifying connections ● Comparing uses of art ● Understanding and responding to group dynamics

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
Acquisition Acquisition Acquisition Transfer Meaning Transfer Meaning Meaning Acquisition Acquisition Acquisition Transfer Transfer Acquisition Transfer Transfer	● Identifies materials, processes and ideas in various artworks ● Demonstrates knowledge of various artistic techniques ● Thoroughly describes design elements ● Notes similarities and differences between artworks presented ● Highlights distinctive aspects of each work ● Recognizes and demonstrates the skills needed to relate to, and reflect on, and respectfully disagree with other's perspectives ● Clearly relates design elements and materials to the concept or function of the work of art ● Insightfully examines the artist's culture and life experience ● Insightlfully examines the intended and present audience's culture of the artwork presented ● Accurately cites sources ● Clearly organizes information ● contributes readily to class discussion ● Participates actively in small groups ● Insightfully comments and uses appropriate terminology ● Shows thorough evidence of preparedness ● listens attentively when others present materials and perspectives	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* ● Associating what they perceive in a work with their own experiences, affecting their interpretation of artwork ● Describing design elements and principles ● Analyzing form, function, content and context ● Investigating component materials ● Examining fundamental visual components of a work of art ● Relating the cultural and life experiences of an artist to the message of the piece ● Considering the artist's intended use for the work ● Identifying the title, artist, date, materials and culture of a work of art ● Interpreting the interacting, communicative elements of design, representation, and presentation SUGGESTED ACTIVITIES: Viewing, investigating and discussing artwork by traditional artists such as Impressionists, Baroque artists, artists of the Harlem Renaissance, Renaissance artists, the Hudson River School, early 20th century artists, Realists, and more. Viewing, investigating and discussing work by diverse contemporary and/or local artists such as Joy Brown, Elizabeth MacDonald, Anda Styler, Alexander Calder, Christo, Maya Lin, Xu Bing, Cindy Sherman, Faith Ringgold, Jaune Quick-to-see-Smith, Shirin Neshat, Pepón Osorio, Frank Gehry, Ai Wei Wei, J.C. Leyendecker, Carol Moore, Souby Boski, Joel Spector, Vesper Stamper, contemporary animation artists and more. Small group research and presentation on the elements and principles of design. Individual student presentations of one artwork to include images, identifiers, sources as well as analysis of form, function, content and context. Students will relate how the cultural and life experiences of the artist's own time affected the material and/or message of the piece.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* *Round Robin activity* *List of favorite artists* Class contribution rubric

Code	*Pre-Assessment* Student list of of known artists, Instagram, Pintrest and/or other social media collections of artwork Round Robin activity of specific popular art historical works *ie.* Van Gogh's *The Starry Night*	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring Teacher review of progress on individual presentations Relevancy of questions asked to peer presenters
Acquisition	● Students will create a list of artists that they are familiar with. H	
Acquisition	● Students will read about and define the 7 elements and principles of design. E	
Acquisition	● Teacher will provide a definition and examples of form, function, content and context in relation to an artwork. WE	
Meaning	● Students will hypothesize the concept or message of the artwork on display. R	
Transfer	● Students will practice describing and analyzing artworks orally and in writing. R	
Acquisition	● Teacher will display work by various artists while leading a class discussion. H	
Meaning	● Students will research an artwork by an artist of interest to them personally and create a visual presentation of the form, function, content and context of the piece. HT	
Transfer	● During class time, students will actively listen to student presentations and participate in a class discussion. R	
Acquisition	● Students will refine their presentation based on feedback and post it to the shared internet folder. Ev	

	All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. <u>ESSENTIAL RESOURCES:</u> Artroom with equipment and tools including but not limited to projector or other electronic display board, Macbook computer with internet connection, and color printer. Physical prints of artwork in the form of magazines, postcards, catalogs, posters and prints of digital images. *Note- MacIntosh computers allow for a complex display of numerous high definition images at one time which PC computers, laptops or Chromebooks do not.	

<table>
<tr><td rowspan="4">ESTABLISHED GOALS

VA:Cr2.1.HSI.a - Engage in making a work of art or design without having a preconceived plan.

VA:Cn10.1.HSII.a - Utilize inquiry methods of observation, research, and experimentation to explore unfamiliar subjects through art-making.

<u>SELArts Competency- Self awareness and presenting:</u>
04 HS Identify and utilize strategies to prevent or overcome possible obstacles and hurdles.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…

● Organize and develop artistic ideas and work.
● Synthesize and relate knowledge and personal experiences to make art.
● Recognize the importance of self-confidence in handling daily tasks and challenges.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…

Artists and designers experiment with forms, structures, materials, concepts, media, and art-making approaches.

Through art-making, people make meaning by investigating and developing awareness of perceptions, knowledge, and experiences.

Artists develop personal processes to refine their work and recognize how their own feelings, thoughts, strengths, and challenges affect the selection, interpretation and production of artistic works.

Artists build self-confidence through refining artistic works for presentation.</td><td>ESSENTIAL QUESTIONS

How do artists work?
How do artists and designers determine whether a particular direction in their work is effective?
How do artists and designers learn from trial and error?

How does engaging in creating art enrich people's lives?
How do people contribute to awareness and understanding of their lives and the lives of their communities through art-making?

How does the recognition of one's feelings, thoughts, strengths and challenges inform and impact the cyclical process of refining the final product?

How do varying degrees of self-confidence affect the production of artistic works?</td></tr>
</table>

	Acquisition	
	Students will know…	*Students will be skilled at…*
	● various artists and artworks that create, decorate or embellish functional objects or spaces ● inquiry methods of observation, research, and experimentation ● art vocabulary ● strategies to overcome obstacles	● organizing and developing ideas ● synthesizing and relating knowledge ● explaining and justifying connections ● observing, researching, and experimenting with unfamiliar subjects ● making a work of art ● identifying and utilizing strategies

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
I Meaning Acquisition Meaning Acquisition Meaning Transfer Acquisition Acquisition Acquisition Acquisition Meaning Acquisition Acquisition	● Contributes readily to class discussion ● Insightfully comments and uses appropriate terminology ● Clearly organizes a plan to produce a personal artwork ● Identifies materials, processes, techniques and ideas in a personal artwork ● Demonstrates capacity to maintain concentration on a task and overcome obstacles ● Produces a unique, well crafted artwork influenced by personal experiences ● Produces an artwork meant to create, decorate or embellish a functional object or space ● Accurately cites sources ● Clearly relates design elements and materials to the concept or function of the work of art ● Shows evidence of thorough preparedness ● Listens attentively when others present materials and perspectives ● Evaluates and describes own and others' work effectively using accurate art vocabulary ● Accurately identifies the title, artist, date, materials and culture of a work of art	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* ● Relating what they perceive in a work with their own experiences, affecting their interpretation of artwork ● Describing design elements and principles ● Analyzing form, function, content and context ● Becoming aware of component materials ● Considering the artist's intended use for the work ● Interpreting the interacting, communicative elements of design, representation, and presentation <u>Tasks:</u> Becoming aware of and deciding on materials, processes and techniques to be used in the creation of a personal artwork, including those traditionally and not traditionally used to make art that creates, decorates or embellishes functional objects or spaces. Viewing, interpreting and discussing artwork by traditional art historical European and American art and artists that create, decorate or embellish functional objects or spaces. Viewing, interpreting and discussing work by diverse non-European, contemporary and/or local artists that create, decorate or embellish functional objects or spaces. Designing and producing an artwork that relates to the purpose of creating, decorating and embellishing functional objects or spaces. Reflecting on completed personal artwork along with personal connections and artistic influences in the form of a clearly organized Google Slides or similar presentation. <u>Suggested artists to present and discuss:</u> Artwork by traditional art historical European and American art and artists:

		Robert Smithson, Helen Frankenthaler, Andy Warhol, Claude Monet, Richard Serra, William Morris, Antoni Gaudi, Gothic cathedrals, Versailles, the Eiffel Tower, Louis Comfort Tiffany, Frank LLoyd Wright among others. Artwork by diverse non-European, contemporary and/or local artists: earthwork artist Andy Goldsworthy, architect Zaha Hadid, Conceptual artist Doris Salcedo, the Art of Islam, Native North American art, South American art, digital media, Japanese ukiyo-e prints, Korean artist Nam June Paik, African artist Olowe of Ise among others. Abstract painting in the style of Abstract Expressionists such as Helen Frankenthaler, emphasizing the use of elements and principles of design as content. <u>Suggested art making performance tasks:</u> ● An earthwork in the style similar to Andy Goldsworthy or Native North American cultures, emphasizing the additional elements of time and motion. ● Painted tiles based on designs similar to those in Islamic decorative arts. ● Jewelry making, inspired by South American cultures. ● Digital media derived from early Japanese narrative art and animation.
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Class contribution rubric Teacher feedback Visual documentation in Google drive folders and sketchbooks Self evaluation rubric

Code	*Pre-Assessment* Students will provide examples of art that creates, decorates, or embellishes functional objects.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● Student will get feedback from the teacher and peers via in progress critique ● Direct observation ● one-on -one instruction ● Review of journals/sketchbooks
Acquisition	● Teacher will display work by various artists while leading a class discussion. H	
Meaning	● Students will observe and analyze the artworks on display. Ex	
Transfer	● Students will justify their conclusions by making connections with the form (visual characteristics) of the artwork to the function, concept or message of the artwork on display. R	
Acquisition	● Students will practice describing and analyzing artworks orally and in writing. R	
Acquisition	● During class time, students will actively listen and participate in a class discussion, offering insightful comments. R	
Acquisition	● Teacher will introduce materials and demonstrate processes for creating various types of art. HW	
Meaning	● Students will experiment with materials and techniques. HTE	
Acquisition	● Students will choose a material and technique. T	
Meaning	● Students will synthesize information to produce an artwork that demonstrates its use as a functional object or decoration and embellishment of an object. REx	
Transfer	● Students will recognize, describe and compare the form of their artwork to another traditional art historical or contemporary artist. E	
Meaning	● Students will reflect on their feelings, thoughts, strengths and challenges during the art making process and clearly document this in writing in a journal, sketchbook, Google slide or similar mode of presentation. OET	
	All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

	<u>Essential Resources</u> Artroom with equipment and tools including but not limited to projector or other electronic display board, Macbook computer with internet connection, and color printer. Physical prints of artwork in the form of magazines, postcards, catalogs, posters and prints of digital images. Room to be equipped with sinks, large desks or tables and storage for supplies and artwork. Various drawing supplies including but not limited to various pencils, erasers, markers, colored pencils, charcoal and pastels. Various painting supplies including but not limited to watercolor, acrylic, gouache and oil and appropriate brushes. Various substrates including white paper, charcoal paper, canvas boards, canvas with stretchers, printing paper, tissue paper, magazines, newsprint paper, watercolor paper, colored paper, mat board. Various sculpting supplies including but not limited to clay, glazes, kilns, clay tools (mats, modeling tools, sponges, rolling pins, scoring tools, rib tools, and texture stamps/rollers), wire, pliers, jigs, balsa wood, saws, adhesives, hammers, carving tools, plaster, plaster wrap, and rasps.	

ESTABLISHED GOALS

VA:Re 7.1.Ia- Hypothesize ways in which art influences perceptions and understanding of human experiences.

VA:Re8.1.HSI.a - Interpret an artwork or collection of works, supported by relevant and sufficient evidence found in the work and its various contexts.

<u>SELArts Competency:</u>
Social Awareness and Connecting

Analyze the thoughts and beliefs of others contrary to their own.

Transfer

Students will be able to independently use their learning to…

- Perceive and analyze artistic work.
- Interpret intent and meaning in artistic work.
- Recognize and identify the thoughts, feelings and perspectives of others.

Meaning

UNDERSTANDINGS
Students will understand that…

Individual aesthetic and empathetic awareness developed through engagement with art can lead to understanding and appreciation of self, others, the natural world, and constructed environments.

People gain insights into meanings of artworks by engaging in the process of art criticism.

Artists synthesize knowledge (personal, societal, cultural, and historical) and life experiences to recognize and identify the thoughts, feelings, and perspectives of others.

ESSENTIAL QUESTIONS

How do life experiences influence the way you relate to art? How does learning about art impact how we perceive the world? What can we learn from our responses to art?

What is the value of engaging in the process of art criticism? How can the viewer "read" a work of art as text? How does knowing and using visual art vocabularies help us understand and interpret works of art?

How does engaging in the arts help one identify their own thoughts, feelings and the perspectives of others?

	Acquisition	
	Students will know… ● various artists and artworks that create idealized images or historical narratives ● common human experiences ● various influential images ● relevant and sufficient evidence found in the artwork ● various contexts ● beliefs of others contrary to their own	*Students will be skilled at…* ● hypothesizing ways in which art influences perceptions ● hypothesizing ways in which art influences understanding of human experiences ● interpreting intent and meaning in artwork ● analyzing the thoughts and beliefs of others

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
		PERFORMANCE TASK(S):
Meaning Acquisition Meaning Acquisition Meaning Transfer Acquisition Acquisition Acquisition Acquisition Meaning Acquisition Acquisition	● Contributes readily to class discussion ● Insightfully comments and uses appropriate terminology ● Clearly organizes a plan to produce a personal artwork ● Identifies materials, processes, techniques and ideas in a personal artwork ● Demonstrates capacity to maintain concentration on a task ● Produces a unique, well crafted artwork influenced by the *beliefs or narratives of themselves or others* ● Produces an artwork meant to depict the *ideal or history of a culture* ● Accurately cites sources ● Clearly relates *content* to the cultural *context* of the work of art ● Shows evidence of thorough preparedness ● Listens attentively when others present materials and perspectives ● Evaluates and describes own and others' work effectively using accurate art vocabulary ● Accurately identifies the title, artist, date, materials and culture of a work of art	● Relating what they perceive in a work with their own experiences, affecting their interpretation of artwork ● Describing design elements and principles ● Analyzing form, function, content and context ● Becoming aware of component materials ● Considering the artist's intended use for the work ● Interpreting the interacting, communicative elements of design, representation, and presentation. <u>Tasks:</u> Becoming aware of and deciding on materials, processes and techniques to be used in the creation of a personal artwork, including those traditionally and not traditionally used to make art that depicts the ideals and history of a culture. Viewing, interpreting and discussing artwork that depicts the ideals and history of *diverse* cultures through representations of <u>daily life</u> with themes such as: Events and Experiences, Activities, Individual and Society, Surroundings, Humans and the Environment, and Domestic Life. Viewing, interpreting and discussing artwork that depicts the ideals and history of *diverse* cultures through representations of <u>societal identity</u> with themes such as: Stories and Histories, Immigration and Migration, Civilization, Urban Experience, Societal Structure and Values, and Converging Cultures. Viewing, interpreting and discussing artwork that depicts the ideals and history of *diverse* cultures through representations of <u>personal identity</u> with themes such as: Portraits, Self Portraits, The Human Body, and Personal Values. Designing and producing an artwork that relates to the purpose of depicting

		daily life, societal identity or personal identity. Reflecting on completed personal artwork along with an explanation of the relationship between content and cultural context in the form of a clearly organized Google Slides or similar presentation. <u>Suggested artists to present and discuss:</u> Art and architecture by traditional art historical European and American cultures and artists such as Machu Picchu, Pieter Bruegel, Neoclassical art, Greek art, Jacob Lawrence, Dorothea Lange and Barbara Kruger, Hudson River School painters among others. Art and architecture by diverse non-European, contemporary and/or local artists such as contemporary comic artists, advertising photographers, African art, Magdalena Abakanowicz and Wangechi Mutu among others. <u>Suggested art making performance tasks:</u> ● Painted scrolls inspired by Japanese narrative scrolls. ● Figurative collage, using images from contemporary advertising magazines. ● A comic strip based on contemporary culture or an historical event. ● An architectural model based on a specific era and culture.
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Class contribution rubric Teacher feedback Visual documentation in Google drive folders and sketchbooks Self evaluation rubric

stage 3

Code	*Pre-Assessment* Students will provide examples of art that influenced their perception or understanding of human experiences. Teacher will evaluate artwork previously created by the students. If comfortable doing so, students will share their heritage.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
Acquisition	● Teacher will display work by various artists while leading a class discussion. H	● Student will get feedback from the teacher and peers via in progress critique
Meaning	● Students will observe, interpret and analyze the artworks on display. Ex	● Direct observation
Meaning	● *Students will hypothesize ways in which art influences perceptions and understanding of human experiences.* ExW	● One-on-one instruction
Transfer	● Students will justify their conclusions by making connections with the form (visual characteristics)and function of the artwork to the content and context of the artwork on display. R	● Review of journals/sketchbooks
Acquisition	● Students will practice describing and analyzing artworks orally and in writing. R	
Acquisition	● During class time, students will actively listen and participate in a class discussion, offering insightful comments. R	
Acquisition	● Teacher will introduce materials and demonstrate processes for creating various types of art. HW	
Meaning	● Students will experiment with materials and techniques. HTE	
Acquisition	● Students will choose a material and technique. T	
Meaning	● Students will synthesize information to produce an artwork that depicts the *daily life* within a specific culture, depicts the *societal identity* of a specific culture or depicts their own *personal identity*. REx	
Transfer	● Students will recognize, describe and compare the *content of* their artwork to the *ideals or history of a culture.* E	
Meaning	● Students will reflect on at least one thing that they now understand or appreciate about a specific culture, clearly documenting this in writing in a journal, sketchbook, Google slide or similar mode of presentation. OET	

	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. Essential Resources: Artroom with equipment and tools including but not limited to projector or other electronic display board, Macbook computer with internet connection, and color printer. Physical prints of artwork in the form of magazines, postcards, catalogs, posters and prints of digital images. Room to be equipped with sinks, large desks or tables and storage for supplies and artwork. Various drawing supplies including but not limited to various pencils, erasers, markers, colored pencils, charcoal and pastels. Various painting supplies including but not limited to watercolor, acrylic, gouache and oil and appropriate brushes. Various substrates including white paper, charcoal paper, canvas boards, canvas with stretchers, printing paper, tissue paper, magazines, newsprint paper, watercolor paper, colored paper, mat board. Various sculpting supplies including but not limited to clay, glazes, kilns, clay tools (mats, modeling tools, sponges, rolling pins, scoring tools, rib tools, and texture stamps/rollers), wire, pliers, jigs, balsa wood, saws, adhesives, hammers, carving tools, plaster, plaster wrap, and rasps.	

ESTABLISHED GOALS

VA:Re.7.2.HSI.a - Analyze how one's understanding of the world is affected by experiencing visual imagery.

VA:Re8.1.HSI.a - Interpret an artwork or collection of works, supported by relevant and sufficient evidence found in the work and its various contexts.

SELARTS Competency: Self-Awareness and Creating

01 HS
Continue to effectively identify one's own emotions including in a variety of situations, with increasing vocabulary along with increasing awareness of situations, sensations and triggers associated with emotions.

Transfer

Students will be able to independently use their learning to….

- Perceive and analyze artistic work.
- Interpret intent and meaning in artistic work.
- Recognize one's feelings and thoughts.

Meaning

UNDERSTANDINGS
Students will understand that…

Visual imagery influences understanding of and responses to the world.

People gain insights into meanings of artworks by engaging in the process of art criticism.

One's feelings, thoughts, personal traits, strengths and challenges influence the creative process.

ESSENTIAL QUESTIONS

What is an image? Where and how do we encounter images in our world? How do images influence our views of the world?

What is the value of engaging in the process of art criticism? How can the viewer "read" a work of art as text? How does knowing and using visual art vocabularies help us understand and interpret works of art?
How does the awareness of one's strengths, challenges, feelings, and thoughts influence the generation of creative ideas?

	Acquisition	
	Students will know… ● collection of works with spiritual or religious significance ● relevant and sufficient evidence ● various contexts ● art vocabulary ● own thoughts and emotions ● art and social/emotional vocabulary ● sensations and triggers associated with emotions	*Students will be skilled at…* ● Analyzing how one's understanding of the world is affected by experiencing visual imagery ● Interpreting an artwork or collection of works ● Supporting interpretations ● Analyzing one's own thoughts and emotions ● identifying emotions in a variety of situations ● increasing art and social/emotional vocabulary ● increasing awareness of situations, sensations and triggers

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
Meaning Acquisition Meaning Acquisition Meaning Transfer Acquisition Acquisition Acquisition Acuisition Acquisition Meaning Acquisition Transfer Transfer Acquisition	● Contributes readily to class discussion ● Insightfully comments and uses appropriate terminology ● Clearly organizes a plan to produce a personal artwork ● Identifies materials, processes, techniques and ideas in a personal artwork ● Demonstrates capacity to maintain concentration on a task ● Produces a unique, well crafted artwork influenced by personal beliefs, thoughts and emotions ● Produces an artwork that has spiritual or religious significance ● Accurately cites sources ● Clearly relates design elements and materials to the spiritual or religious aspect of the work of art ● Supports interpretations with relevant and sufficient evidence ● Shows evidence of thorough preparedness ● listens attentively when others present materials and insights ● Evaluates and describes own and others' work effectively using accurate art vocabulary ● Clearly identifies own thoughts and emotions that arose as the result of experiencing this visual imagery ● Identifies sensations or triggers associated with these thoughts and emotions	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* Analyzing art that has spiritual or religious significance, representing spirituality or the life cycle with *themes such as: the sacred realm, sacred spaces, ceremony and ritual, knowledge and belief, inner vision, make-believe, cosmology, fertility, human life and death.* Interpreting the intent of visual imagery on the intended audience. Analyzing how one's understanding of the world is affected by experiencing visual imagery. Deciding on materials, processes and techniques to be used in the creation of a personal artwork. Creating a work of art that has personal spiritual or religious significance, representing the *sacred realm, sacred spaces, ceremony and ritual, knowledge and belief, inner vision, make-believe, cosmology, fertility, human life or death.* Reflecting on completed personal artwork along with *personal thoughts, emotions and sensations* in writing in a journal, sketchbook, or similar presentation. <u>Suggested artists and cultures to present and discuss:</u> Art and architecture by European and American artists that create art for spiritual or religious purposes such as Salvador Dalí (Surrealism), Gothic cathedrals, Russian icons, Egyptian art, Medieval reliquaries, prehistoric fertility figures and various children's book illustrators. Art and architecture by diverse non-European, contemporary and/or local artists such as Eagle Transformation mask (Northwest Native American), Moai (Polynesian), Power Figure (Africa), Dome of the Rock (Islam), Great Stupa

	● Identifies one new effect that experiencing this visual imagery has had on their understanding of the world	(Buddhist), Chinese landscape painting, Mesoamerican art, Shinto shrines (Japanese), Dover Stone Church, Bill Viola, and Mariko Mori. <u>Suggested art making performance tasks:</u> ● A personal shrine made from found objects. ● A sculpture of a deity made from clay. ● A Surrealist drawing or painting. ● A monument constructed using balsa wood.
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Class contribution rubric Teacher feedback Visual documentation in Google drive folders and sketchbooks Self evaluation rubric

stage 3

Code	*Pre-Assessment* If comfortable doing so, students will share their personal religion or spiritual beliefs. Students will provide examples of misconceptions that they may have had about another person or culture's beliefs. Teacher will evaluate artwork previously created by the students.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● Student will get feedback from the teacher and peers via in progress critique ● Direct observation ● One-on-one instruction ● Review of journals/sketchbooks
Meaning	● Students will list places that they encounter images of religious or spiritual significance. HT	
Acquisition	● Teacher will display work by various artists while leading a class discussion. H	
Meaning	● Students will observe and analyze and interpret the artworks on display. Ex	
Meaning	● Students will justify their conclusions by making connections with the form (visual characteristics) of the artwork to the function, concept or message of the artwork on display. R	
Transfer	● Students will practice describing and analyzing artworks orally and in writing. R	
Acquisition	● During class time, students will actively listen and participate in a class discussion, offering insightful comments. R	
Acquisition	● Teacher will introduce materials and demonstrate processes for creating various types of art. HW	
Acquisition	● Students will experiment with and choose a material and technique. HTE	
Meaning	● Students will synthesize information to produce an artwork that demonstrates its spiritual or religious significance. REx	
Acquisition	● Students will recognize, describe and compare the form of their artwork to another traditional art historical or contemporary artist. E	
Meaning	● Students will reflect on their emotions, thoughts, and feelings during the unit activities and identify triggers associated with	

Meaning	those emotions or activities. OET ● Students will analyze how these emotions, etc may have triggered sensations or influenced the creative process. EvEx <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. <u>Essential Resources</u> Artroom with equipment and tools including but not limited to projector or other electronic display board, Macbook computer with internet connection, and color printer. Physical prints of artwork in the form of magazines, postcards, catalogs, posters and prints of digital images. Room to be equipped with sinks, large desks or tables and storage for supplies and artwork. Various drawing supplies including but not limited to various pencils, erasers, markers, colored pencils, charcoal and pastels. Various painting supplies including but not limited to watercolor, acrylic, gouache and oil and appropriate brushes. Various substrates including white paper, charcoal paper, canvas boards, canvas with stretchers, printing paper, tissue paper, magazines, newsprint paper, watercolor paper, colored paper, mat board. Various sculpting supplies including but not limited to clay, glazes, kilns, clay tools (mats, modeling tools, sponges, rolling pins, scoring tools, rib tools, and texture stamps/rollers), wire, pliers, jigs, balsa wood, saws, adhesives, hammers, carving tools, plaster, plaster wrap, and rasps.	

ESTABLISHED GOALS

VA:Cr2.2.HSII.a - Demonstrate awareness of ethical implications of making and distributing creative work.

VA:Re.7.2.HSII.a - Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

SELARTS Competency: Responsible Decision-Making and Connecting

19 HS Recognize ethical, safety, and societal factors when making decisions.

Transfer

Students will be able to independently use their learning to…

- Organize and develop artistic ideas and work.
- Perceive and analyze artistic work.
- Evaluate personal, ethical, safety and civic impact of decisions.

Meaning

UNDERSTANDINGS

Students will understand that…

Artists and designers balance experimentation and safety, freedom and responsibility while developing and creating artworks.

Visual imagery influences understanding of and responses to the world.

How artists synthesize their knowledge (personal, societal, cultural, ethical, and historical) has social impact.

ESSENTIAL QUESTIONS

What responsibilities come with the freedom to create?

What is an image? Where and how do we encounter images in our world? How do images influence our views of the world?

How can artists make art based on knowledge (personal, societal, cultural, ethical, and historical) to impact their social context?

	Acquisition	
	Students will know… ● art vocabulary ● various artworks which make a personal or political statement ● ethical implications of making and distributing creative work ● ideas, feelings, and behaviors of specific audiences ● examples of ethical, safety, and societal factors	*Students will be skilled at…* ● demonstrating awareness ● evaluating the effectiveness of an image ● recognizing ethical, safety, and societal factors

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
Meaning Acquisition Transfer Acquisition Transfer Acquisition Meaning Acquisition Transfer Meaning Acquisition Acquisition Acquisition Meaning	● Contributes readily to class discussion ● Insightfully comments and uses appropriate terminology ● Clearly organizes a plan to produce a personal artwork ● Identifies materials, processes, techniques and ideas in a personal artwork ● Produces a unique, well crafted artwork that makes a personal or political statement ● Accurately cites sources ● Clearly relates design elements and materials (the form) to the personal or political statement being made (the content) ● Supports evaluative statements with relevant and sufficient evidence ● Shows evidence of thorough preparedness ● Listens attentively when others present artworks and insights ● Evaluates and describes own and others' work effectively using accurate art vocabulary ● Clearly identifies personal, societal, cultural, ethical or historical knowledge that instigated the political or personal statement used in personal artwork ● Identifies instances of "right" or "wrong" pertaining to distributing creative work ● Identifies personal or civic impact of the decision to create and share personal artwork	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* Analyzing art that makes a political or personal statement, representing conflict and harmony with *themes such as: Heroes and Leaders, Adversity, Freedom, Social Change, Power and Authority, and Resistance.* Evaluating personal, ethical, safety and civic impact of decisions. Evaluating the effectiveness of an image to influence ideas, feelings, and behaviors of specific audiences. Deciding on materials, processes and techniques to be used in the creation of a personal artwork. Creating a work of art that makes a personal or political statement. Recognizing the balance between freedom and responsibility while developing and creating artworks. Reflecting on completed personal artwork and the audience response to that artwork in writing in a journal, sketchbook, or similar presentation. <u>Suggested artists and cultures to present and discuss:</u> Art and architecture by European and American artists that create art as political or personal statements such as Roman Imperial sculpture, German World War II propaganda, Théodore Géricault, Norman Rockwell, Pablo Picasso, Francisco Goya, Jenny Holzer and Timothy H. O'Sullivan. Art and architecture by diverse non-European, contemporary and/or local artists that create art as political or personal statements such as Diego Rivera, Guerilla Girls, Banksy, Shepard Fairey, Ai Wei Wei, the Forbidden City in Beijing, Varvara Stepanova, Shirin Neshat, first Qin emperor of China.

		<u>Suggested art making performance tasks:</u> ● A poster (digital or physical) campaigning for or protesting against a specific person or concept. ● A social media post promoting a personal philosophy. ● A three-dimensional model for a monument honoring a leader or hero. ● A narrative drawing/painting of a historical social change. ○
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Class contribution rubric Teacher feedback Visual documentation in Google drive folders and sketchbooks Self evaluation rubric

stage 3

Code	*Pre-Assessment* Students will list incidents when an artist was irresponsible when producing and sharing artwork. Teacher will evaluate artwork previously created by the students.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
Meaning	● Students will list places that they encounter images that make political or personal statements.. HT	● Student will get feedback from the teacher and peers via in progress critique
Acquisition	● Teacher will display work by various artists while leading a class discussion. H	● Direct observation
Meaning	● Students will observe and analyze and interpret the artworks on display. Ex	● One-on-one instruction
Meaning	● Students will justify their conclusions by making connections with the form (visual characteristics) of the artwork to the concept or message of the artwork on display. R	● Review of journals/sketchbooks
Transfer	● Students will practice describing and analyzing artworks orally and in writing. R	
Acquisition	● During class time, students will actively listen and participate in a class discussion, offering insightful comments. R	
Acquisition	● Teacher will introduce materials and demonstrate processes for creating various types of art. HW	
Acquisition	● Students will experiment with and choose a material and technique. HTE	
Meaning	● Students will synthesize information to produce an artwork that makes a political or personal statement. REx	
Acquisition	● Students will recognize, describe and compare the form of their artwork to another traditional art historical or contemporary artist. E	
Meaning	● Students will reflect on the responsibilities that come with the freedom to create. OET	

	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. Essential Resources Artroom with equipment and tools including but not limited to projector or other electronic display board, Macbook computer with internet connection, and color printer. Physical prints of artwork in the form of magazines, postcards, catalogs, posters and prints of digital images. Room to be equipped with sinks, large desks or tables and storage for supplies and artwork. Various drawing supplies including but not limited to various pencils, erasers, markers, colored pencils, charcoal and pastels. Various painting supplies including but not limited to watercolor, acrylic, gouache and oil and appropriate brushes. Various substrates including white paper, charcoal paper, canvas boards, canvas with stretchers, printing paper, tissue paper, magazines, newsprint paper, watercolor paper, colored paper, mat board. Various sculpting supplies including but not limited to clay, glazes, kilns, clay tools (mats, modeling tools, sponges, rolling pins, scoring tools, rib tools, and texture stamps/rollers), wire, pliers, jigs, balsa wood, saws, adhesives, hammers, carving tools, plaster, plaster wrap, and rasps.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Basic Life Support

June 2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Basic Life Support

Grades 10-12

A brief description of the course:

Upon successful completion of Health 1 in their freshman year, students have the option to select a Health elective course that aligns with their personal interests. One of the elective choices available is Basic Life Support, a career pathway course that focuses on providing students with advanced CPR training and certification from the American Red Cross. This certification encompasses various first responder protocols and advanced CPR techniques.

Basic Life Support is a semester course for grades 10-12 that aims to equip students with essential life-saving skills by integrating psychomotor abilities with critical thinking and problem-solving strategies for optimal victim outcomes. Students will also gain insights into potential career pathways in fields such as EMT/Paramedics, Law Enforcement, Firefighting, and the Military.

Additionally, students will delve into fundamental concepts of anatomy and physiology relating to the cardiovascular and respiratory systems. They will also learn about various illnesses and injuries that can lead to cardiac arrest, respiratory distress/arrest, and other health complications.

Connection to the Vision of a Graduate

The Basic Life Support course provides students with the opportunity to acquire essential life-saving skills and utilize them in emergency scenarios by employing critical thinking, problem-solving, and teamwork skills with fellow classmates. Upon successfully finishing the training, students will obtain certification in Basic Life Support from the American Red Cross, enhancing their self-awareness and leadership abilities.

Furthermore, students will enhance their social consciousness and cultivate a growth-oriented mindset by interacting with local first responders during guest speaker presentations and professional interviews.

Pacing Guide

Unit 1: History of First Responders: 2 weeks

Unit 2: Cardiac and Respiratory Systems: 4 weeks

Unit 3: Adult and Child Basic Life Support: 5 weeks

Unit 4: Infant Basic Life Support: 4 weeks

Unit 5: Community Engagement: 3 weeks

Stage 1 Desired Results

ESTABLISHED GOALS

CCTE MCE A: Understand and apply the academic subject matter required for entrance within health science.

CCTE MCE D: Health Care Delivery System: Describe how the health care workers' role fits into their department, organization, and overall health care environment.

SEL: SOCIAL AWARENESS: The abilities to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, & contexts.

SEL: SELF-MANAGEMENT: The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.

Transfer

Students will be able to independently use their learning to…

Display empathy and critical thinking skills while striving to support individuals in need and their community.

Meaning

UNDERSTANDINGS

Students will understand that…

- Recognizing the historical evolution of Emergency Medical Services (EMS) and First Responders is essential for students to grasp the development of healthcare practices.
- The evolution of medical technology in emergency response has significantly impacted patient care within the healthcare industry.
- Emergency response offers a wide range of career opportunities with diverse requirements and qualifications.

ESSENTIAL QUESTIONS

- What motivates individuals to pursue a career as a first responder?
- How have advancements in emergency response positively impacted patient outcomes and quality of life over time?
- What advancements in emergency medical practices are needed to improve patient outcomes in the future?

	Acquisition	
	Students will know…	*Students will be skilled at…*
	● An overview of the evolution of emergency first responders. ● The advancements in technology have enhanced the quality of care provided to patients. ● Different career opportunities within the emergency response field. ● Reputable community resources that are available for information on first responder professions. ● Qualifications and criteria for individuals considering a career as an emergency first responder.	● Exploring opportunities in emergency response occupations. ● Analyzing the essential skills and attributes required to excel as an emergency first responder. ● Outlining the responsibilities and tasks of an emergency first responder. ● Delivering researched data on different emergency first responder professions and their respective backgrounds.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Transfer, Meaning, Acquisition	**Impact**: Conduct thorough research and comprehend the topic proficiently. **Content**: Formulating precise and thorough conclusions. **Quality**: Designing a visually appealing and well-organized poster. **Process**: Accurately documenting information gathered from peer research.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: Applying knowledge to investigate the history of emergency first responders, know how medical advancements have influenced the enhancements in emergency response, and how these advancements intersect with individual and community efforts. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: Students are encouraged to research various emergency first responder roles that align with their interests and explore relevant information to deepen their knowledge in the field of emergency response. **Product or Performance**: Product and presentation **Standards for Success**: Gallery walk presentation (The Gallery Walk activity will prompt students to actively circulate around the classroom in order to observe and analyze their peers' work).

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Active participation in class discussions and thoughtful analysis of assigned readings. ● Completion of thorough research projects. ● Attentive note-taking during presentations. ● In-depth understanding demonstrated through a quiz on emergency first responder occupations.

Stage 3 – Learning Plan		
Code Meaning	***Pre-Assessment*** Know, Want-to-know, and Learned (KWL) charts and other graphic organizers consisting of open-ended questions	

Transfer,
Meaning,
Acquisition
 	
M
 	
M
M
 	
M
 	
A,M
A
 	
A,M
 	
A,M
	Summary of Key Learning Events and Instruction
	Student success at transfer meaning and acquisition depends on…
	
	● Teacher introduces the unit topic, “History of First Responders.”
	● Students complete the KWL chart.
	● Teacher prepares questions related to the analysis of first responder occupations.
	● Students collaborate in small groups to complete a think-pair-share.
	  ○ Students are encouraged to take a moment to carefully consider their responses.
	  ○ Students are then instructed to engage in discussion with a partner or small group to exchange thoughts and ideas.
	  ○ Afterward, responses are presented within larger teams or to the entire group during a follow-up dialogue.
	● Teacher presents vocabulary pertaining to the unit.
	● Students collaboratively analyze and define key terminology related to the unit in small group settings.
	● The teacher will circulate among the groups to facilitate discussion and ask questions.
	● Teacher will present an example of the expected project outcome.
	● Students will use digital tools to create informational posters showcasing their findings related to the first responder occupation.
		Progress Monitoring
		
		● Teacher will provide feedback through various formative assessment methods, including direct observation and personalized one-on-one assistance.
		
		● Teacher will also provide feedback on their performance tasks.

A, T, M A, T, M A,T, M	• Students will engage in a gallery walk activity to deepen their understanding of various first responder professions and will document their insights using guided notes. • Teacher will create an assessment focused on the roles, responsibilities, training, and qualifications of first responders. • Students will be evaluated on their understanding of first responder roles and their importance within communities. <u>Resources:</u> *American Red Cross RCLC Home*, https://www.redcrosslearningcenter.org/s/. “Home : Occupational Outlook Handbook: : U.S.” *Bureau of Labor Statistics*, 17 April 2024, https://www.bls.gov/ooh/. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

CCTE MCE A: Understand and apply the academic subject matter required for entrance within health science.

CCTE MCE B: Disease Processes: Demonstrate the concepts of basic disease processes.

CCTE MCE C: Body Systems: Compare the anatomical structures and physiological function of each body system.

Transfer

Students will be able to independently use their learning to…

Apply a comprehensive understanding of the cardiovascular and respiratory systems to effectively fulfill the duties of a first responder.

Meaning

UNDERSTANDINGS

Students will understand that…

- It is essential for first responders to possess a comprehensive knowledge of human anatomy and physiology, with a particular emphasis on the cardiovascular and respiratory systems.
- Prior to administering life-saving techniques to individuals in need, it is necessary for a first responder to acquire the appropriate knowledge and training in Basic Life Support.

ESSENTIAL QUESTIONS

Students will keep considering…

- In the professional setting as a first responder, why is it important to understand the components and functions of the cardiovascular and respiratory systems?
- Why is it important to have a comprehensive understanding of how these systems interconnect to improve life-saving outcomes?
- How does understanding the anatomy of the cardiovascular and respiratory systems play a crucial role in effectively implementing proper skill techniques as a first responder?

	Acquisition	
	Students will know… ● The structure and function of the cardiovascular and respiratory systems. ● The collaboration between the cardiovascular and respiratory systems in the human body. ● The factors contributing to illnesses and injuries impacting the cardiovascular and respiratory systems, necessitating immediate emergency care.	*Students will be skilled at…* ● Identifying and labeling the components of the cardiovascular and respiratory systems. ● Explaining the roles of the cardiovascular and respiratory systems and the corresponding illnesses that can affect them. ● Evaluating the significance of possessing an in-depth knowledge of anatomy and physiology before acquiring basic life support skills.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Acquisition	**Impact**: Research and provide explanations of the components and functions of the cardiovascular and respiratory systems. **Content**: Demonstrate the ability to retain and recall information in preparation for skill development. **Quality**: Define and categorize terminology associated with the respiratory and cardiovascular systems. **Process**: Accurately identify and label the anatomy and physiology of the cardiovascular and respiratory systems.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: Understand the structures and functions of the cardiovascular and respiratory systems to effectively perform critical life-saving skills. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: Students will participate in peer instruction through collaborative learning, where they will conduct research on topics related to the cardiovascular and respiratory systems. Subsequently, they will present their findings to their peers. **Product or Performance**: Product and presentation **Standards for Success**: Successful completion of the guided notes packet.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Responding to inquiries related to text readings. ● Conducting research and taking guided notes. ● Presenting content during collaborative learning sessions. ● Demonstrating understanding through formal assessment of the cardiovascular and respiratory systems.

Stage 3 – Learning Plan		
Code Meaning	***Pre-Assessment*** Engage students through an interactive quiz using Kahoot on the students' school-provided technology devices.	
Transfer, Meaning, Acquisition	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M	● Teacher introduces the unit topic of "Cardiac and Respiratory Systems" to the students.	● Teacher will offer feedback using a range of formative assessment techniques, such as direct observation and individualized one-on-one support. ● Teacher will give feedback on formal assessments.
M	● Students engage in a pre-assessment activity using Kahoot on their school-issued devices.	
	● Teacher analyzes the results of the pre-assessment to inform lesson planning.	
T, M	● Students are prompted to discuss the importance of having a foundational knowledge of the anatomy and physiology of the cardiovascular and respiratory systems before acquiring specific skills.	
A, M	● Students are tasked with defining key vocabulary related to the cardiovascular and respiratory systems.	
A, T, M	● Teacher organizes students into small groups and allocates specific tasks to each group related to identifying and labeling the structures of the cardiovascular and respiratory systems by using a guided notes packet.	
A, T, M	● Students work together to research and provide explanations for the functions of anatomical structures in the guided notes packet.	
A, T, M	● Students collaborate to share information with their peers using the jigsaw technique as a method of learning (each student will be responsible for mastering a section of the	

	material and presenting it to the group. The group will collaborate to consolidate the information and showcase their collective knowledge).	
A, T, M	• Teacher will evaluate the understanding of the material through interactive exercises (labeling diagrams of the cardiovascular and respiratory systems on the electronic display board), exit tickets, think-pair-share, and class discussions. • Teacher will provide students with an infographic template focusing on the cardiovascular and respiratory systems. • Teacher will demonstrate an exemplar of the expected outcomes for the infographic.	
A, T, M	• Students will work together to accurately complete the infographic template with the appropriate information.	
A, M	• Teacher will present an audiovisual demonstration detailing the coordination and interaction between the cardiovascular and respiratory systems.	
A, T, M	• Students answer questions based on the material presented in the audiovisual demonstration.	
A, T, M	• Teacher will create a formal assessment to evaluate the acquired knowledge.	
A, T, M	• Students will complete the formal assessment.	
	<u>Resources:</u> *American Red Cross RCLC Home*, https://www.redcrosslearningcenter.org/s/. “Circulatory System: Anatomy and Function.” *Cleveland Clinic*, https://my.clevelandclinic.org/health/body/21775-circulatory-system. Accessed 13 June 2024.	

	All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results	
ESTABLISHED GOALS CCTE MCE A: Understand and apply the academic subject matter required for entrance within health science. CCTE MCE B: Disease Processes: Demonstrate the concepts of basic disease processes. CCTE MCE C: Body Systems: Compare the anatomical structures and physiological function of each body system. CCTE MCE F. Legal Awareness: Evaluate legal responsibilities, limitations, and implications of actions within the health care delivery system and perform duties according to regulations, policies, laws, and rights of clients. CCTE MCE G. Ethical Practices: Evaluate accepted ethical practices with respect to cultural, social, and ethnic differences within the health care environment.	***Transfer*** *Students will be able to independently use their learning to…* Develop life-saving skills that can make a positive impact on individuals in crisis and their local community.

CCTE MCE H. Safe and Healthy Work Practices: Analyze the existing and potential hazards to clients, co-workers, and self and prevent injury or illness through safe work practices and follow health and safety policies and procedures. CCTE MCE I. Individual and Team Responsibilities: Understand the role and responsibilities of individual members as part of the healthcare team, including the ability to promote the delivery of quality health care and interact effectively and sensitively with all members of the health care team.	***Meaning***	
	UNDERSTANDINGS *Students will understand that…* ● When administered correctly, the proper use of CPR and the Automated External Defibrillator (AED) can significantly increase the chances of saving lives. ● Effective teamwork and individual proficiency are crucial for successfully delivering high-quality CPR in emergency situations. ● Having the necessary knowledge and skills to effectively administer first aid during emergency situations is imperative.	ESSENTIAL QUESTIONS *Students will keep considering…* ● What is the significance of high-quality CPR? ● In what situations would Basic Life Support skills be applied? ● How can one ensure the maintenance of their Basic Life Support certification? ● What are the variances in protocol between administering CPR and utilizing an AED on an adult as opposed to a child? ● What resources are accessible for staying informed about updates in Basic Life Support protocols?

	Acquisition	
	Students will know…	*Students will be skilled at…*
	● Legal and ethical obligations surrounding the maintenance of certification in Basic Life Support and the provision of a high standard of care to individuals in need. ● Distinctions in care between adults and children. ● Knowledge and skills required for Basic Life Support CPR for adults and children. ● Proper use of an AED on adults and children experiencing cardiac arrest. ● Providing first aid for ill and injured individuals. ● Assisting with the administration of an EpiPen to adult or child victims experiencing anaphylaxis.	● Considering the emotional well-being of individuals in distress during emergency situations. ● Demonstrating competency in executing Basic Life Support CPR skills on adult and child victims in accordance with American Red Cross guidelines. ● Collaborating in coordination with classmates to analyze and respond thoughtfully in emergency scenarios. ● Utilizing clear and efficient communication with team members to deliver effective life-saving skills for adult and child victims.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Transfer, Meaning, Acquisition	Required skills rubric and written assessment mandated by the American Red Cross.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: American Red Cross Certification in Basic Life Support **Role for student**: Basic Life Support Trainer **Audience for student work**: Peers **Situation**: Emergency situations requiring the application of Basic Life Support techniques for adult and child victims. **Product or Performance**: Performance: Demonstrating proficiency in Basic Life Support skills on partners (conscious choking/recovery position/first aid/Epi-pen trainer) and manikins (Naloxone administration and CPR/AED skills). **Standards for Success**: Students will need to pass the American Red Cross Basic Life Support skills test and written examination with a score of 80% or higher in order to receive certification.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Reading assignments for homework ● Reviewing handbook materials and answering questions. ● Engaging in skill-building exercises during class sessions ● Participating in simulations related to emergency response scenarios ● Completing quizzes to evaluate comprehension and retention of information

Stage 3 – Learning Plan		
Code Transfer and Meaning	***Pre-Assessment*** American Red Cross quiz on fundamental CPR techniques covered in the Freshman Health 1 course	
Transfer, Meaning, Acquisition M M M T, M T, M A, T, M A, T, M A, T, M A, T, M	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* ● Students participate in a Think-Pair-Share to discuss the importance of CPR certification in the first responder field and explore the potential benefits for individuals. ● Students present their findings for group discussion. ● Teacher administers a preliminary assessment on fundamental CPR techniques. ● Students will be instructed on the process for obtaining Basic Life Support certification and the importance of maintaining certification status. ● The teacher will review the legal and ethical considerations provided by the American Red Cross. ● Students will demonstrate an understanding of the importance of legal and ethical considerations by analyzing case studies. ● The instructor will provide students with the Basic Life Support student handbook. ● Students will collaborate in small groups to define key terminology related to legal and ethical considerations. ● Students are required to read the designated pages in the American Red Cross Basic Life Support Handbook. ● The teacher will deliver information via presentations and videos on Basic Life Support	Progress Monitoring ● Teacher will review the responses from the Think-Pair-Share activity ● Teacher evaluates formative assessments ● Teacher observes students directly ● Teacher provides individual assistance ● Teacher conducts skill practice through role-play and utilizes feedback CPR manikins ● Teacher evaluates summative assessments ● Teacher offers constructive feedback on performance tasks.

	as per American Red Cross guidelines.	
A, T, M	• Practical demonstrations of Basic Life Support skills for adults and children will be conducted by the instructor, followed by practice sessions and skill assessments for participants.	
A, T, M	• Students will be expected to practice and exhibit Basic Life Support skills in accordance with the standards set by the Red Cross. • Teacher will assign small groups	
A, T, M	• Students will engage in CPR skill scenarios to demonstrate their teamwork abilities.	
T, M	• Students' proficiency in Basic Life Support skills will be evaluated using the Red Cross skills checklist document.	
A, T, M	• Comprehensive Basic Life Support Certification Test will occur in Unit 4	
	<u>Resources:</u> *American Red Cross RCLC Home*, https://www.redcrosslearningcenter.org/s/. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

CCTE MCE A: Understand and apply the academic subject matter required for entrance within health science.

CCTE MCE B: Disease Processes: Demonstrate the concepts of basic disease processes.

CCTE MCE C: Body Systems: Compare the anatomical structures and physiological function of each body system.

CCTE MCE F. Legal Awareness: Evaluate legal responsibilities, limitations, and implications of actions within the health care delivery system and perform duties according to regulations, policies, laws, and rights of clients.

CCTE MCE G. Ethical Practices: Evaluate accepted ethical practices with respect to cultural, social, and ethnic differences within the health care environment.

Transfer

Students will be able to independently use their learning to…

Develop life-saving skills that can make a positive impact on individuals in crisis and their local community.

Meaning

UNDERSTANDINGS

Students will understand that…

- When administered correctly, the proper use of CPR and the Automated External Defibrillator (AED) can significantly increase the chances of saving lives.
- Effective teamwork and individual proficiency are crucial for successfully delivering high-quality CPR in emergency situations.
- Having the necessary knowledge and skills to effectively administer first aid during emergency situations is imperative.

ESSENTIAL QUESTIONS

Students will keep considering…

- What is the significance of high-quality CPR?
- In what situations would Basic Life Support skills be applied?
- What are the variances in protocol between administering CPR and utilizing an AED on an infant victim?
- What resources are accessible for staying informed about updates in Basic Life Support protocols?

CCTE MCE H. Safe and Healthy Work Practices: Analyze the existing and potential hazards to clients, co-workers, and self and prevent injury or illness through safe work practices and follow health and safety policies and procedures. CCTE MCE I. Individual and Team Responsibilities: Understand the role and responsibilities of individual members as part of the healthcare team, including the ability to promote the delivery of quality health care and interact effectively and sensitively with all members of the health care team.	***Acquisition***	
	Students will know… ● Distinctions in care for infant victims. ● Knowledge and skills required for Basic Life Support CPR for infant victims. ● Proper use of an AED on infants experiencing cardiac arrest. ● Providing first aid for ill and injured infants. ● Assisting with the administration of an Epipen to infant victims experiencing anaphylaxis.	*Students will be skilled at…* ● Considering the emotional well-being of infants and their parent(s) or guardian(s) in distress during emergency situations. ● Demonstrating competency in executing Basic Life Support skills on infant victims in accordance with American Red Cross guidelines. ● Collaborating in coordination with classmates to analyze and respond thoughtfully in emergency scenarios relating to infant breathing and cardiac emergencies. ● Utilizing clear and efficient communication with team members to deliver effective life-saving skills for infant victims.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Transfer, Meaning, Acquisition	Required skills rubric and written assessment mandated by the American Red Cross.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: American Red Cross Certification in Basic Life Support **Role for student**: Basic Life Support Trainer **Audience for student work**: Peers **Situation**: Emergency situations requiring the application of Basic Life Support techniques for infant victims. **Product or Performance**: Performance: Demonstrating proficiency in Basic Life Support skills on infant manikins (CPR/AED skills, conscious choking/recovery position/first aid/Epi-pen trainer). **Standards for Success**: Students will need to pass the American Red Cross Basic Life Support skills test and written examination with a score of 80% or higher in order to receive certification.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Reading assignments for homework ● Reviewing handbook materials and answering questions. ● Engaging in skill-building exercises during class sessions ● Participating in simulations related to emergency response scenarios ● Completing quizzes to evaluate comprehension and retention of information

Stage 3 – Learning Plan		
Code Meaning	***Pre-Assessment*** Teacher developed a Google Form quiz focusing on Infant CPR/AED/First Aid	
Transfer, Meaning, Acquisition M A, M A, M A, T, M A, T, M A, T, M A, T, M A, T, M	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* ● Teacher administers a preliminary assessment on infant CPR/AED/First Aid skills. ● Students are required to read the designated pages in the American Red Cross Basic Life Support handbook pertaining to infant victims. ● The teacher will deliver presentations and videos on Basic Life Support as per American Red Cross guidelines. ● Practical demonstrations of Basic Life Support skills for infants will be conducted by the instructor, followed by practice sessions and skill assessments for participants. ● Students will be expected to practice and exhibit Basic Life Support skills in accordance with the standards set by the Red Cross. ● Teacher will assign small groups ● Students will engage in CPR skill scenarios to demonstrate their teamwork abilities. ● Students' proficiency in Basic Life Support skills will be evaluated using the Red Cross skills checklist document. ● Teacher will administer an American Red Cross Basic Life Support written exam and skills assessment. ● Students are required to take the American Red Cross exam and achieve a minimum score of 80% to qualify for Basic Life Support certification	Progress Monitoring ● Teacher will review the results from the pre-assessment ● Teacher evaluates formative assessments ● Teacher observes students directly ● Teacher provides individual assistance ● Teacher conducts skill practice through role-play ● Teacher evaluates summative assessments ● Teacher offers constructive feedback on performance tasks.

	(includes Infant, Child, and Adult care). Resources: *American Red Cross RCLC Home*, https://www.redcrosslearningcenter.org/s/. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

CCTE MCE A: Understand and apply the academic subject matter required for entrance within health science.

CCTE MCE D. Health Care Delivery System: Describe how the health care workers' role fits into their department, organization, and overall health care environment.

CCTE MCE E. Employability Skills: Analyze how employability skills enhance employment opportunities and job satisfaction

CCTE MCE F. Legal Awareness: Evaluate legal responsibilities, limitations, and implications of actions within the health care delivery system and perform duties according to regulations, policies, laws, and rights of clients.

CCTE MCE G. Ethical Practices: Evaluate accepted ethical practices with respect to cultural, social, and ethnic differences within the health care

Transfer

Students will be able to independently use their learning to…

Seek guidance and insight from experienced professionals in the first responder field to enhance understanding of their professional responsibilities.

Meaning

UNDERSTANDINGS
Students will understand that…

First responders are composed of a variety of skilled professionals who provide assistance to individuals during emergencies.

Communities experience positive outcomes when first responders possess a high level of training and expertise.

One of the most beneficial ways to gain insight into first responder professions is by learning from experienced individuals in the field.

ESSENTIAL QUESTIONS
Students will keep considering…

What qualities or characteristics do you believe are essential for someone to excel as a first responder?

What is the correlation between high-quality training and its effect on patient outcomes within communities?

What is the significance of communities recognizing and appreciating the vital role played by first responders?

environment.	***Acquisition***	
	Students will know… ● Diverse opportunities within the first responder field ● Reliable sources for information on healthcare careers ● Qualifications necessary for healthcare roles ● Distinctions among certification, licensure, and registration in the healthcare industry	*Students will be skilled at…* ● Identifying various roles and environments of first responders. ● Illustrating methods for accessing resources on first responder information. ● Describing the necessary physical and cognitive abilities for first responders. ● Conducting an interview with a first responder in the local community.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Transfer, Meaning, Acquisition	**Impact**: Perform comprehensive research and demonstrate a strong understanding of the first responder profession. **Content**: Develop accurate analyses and findings regarding the first responder profession. **Quality**: Conducting a formal interview with a first responder and presenting the findings to peers. **Process**: Precisely recording information obtained during interviews conducted by peers.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: Contact a first responder to schedule a formal interview in order to gain valuable insights into their profession and how they utilize their specialized skills. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: Students will choose a first responder profession based on their interests and conduct a formal interview with a professional in the field. They will prepare questions in advance and engage in a structured interview. After the interview, students will compile their findings into a presentation to share with their classmates. **Product or Performance**: Product and Performance **Standards for Success**: Contact a first responder to schedule a formal interview, interview the professional, and then present the responses to peers.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Record information from the Google Slideshow presentation regarding local first responder agencies. ● Engaging in responses to questions and readings during class. ● Participate in note-taking during guest speaker presentations. ● Writing reflections following guest speaker presentations.

Stage 3 – Learning Plan		
Code Meaning	***Pre-Assessment*** Teacher developed Google form to evaluate the familiarity of local first responders.	
Transfer, Meaning, Acquisition M M A, M A, T, M A, T, M T, M A, T, M A, T, M	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* ● Teacher introduces unit topic, “Community Outreach.” ● Students are asked to fill out a Google Form to assess their knowledge of local first responders in the community. ● Teacher then delivers a presentation via Google Slideshow on community first responders, and students are encouraged to take guided notes to enhance their understanding. ● Teacher invites local first responders to serve as guest speakers, offering valuable insights and expertise from their work in the field. ● Students actively participate by listening attentively and engaging appropriately during professional presentations. ● Teacher presents the interview assignment, which requires students to organize and conduct a professional interview with a first responder from the local community. ● Students conduct research and initiate the outreach phase of their assignment. ● Students secure a professional interview then will proceed to conduct the interview either in	Progress Monitoring ● Teacher will analyze the findings from the pre-assessment. ● Teacher will actively engage students by posing questions during the Google Slideshow. ● Teacher will distribute exit tickets to assess students’ understanding. ● Teacher will conduct observational monitoring. ● Teacher will provide individualized support as needed.

A, T, M T, M T, M	person, through Google Meet, or over the phone. ● Teacher receives evaluation from local first responders confirming the validity of the students' interview. ● Students will showcase their professional interview responses in a presentation format to their fellow classmates. ● Teacher prepares a reflective analysis for students to discuss their experiences in connecting with local professionals. ● Students submit a reflective analysis based on their interactions with local first responders and the interviews conducted with them. <u>Resources:</u> *American Red Cross RCLC Home*, https://www.redcrosslearningcenter.org/s/. "Contact Us – New Milford Police." *New Milford Police Department*, https://www.newmilfordpolice.org/contact-us-2-2/. "Volunteer Fire Departments : Town of New Milford, CT." *New Milford CT*, https://www.newmilford.org/firemarshal/volunteer-fire-departments. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Concert Chorus Curriculum

June 2024

Do Not Distribute Not BOE Approved

New Milford Board of Education

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Vision of a Graduate

Throughout their time in Concert Chorus students will consider, connect, and rehearse the characteristics identified in New Milford's Vision of a Graduate as defined by the district in 2024. Through the learning, understanding, and application of course content, students will develop the following skills:

Growth Mindset: Through the creation and monitoring of personal and group goals in addition to multiple opportunities for individual and group reflection, students will seek opportunities for personal and collective growth.

Communication: By taking an active role in this ensemble, students will learn and develop strategies for effectively working as a member of a group including active listening, advocating for themselves and their peers, collaborating with others and engaging in conversations related to a variety of musical topics and social issues.

Personal Relationships and Social Awareness: While working in sectionals and ensemble rehearsals, students will develop positive relationships with their peers and teacher while engaging in a variety of contexts. While learning a variety of music, students will also develop empathy and respect for themselves and others.

Self-Management: While working with a large group, students will learn the impact the individual has on the whole. From these experiences students will learn crucial skills related to progress monitoring, time management, preparation, and organization.

Concert Chorus ~ Course Description

The New Milford High School Choral Program emphasizes the organization, preparation, and performance of a variety of choral repertoire. Throughout their time in the choral program and the exploration of a variety of music, students will learn repertoire from a variety of languages, cultures, and peoplehoods. Through a repertoire based approach combined with a variety of musical and non-musical experiences, students will have the opportunity to develop technical and expressive skills including developing/strengthening healthy vocal technique, ear-training skills, sight-singing expertise, ensemble technique, communication skills, and one's overall musicianship.

At the time of this document's publication, the NMHS Choral Program is composed of two ensembles, the Concert Chorus and the Advanced Chorus. Both ensembles participate in a variety of learning experiences, performance opportunities, and social activities throughout the year as determined by ensemble placement. Through these experiences, chorus members will foster their individual musicianship, sense of communal responsibility, and create lasting memories with their peers. Ensemble placement is on the basis of vocal ability and overall musicianship as best fits the needs of our students and the program as a whole as determined by the choral director.

Overall, the Concert Chorus curriculum provides a sequential study for New Milford High School choral students as they create, connect, respond, and perform in the ensemble setting. This curriculum is aligned with the concepts, knowledge, and skills described in the 2014 National Core Arts Standards which Connecticut adopted in 2016. The Connecticut State Board of Education (CSBE) believes that arts learning should occur through education focused on the whole child. As music educators we strive to create artistically-literate citizens equipped with the creativity, communication, critical thinking, and overall reflection skills required of twenty first century learners. The units, learning goals, and tasks for this course are similar to that of the Advanced Chorus curriculum as these curricula are intentionally aligned to provide meaningful experiences to students at all levels. However, these courses will differ in the application of concepts. The Advanced Chorus will explore more rigorous repertoire and a greater amount of music throughout the year making the practice and execution of these concepts much different.

All students entering grades nine through twelve who enjoy singing are eligible to join the Concert Chorus. There is no music audition necessary to become a member of this ensemble however a commitment to the group, willingness to bettering oneself, and participation in singing activities is required. Through the curricular study of choral music, the Concert Chorus explores a wide variety of music from standard choral repertoire and folk songs of various cultures to more modern works and popular styles. In addition to the musicianship skills students gain throughout their time in this ensemble, students will also benefit from working as a part of a team as they collaborate with their peers towards a common goal.

Public performances after school hours are an integral part of concept mastery and are therefore a required part of this class. Rehearsals for these performances outside of school hours are also vital to the ensemble's success and are also required. In addition to these performance opportunities, New Milford High School is a member of the CMEA Northern Region which allows students the opportunity to audition and participate in Region and All-State auditions and festivals. Students are encouraged to participate in these activities as a vehicle for reinforcing and further developing the skills and concepts they have learned in their school based ensemble.

Pacing Guide

Unit Title	Duration
Unit 1: Vocal Technique	Embedded throughout the course
Unit 2: Ensemble Skills	Embedded throughout the course
Unit 3: Music Literacy	Embedded throughout the course
Unit 4: Informing Music Expression	Embedded throughout the course
Unit 5: Teamwork and Meaningful Collaboration	Embedded throughout the course

UbD Template 2.0

Unit 1: Vocal Technique

ESTABLISHED GOALS

MU:Pr5.3.E.Ia Develop strategies to address expressive challenges in a varied repertoire of music, and evaluate their success using feedback from ensemble peers and other sources to refine performances.

MU:Pr6.1.E.Ia Demonstrate attention to technical accuracy and expressive qualities in prepared and improvised performances of a varied repertoire of music representing diverse cultures, styles, and genres.

CASEL Standard -
Self-Management -
The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.

Transfer

Students will be able to independently use their learning to…

- Develop and refine artistic techniques and work for presentation.
- Convey meaning through the presentation of artistic work.

Meaning

UNDERSTANDINGS

Students will understand that…

- Performers' interest in and knowledge of musical works, understanding of their own technical skill, and the context for a performance influence the selection of repertoire.
- Appropriate, skill based vocal technique is fundamental to the performance of choral music.
- Appropriate vocal timbre will differ for varying genres of music.
- Musicians evaluate and refine their work through openness to new ideas, persistence, and the application of appropriate criteria.
- To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria.

ESSENTIAL QUESTIONS

Students will keep considering…

- How do musicians improve the quality of their creative work?
- When is a performance judged ready to present?
- How do musicians improve the quality of their performance?
- Why are correct posture, breath support, and vowel shape essential for achieving healthy vocal technique and an overall resonant sound?
- What are the physical characteristics necessary for good vocal technique?
- How does understanding the fundamentals of vocal production improve my efficacy when singing in choir?
- How does 'proper vocal technique' differ between genres?

	Acquisition	
	Students will know… ● proper vowel shapes for singing ● proper vowel placement for singing ● tools for developing and maintaining intonation ● proper breath support and breathing techniques ● healthy resonance and tone production ● singing posture ● tools for maintaining vocal health ● resonance modifications needed throughout their range ● passaggio points within their voice part ● self-evaluation tools to improve their craft	*Students will be skilled at…* ● producing clear and tall vowels ● producing clearly defined pitches ● performing vocal music passages with accurate intonation ● performing vocal passages with accurate rhythm ● executing crisp consonants and clear diction ● producing a focused, resonant tone throughout their range ● navigating smoothly throughout their range including passaggio points ● sustaining and implementing proper breath support throughout their range ● utilizing their tonal memory to repeat melodic passages ● demonstrating proper singing posture while sitting or standing on a consistent basis ● executing technical and expressive elements of music for a successful performance ● applying teacher, peer, and personal feedback to refine performance

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
Acquisition Acquisition Meaning/Transfer Acquisition Acquisition Meaning/Transfer Meaning Acquisition Meaning/Transfer Meaning Transfer	Students will be assessed according to a NMHS written rubric showing mastery of the following indicators: Scales ● pitch accuracy. ● rhythmic accuracy. ● tone quality. Repertoire ● pitch accuracy. ● rhythmic accuracy. ● tone quality. ● proper diction (clear vowels and crisp consonants) ● proper singing posture throughout the performance. ● proper breath support and control throughout the performance. ● a refined sense of expression/interpretation. Student successfully completes the performance task indicating knowledge of the subject and proper etiquette throughout.	PERFORMANCE TASK(S): SINGING ASSESSMENT **Goal:** Students will sing two scales (key determined by voice part) and a developmentally appropriate solo or an excerpt of ensemble repertoire. **Role:** Students will serve as the musicians. **Audience:** Teacher will serve as the adjudicator. **Situation:** You are performing/auditioning to be part of an ensemble. For this audition you must demonstrate what it means to sing with strong vocal technique by performing the assigned material to the best of your ability. **Product, Performance, and Purpose:** Individual performance **Standards and Criteria for Success:** Rubric communicating the evaluative criteria

		OTHER EVIDENCE: ● participation in class activities ● participation in sectional rehearsals ● teacher observation ● rehearsal self reflections ● student reflection on singing assessment ● informal performance assessment ● Student self-assessment and reflection

Code	***Pre-Assessment*** At the beginning of the school year, students will complete vocalizations individually or in small groups so that the teacher can observe and determine the students' current ability level as related to pitch accuracy, intonation, and timbre in and between vocal registers.	
	Summary of Key Learning Events and Instruction	**Progress Monitoring Strategies Include:** ● Observation - both visual and aural ● Questioning and listening techniques ● Class Discussions ● Targeted instruction in sectionals ● Specific feedback
Acquisition	Student participation in daily ensemble warm-up activities.	
Acquisition	Teacher leads activities defining and exemplifying proper breathing technique.	
Acquisition	Students take part in an in-class discussion on proper vocal health as led by the teacher.	
Acquisition	Student participation in group daily repertoire practice.	
Acquisition	Teacher models and students mimic different types of tone and resonance as a group, then students describe what they hear.	
Meaning	Students accurately reflect upon their performance.	
Meaning	Students individually share which rehearsal strategies helped them achieve their goals.	
Meaning	Teacher discusses proper singing posture, both while standing and sitting, through modeling correct and incorrect posture. Through trial and error, students will connect why posture is an important element of vocal technique through self-discovery and class discussion.	
Meaning	Teacher models proper vowel shaping and has students replicate. Through trial and error, students discuss how vowel shaping impacts blend and intonation.	
Meaning	Students brainstorm and the teacher reinforces technique for stagger breathing to enhance work on breath management.	

Meaning	Students alter vocal tone based on the musical genre they are performing.	
Meaning	Students respond to feedback and alter performance based on the new information.	
Transfer	Students listen to choirs and vocalists reflect upon what they hear first reflecting on their own and then discussing as a class.	
Transfer	Students demonstrate what it means to sing with correct and incorrect vocal technique and identify why each is right and wrong.	
Transfer	Teacher draws connections between skills used in previous repertoire and their application in new repertoire.	
Transfer	Students draw connections between skills used in previous repertoire and their application in new repertoire. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0

Unit 2: Ensemble Skills

ESTABLISHED GOALS

MU:Pr5.3.E.Ia Develop strategies to address expressive challenges in a varied repertoire of music, and evaluate their success using feedback from ensemble peers and other sources to refine performances.

MU:Pr6.1.E.Ia Demonstrate attention to technical accuracy and expressive qualities in prepared and improvised performances of a varied repertoire of music representing diverse cultures, styles, and genres.

MU:Re9.1.E.Ia Evaluate works and performances based on personally- or collaboratively-developed criteria, including analysis of the structure and context.

CASEL Standard - Relationship Skills - The abilities to establish and maintain healthy and supportive relationships and to effectively navigate settings with diverse individuals and groups.

Transfer

Students will be able to independently use their learning to…

- Develop and refine artistic techniques and work for presentation.
- Convey meaning through the presentation of artistic work.
- Support personal evaluation of musical works and performance(s) based on analysis, interpretation, and established criteria

Meaning

UNDERSTANDINGS

Students will understand that…

- To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria.
- Musicians judge performance based on criteria that vary across time, place, and cultures. The context and how a work is presented influences the audience response.
- The personal evaluation of musical work(s) and performance(s) is informed by analysis, interpretation, and established criteria
- Musicians evaluate and refine their work through openness to new ideas, persistence, and the application of appropriate criteria.
- Ensemble singers must effectively work together to achieve a common goal

ESSENTIAL QUESTIONS

Students will keep considering…

- How do musicians improve the quality of their performance?
- When is a performance judged ready to present?
- How do context and the manner in which musical work is presented influence audience response?
- How are balance and unified blend achieved in a choir?
- How does individual participation within an ensemble impact the group as a whole?
- How do we judge the quality of musical work(s) and performance(s)?
- How do musicians improve the quality of their creative work?
- How do choir members work together to improve the overall quality of music performance?
- What skills are needed to effectively work with a group?

	Acquisition	
	Students will know… ● the relationship of their individual voice within their section ● the relationship of their section within the entire ensemble ● proper vowel shape for choral singing ● text modifications needed for singing ● collaboration skills for successful teamwork ● proper technique for onsets and releases ● proper concert etiquette as a performer ● proper concert etiquette as an audience member ● communication skills to effectively work with others	*Students will be skilled at…* ● performing their own part within the ensemble with ensemble awareness including intonation, timing, breathing, blend, and balance ● performing with accuracy on onsets and cut-offs ● performing a variety of choral literature ● creating a uniform vowel sound within their section and the entire ensemble. ● pronouncing text to create unity of sound within the ensemble and textual understanding for the audience ● recognizing sensitivity to choral blend and balance. ● responding to the director and ensemble's interpretation of repertoire selections ● effectively following and responding to the director's conducting/gesture ● balancing and blending with other sections of the ensemble ● demonstrating proper performance etiquette during performances ● applying teacher given, peer given, or self given feedback to improve performance ● balancing personal needs with the overall needs for the group

Code	Evaluative Criteria	Assessment Evidence
Acquisition/ Meaning Transfer	Upon performing concert repertoire, students will be assessed according to a NMHS written rubric consisting of the following indicators: ● Ensemble/students perform music with attention to technical accuracy, a range of dynamic use, ensemble balance, proper intonation, expressive qualities, and accurate response to visual cues from the director. ● Students complete a performance reflection discussing both the strengths and areas of improvement for their personal performance as well as that of the ensemble.	PERFORMANCE TASK(S): CONCERT PERFORMANCE AND REFLECTION **Goal:** The goal is to perform in a concert displaying new repertoire learned and proper concert etiquette before, after, and during performances. After the performance you will reflect upon the strengths and areas of improvement for yourself and the group as a whole. **Role:** Students will serve as the performers and evaluators **Audience:** The audience is made of students' families and the school community. Students will serve as audience members for the ensembles they do not partake in. **Situation:** You will perform the repertoire we have learned in this concert cycle for a live audience. In the performance, you will showcase the refined techniques we have worked on over the course of the semester. After the performance you will complete a reflection indicating your mastery of the material. **Product, Performance, and Purpose:** Throughout the course of the year, we will learn new music together and work on ensemble skills. In their ensembles, students will perform this music and showcase how they have grown in terms of musicianship and ensemble technique. Students will reflect upon this growth both in class discussion and written reflection. **Standards and Criteria for Success:** Your work will be judged by you and your peers through a class discussion and self-reflection.

		OTHER EVIDENCE: ● informal performance assessment ● rehearsal self reflections ● teacher observation ● student researched program notes ● participation in class activities ● participation in sectional rehearsals ● Student self-assessment and reflection

Code	***Pre-Assessment*** Teacher will check for students' prior knowledge through a series of collaborative games and activities.

	Summary of Key Learning Events and Instruction	Progress Monitoring Strategies Include: ● Observation - both visual and aural ● Questioning and listening techniques ● Class Discussions ● Targeted instruction in sectionals ● Specific feedback ● Repertoire check-ins
Acquisition	Students will work in sectionals to strengthen part accuracy.	
Acquisition	Teacher models proper vowel shaping and has students replicate. Students discuss how vowel shaping impacts blend and intonation.	
Acquisition	Student performs musical selections with rhythmic accuracy.	
Acquisition	Student performs musical selection with pitch accuracy.	
Acquisition	Teacher will lead students in a discussion about proper audience etiquette.	
Acquisition	Teacher will review expectations for the ensemble in terms of overall participation.	
Acquisition	Teacher will lead students through the essential elements of meaningful reflective processes.	
Acquisition	Teacher will define means for measuring strengths and constructive feedback.	
Meaning	Students will provide examples of proper and improper audience etiquette.	
Meaning	Students will have the opportunity to conduct the ensemble on small sections of the music or warm-ups.	
Meaning	Students identify important lines and motives in the music and discuss how this impacts ensemble balance.	
Meaning	Students will follow and respond to the teacher's conducting patterns.	
Meaning	Students will communicate any problems or concerns regarding the concert schedule to the teacher in a timely manner.	
Meaning	Students will treat all members of their ensemble with respect.	

Transfer	Students will listen to other ensembles on the concert program following proper audience etiquette.	
Transfer	Students will judge their own performances and consider whether they accomplished their goals.	
Transfer	Students have the opportunity to listen to the group as an audience member and reflect upon what they are hearing.	
Transfer	Teacher will record the ensemble and playback for the class to discuss strengths and areas for improvement.	
Transfer	After performing a section of the music, students are asked to identify an area for improvement and recommend a rehearsal strategy to address it.	
Transfer	Students will apply feedback from this concert cycle in order to improve upon the next concert cycle.	
Transfer	Students write program notes outlining important information about the background of their repertoire and the skills they need to master to learn each piece. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0

Unit 3: Music Literacy

<table>
<tr><td rowspan="8">ESTABLISHED GOALS

MU:Cr3.1.E.Ia Evaluate and refine draft melodies, rhythmic passages, arrangements, and improvisations based on established criteria, including the extent to which they address identified purposes

MU:Pr4.2.E.Ia Demonstrate, using music reading skills where appropriate, how compositional devices employed and theoretical and structural aspects of musical works impact and inform prepared or improvised performances.

CCSS.ELA-LITERACY.RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific context relevant to grades 9-10 texts and topics

.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their knowledge to…

● Evaluate and refine selected musical ideas to create musical work that meets appropriate criteria

● Select, analyze, and interpret artistic work for presentation.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
● Analyzing creators’ context and how they manipulate elements of music provides insight into their intent and informs performance.
● Developing music literacy skills is fundamental to reading and understanding music and the composer's intent.</td><td>ESSENTIAL QUESTIONS
Students will keep considering…
● What are the tools that aid a musician in reading and understanding a piece of music?
● What is solfege and how do we use it to read music?
● How does understanding the structure and context of musical works inform performance?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…
● pitch tools, including solfege (using movable do and la based minor) and how to apply them in performance
● rhythm tools, including the number system, and how to apply it to standard notation and performance
● Curwen hand signs
● music vocabulary including terms regarding musical expression and tempo
● time signatures
● terminology related to reading choral scores including an understanding of system, staff, measures</td><td>Students will be skilled at…
● maintaining a steady beat
● utilizing their tonal memory to repeat melodic passages
● sight-reading simple rhythms
● sight-reading simple melodies
● decoding pitch patterns using solfege
● communicating using Curwen hand signs
● performing stylistic markings as indicated and music
● identifying and labeling pitches on a staff using either solfege or standard notation
● locating measures within a score
● identifying musical terms and notation</td></tr>
</table>

	● compositional devices such as repetition and sequencing ● strategies for marking technical attributes in their music ● technical attributes that impact performance ● tools for melodic dictation	symbols that appear in choral scores ● navigating through a choral score ● marking their music with important information for accurate execution of the musical line ● dictating simple melodies ● dictating simple rhythms ● composing simple melodies ● composing simple rhythms ● identifying major key signatures ● identifying there starting solfege syllable given the key signature

Code	Evaluative Criteria	Assessment Evidence
Acquisition/ Meaning/ Transfer	Students will be assessed according to a NMHS written rubric consisting of the following indicators: Students will complete the musical example with ● accurate pitches ● accurate rhythm	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* SIGHT-SINGING **Goal:** Given a piece of music and/or sight-reading example students have never seen before, students will be able to perform the designated selection with pitch and rhythmic accuracy. **Role:** Musician **Audience:** Students need to convince the audience (teacher) of their mastery of the musical passage. **Situation:** You are given a new piece of music to learn. Use your knowledge of music literacy, correctly perform the passage with pitch and rhythmic accuracy. **Product, Performance, and Purpose:** Musicians are tasked with understanding and learning independently. Your job is to apply your musical knowledge to the piece of music given to you. **Standards and Criteria for Success:** Rubric communicating the evaluative criteria including student ability to perform the example with accuracy.

		OTHER EVIDENCE: ● in class sight-reading participation both in warm-up and in repertoire learning ● teacher observation ● participation in class activities ● participation in sectional rehearsals ● sight-reading assessments ● ensemble performances ● singing tests ● student self-assessment and reflection

Code	***Pre-Assessment*** Students will complete an individual or class melodic sight-reading example at the beginning of the year to determine current proficiency level and plan for growth.	
	Summary of Key Learning Events and Instruction	**Progress Monitoring Strategies Include:** ● Observation - both visual and aural ● Questioning and listening techniques ● Class Discussions ● Targeted instruction in sectionals ● Individual feedback on sight-reading activities
Acquisition	Students learn how to perform a major scale on solfege.	
Acquisition	Students learn how to perform a minor scale using la based minor solfege.	
Acquisition	Students use tonal memory to accurately repeat ear training exercises as led by the teacher.	
Acquisition	Students engage with vocal warm-ups on solfege as led by the teacher.	
Acquisition	Students sing through aural training examples with accuracy.	
Acquisition	Teacher models strategies for sight-reading music.	
Acquisition	Teacher initiates steady beat for class music making.	

Acquisition	Students label their repertoire with solfege to see the correlation between the solfege syllables and the staff and continue to gain comfortability using solfege.	
Acquisition	Teacher reviews new vocabulary called for in each piece of repertoire.	
Meaning	Students accurately identify parts of the score needed for accurate reading and navigation.	
Meaning	Students maintain the steady beat throughout the musical example(s).	
Meaning	Students initiate their own steady beat for independent sight-reading examples.	
Meaning	Students participate in regular sight-reading examples in rehearsal including unison melodies and multi-part chorales.	
Meaning	Students learn Curwin hand signs and use them as a regular part of their rehearsal technique.	
Meaning	Students complete individual Sight-Reading Factory assignments on a regular basis.	
Meaning	Students identify key terms in ensemble literature.	
Meaning	Student transcribes teacher performed melodies into solfege and/or standard notation	
Meaning	Students demonstrate usage of key terms in ensemble literature.	
Meaning	Students accurately label their music with important markings for performance.	
Meaning	Students ask questions regarding markings they are unfamiliar with in their music.	

Meaning	Students discuss how composition techniques used by the composer relate to the overall meaning of the repertoire.	
Transfer	Students apply knowledge from sight-reading in the warm-up to ensemble literature.	
Transfer	Students complete new sight-reading example(s) without labeling their solfege on the score (reading directly from the staff).	
Transfer	Students follow silent directives from the teacher using Curwen hand signs.	
Transfer	Students follow expressive markings in music without prompting from the teacher.	
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UbD Template 2.0

Unit 4: Informing Musical Expression

<table>
<tr><td rowspan="4">ESTABLISHED GOALS

MU:Re8.1.E.Ia Explain and support interpretations of the expressive intent and meaning of musical works, citing as evidence the treatment of the elements of music, contexts, (when appropriate) the setting of the text, and personal research.

MU:Cn10.0.H.Ia Demonstrate how interests, knowledge, and skills relate to personal choices and intent when creating, performing, and responding to music.

CCSS.ELA-LITERACY.RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…

● Interpret intent and meaning in artistic work.
● Synthesize and relate knowledge and personal experiences to make music.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
● Through their use of elements and structures of music, creators and performers provide clues to their expressive intent.
● Musicians connect their personal interests, experiences, ideas, and knowledge to creating, performing, and responding
● Response to music is informed by analyzing context (social, cultural, and historical) and how creators and performers manipulate the elements of music.
● Understanding connections to varied contexts and daily life enhances musicians’ creating, performing, and responding.</td><td>ESSENTIAL QUESTIONS
Students will keep considering…
● How do dynamics affect the mood of a song?
● Why is historical context critical for understanding music?
● How do we discern the musical creators’ and performers’ expressive intent?
● How do musicians make meaningful connections to creating, performing, and responding?
● How do I take what is written on the page and bring it to life?
● How does using our critical listening skills allow us to provide an informed critique?
● How do expressive elements communicate an idea in a song?
● How do the other arts, other disciplines, contexts and daily life inform creating, performing, and responding to music?</td></tr>
</table>

	Acquisition	
	Students will know… ● background information about the repertoire they are performing ● how the context of a piece impacts its performance ● definitions of dynamic markings ● implementation of dynamic markings ● definitions of score markings ● implementation of score markings ● diction execution and modifications for singing	*Students will be skilled at…* ● identifying dynamic markings ● executing dynamic markings ● using dynamics to enhance song interpretation ● interpreting meaning in lyrics ● performing a diverse array of choral repertoire with expression ● performing text with the required pronunciation based on musical style ● placing emphasis on specific words within a phrase to provide further understanding of the text ● pronouncing text in a way that is understandable to the audience ● assessing a performance based on selected criteria ● analyzing and interpreting choral repertoire to create an informed performance ● connecting meaning to written music ● singing lyrics to convey meaning

Code	Evaluative Criteria	Assessment Evidence
Acquisition	Students will accurately learn music in class participating in both musical learning and other meaning-making activities to learn the piece.	PERFORMANCE TASK(S): PROGRAM NOTES
Meaning	Students will use appropriate vocabulary and terminology to reflect on their music in class.	**Goal:** Students will select a piece of repertoire we have been working on in class to further research as they write 'program notes' about the work.
Transfer	Students will create their own program notes outlining their learning, following the criteria on the teacher created rubric.	**Role:** The student will serve as the researcher and writer. **Audience:** The teacher will serve as the audience. **Situation:** You have been given several pieces of music this semester which we have begun learning and researching together. To help create a more authentic and meaningful performance, select one of our pieces to write program notes about. These program notes will better your own understanding of the music in addition to expressing the meaning behind each of our pieces to the audience at our upcoming concert. **Product, Performance, and Purpose:** We write program notes as a way to dive deeper into the music we are learning. By doing so, we create more genuine performances that are reflective of the true meaning of the piece both from the composer's intent and from our personal understanding. More specifically, well written program notes accomplish three essential tasks: 1. Provide the audience with a sense of the work's history 2. Provide the audience with a sense of your personal connection and learning takeaways from working on the selected piece. 3. Give the audience a sense of what to expect while hearing the piece. This might mean a verbal description of the piece. **Standards and Criteria for Success:** Rubric communicating the evaluative criteria.

		OTHER EVIDENCE: ● class discussion ● concert reflection ● program notes ● teacher feedback ● listening to recordings of other ensembles ● ensemble performances ● student self-assessment and reflection

Code	***Pre-Assessment***	
	Students will participate in class discussions to determine previous knowledge of their use of expression in given pieces of music to express meaning.	
	Summary of Key Learning Events and Instruction	**Progress Monitoring Strategies Include:** ● Observation - both visual and aural ● Questioning and listening techniques ● Class Discussions ● Targeted instruction in sectionals ● Specific feedback
Acquisition	Students accurately learn the technical aspect of their repertoire.	
Acquisition	Teacher brings student attention to expression markings written and implied in repertoire.	
Acquisition	Teacher introduces concert music by sharing background information on the pieces.	
Acquisition	Students identify expression markings in their music.	
Acquisition	Students learn about and study the background of the composers and pieces they are performing.	
Acquisition	Students speak through text to discern syllabic stress, important words to emphasize, and sentence phrasing.	
Acquisition	Students study the lyrics of the ensemble repertoire and discuss meaning.	
Meaning	Ensemble listens to recordings of other groups performing. Teachers asks leading questions to drive home ideas of how these groups perform the music.	
Meaning	Teacher leads class discussion about the meaning of the piece, using background information on the piece and other evidence from the music to drive the conversation.	
Meaning	Students discuss how to convey the composer's intended meaning during their performance through their singing and physical presentation.	

Meaning	Students will listen to recordings of themselves and other ensembles and consider how the groups convey meaning through their music.	
Meaning	Students will judge their own performances and consider whether they accomplished their goals.	
Meaning	Students discuss how composition techniques used by the composer relate to the overall meaning of the repertoire.	
Transfer	Students identify their own criteria of what made their performance “good” or why it is in need of improvement.	
Transfer	Students write program notes describing what they learned while working on their music that will transfer to future tasks.	
Transfer	Students connect the independent research they have conducted on the music to their findings from class.	
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Unit 5: Teamwork and Meaningful Collaboration

<table>
<tr><td rowspan="4">ESTABLISHED GOALS

MU:Cn11.0.T.Ia Demonstrate understanding of relationships between music and the other arts, other disciplines, varied contexts, and daily life.

CASEL Standards -

SELF-AWARENESS: The abilities to understand one's own emotions, thoughts, and values and how they influence behavior across contexts.

SELF-MANAGEMENT: The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.

SOCIAL AWARENESS: The abilities to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, & contexts.

RELATIONSHIP SKILLS: The abilities to establish and maintain healthy and supportive relationships and to effectively</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…

● Relate artistice ideas and works with societal, cultural, and historical context to deepen understanding</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
● Understanding connections to varied contexts and daily life enhances musicians' creating, performing, and responding.
● Recognizing their own strengths and limitations with a well grounded sense of confidence and purpose.
● Managing stress, being internally motivated, and having autonomy over one's self and their learning is essential for accomplishing personal/collective goals.
● People have the capacity to feel compassion for others, understand broader historical and social norms for behavior in different settings, and recognize family, school, and community resources and supports.
● Understanding their capacities to communicate clearly, listen actively, cooperate, work collaboratively to problem solve and negotiate conflict constructively, navigate settings with differing social and cultural demands and opportunities, provide leadership, and seek or offer help when needed.
● Considering ethical standards and safety concerns, and to evaluate the benefits and</td><td>ESSENTIAL QUESTIONS
Students will keep considering…
● How do the other arts, other disciplines, contexts and daily life inform creating, performing, and responding to music?
● How do my own strengths and limitations impact my own sense of confidence and purpose?
● How does the way I manage my stress and personal motivation impact both personal and collective goals?
● How can I show compassion for others within my family, school, and community?
● How do I communicate clearly in a way that promotes effective collaboration?
● How do my own and societal standards and social norms impact our community?</td></tr>
</table>

navigate settings with diverse individuals and groups. RESPONSIBLE DECISION-MAKING: The abilities to make caring and constructive choices about personal behavior and social interactions across diverse situations.	consequences of various actions for personal, social, and collective well-being.	
	Acquisition	
	Students will know… ● effective collaboration skills ● planning and organization skills ● the impact of emotions and critical thinking on decision making ● conflict resolution skills ● societal norms including classroom, performance, and audience etiquette ● the impact of individuals on collective goals ● leadership skills ● self-advocacy skills ● peer-advocacy skills ● critical thinking skills ● interpersonal and community building skills ● the relationship between actions, decision-making and consequences ● emotional regulation skills ● the impact of the individual on the whole	*Students will be skilled at…* ● integrating their own identities into the classroom ● identifying and regulating their own emotions ● exploring the impact of biases ● identifying stress-management strategies ● exhibiting self-discipline and self-motivation ● setting personal and collective goals ● demonstrating personal and collective agency ● considering others' strengths and perspectives ● demonstrating empathy and compassion for others ● understanding the influences of systems on behavior ● communicating effectively ● developing and maintaining positive relationships ● demonstrating cultural competency ● practicing teamwork and collaborative problem-solving ● resisting negative social pressure ● showing leadership in groups ● seeking or offering support and help when needed ● demonstrating curiosity and open-mindedness ● identifying solutions for personal and social problems ● learning to make a reasoned judgment based on information, data, facts ● anticipating, evaluating, and being accountable for consequences of one's actions ● recognizing how critical thinking skills are used both inside & outside of school ● reflecting on one's role to promote personal, family, and community well-being ● evaluating personal, interpersonal, community, and institutional impacts

★ The above information has been transferred, adapted, and/or based on Casel's SEL Framework and the 2014 NAfME national standards.

Code	Evaluative Criteria	Assessment Evidence
Acquisition/ Meaning Transfer	At appropriate points throughout the year, students will be assessed based on the following indicators: ● Students' ability to name personal goals, responsible actions, and areas for growth. ● Students' ability to name and demonstrate growth throughout the year.	PERFORMANCE TASK(S): UNDERSTANDING PERSONAL AND COLLECTIVE RESPONSIBILITY REFLECTION **Goal:** Students will identify areas of personal growth for the year as related to either their musicianship and/or character development. **Role:** Students will serve as their own evaluators with teacher guidance as needed. **Audience:** Teacher will monitor student reflections and engage in conversations with students as needed. **Situation:** Throughout the school year, there will be a number of opportunities for students to experience both personal and musical growth including individual and class discussions and written reflections. Students will define areas for success and potential for growth. **Product, Performance, and Purpose:** Throughout the course, students will complete self-reflections where they will have the opportunity to reflect on their application of these skills throughout a set period of time. **Standards and Criteria for Success:** Your work will be judged by you and your peers through a class discussion and self-reflection. Teacher will provide feedback to guide growth as needed.

		OTHER EVIDENCE: ● class discussions ● concert reflection ● teacher feedback ● student self-assessment and reflection

Code	***Pre-Assessment***	
	At the beginning of the school year students will engage in a number of carefully crafted activities to illustrate their effectiveness with care to effective communication, self-control, social awareness, and overall collaborative skills.	
	Summary of Key Learning Events and Instruction	**Progress Monitoring Strategies Include:** ● Observation ● Questioning and listening techniques ● Class Discussions ● Targeted instruction in sectionals ● Specific feedback
Acquisition	Teacher will program music from a variety of backgrounds and cultural perspectives.	
Acquisition	Teacher will create lessons for students to gain understanding of the backgrounds of their music.	
Acquisition	Teacher will provide students and families with a chorus handbook or other method for explaining key policies and information for the year.	
Acquisition	Students will participate in class discussions regarding expectations and responsibilities.	
Acquisition	Teacher will guide goal setting conversation.	
Acquisition	Teacher will elect section leaders to ensure effective section time (with student input where effective).	
Acquisition	Teacher will emphasize the importance of cooperation, following due dates, and other collaborative skills.	
Meaning	Students will identify personal and collective strengths and areas for growth.	
Meaning	Students will learn music from a variety of backgrounds and cultural perspectives.	
Meaning	Students will work in groups to learn new music, leaning on each of their strengths.	
Meaning	Students will write program notes indicating their new learning.	

Transfer	Students will work together to resolve issues.	
Transfer	Students will take part in age/program appropriate decision making as determined by the teacher.	
Transfer	Students will apply new learning to new semesters, school years, and other life events. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

ESL 1

Ashley Dovale

June 2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Grades 9 - 12

The English as a Second Language (ESL) 1 class is a full year course in New Milford High School that addresses the needs of students who do not speak English as their primary language, those students who have limited English vocabulary, and those who require development in English language proficiency. The goals of the ESL 1 class are to enable Multilingual Learners (MLs) to acquire English language skills that are necessary for social interaction with peers, essential to their academic success in the classroom, and fundamental to becoming a productive citizen in society. The course does this by focusing on the four modalities of language acquisition: listening, speaking, reading, and writing with repeated exposure. All components of this course frame the education of MLs from an assets-based perspective, meaning that it focuses on the strengths that diverse students bring to the classroom. Throughout the course MLs will also develop an understanding and awareness of American culture and practices.

Vision of a Graduate

Many lessons in ESL 1 connect with the characteristics identified in New Milford's Vision of a Graduate.

Critical Thinking - Multilingual Learners (MLs) will engage in critical thinking throughout this course. Critical thinking encourages students to consider issues from multiple perspectives and debate contrasting arguments. Critical thinking is important for a student's personal and professional growth. MLs will learn how to express their opinions and beliefs with logical and reasonable support. This will support the development of oral language, reading, listening and writing skills.

Communication - In an ESL class, building communication skills is paramount to fostering language proficiency and cultural integration. By engaging MLs in various speaking and listening activities, providing opportunities for meaningful interactions, and encouraging practice both inside and outside the classroom, educators can empower MLs to express themselves effectively, gain confidence in their language abilities, and navigate real-world communication with ease. Effective communication skills not only enhance language acquisition but also promote cross-cultural understanding and collaboration, preparing students for success in diverse personal and professional settings.

Positive Relationships - In a classroom filled with MLs, being culturally responsive while cultivating positive relationships is foundational to creating an inclusive and supportive learning environment. Establishing rapport based on respect, empathy, and

understanding helps bridge linguistic and cultural barriers, fostering a sense of belonging and community among students from diverse language backgrounds. Positive relationships not only enhance social and emotional well-being but also contribute to academic success, engagement, and overall growth for MLs in the classroom.

Growth Mindset - Embracing a growth mindset in the ESL classroom is transformative for both educators and students, shaping attitudes towards language learning and personal development. By promoting the belief that abilities can be developed through dedication and hard work, educators empower MLs to view challenges as opportunities for growth rather than obstacles. Encouraging persistence, resilience, and a willingness to take risks in language acquisition nurtures a culture of continuous improvement and self-efficacy among learners. Cultivating a growth mindset in the ESL classroom not only enhances language proficiency but also instills valuable life skills such as problem-solving, critical thinking, and adaptability, equipping students for success in an ever-evolving global society.

Social Awareness - Social awareness plays a vital role in fostering empathy, understanding, and respect among students from diverse cultural and linguistic backgrounds. By integrating cultural responsiveness educators can cultivate students' ability to appreciate and navigate the complexities of a multicultural world. Promoting social awareness not only enhances language skills but also nurtures students' sense of empathy, tolerance, and intercultural competence.

Pacing Guide

Get Reading! & Get Reading! *Unit # - Name*	**Pacing in School Days** *(only A or B days)*	**Connecticut English Language Proficiency (CELP) Standards** *with Correspondences to K–12 Practices and Connecticut Core Standards*
Get Ready for English! *Pages 1 - 6* **See Resources*	5 days & 1 buffer	*Introductory Unit*
Unit 1 - Introductions *Pages 7 - 42*	17 days & 1 buffer	**CELP.9-12. 1, 3, 6, & 10** CELP Standards
Unit 2 - At School *Pages 43 - 78*	17 days & 2 buffer	**CELP.9-12. 1, 2, 4, & 9** CELP Standards
Unit 3 - In the Classroom *Pages 79 - 114*	17 days & 1 buffer	**CELP.9-12. 1, 2 ,4 ,7, & 8** CELP Standards
Unit 4 - My Day *Pages 115 - 150*	17 days & 0 buffer	**CELP.9-12. 1, 2, 3, 5, & 10** CELP Standards
Unit 5 - My Class Schedule *Pages 151 - 188*	11 days & 1 buffer	**CELP.9-12. 1, 2 ,4, 6, & 8** CELP Standards

Stage 1 Desired Results

ESTABLISHED GOALS

CELP.9-12. 1: Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing

CELP.9-12. 3: Speak and write about grade-appropriate complex literary and informational texts and topics

CELP.9-12. 6: Analyze and critique the arguments of others orally and in writing

CELP.9-12. 10: Make accurate use of standard English to communicate in grade appropriate speech and writing

Transfer

Students will be able to independently use their learning to…

Part A

- Think and communicate in a secondary language
- Articulate ideas in a clear and concise manner

Part B

- Discover the world of Science, Social Studies, Mathematics, Electives, and Writing

Meaning

UNDERSTANDINGS

Students will understand that…

- Greeting and introducing oneself sets the foundation for successful social interactions
- Grammar serves as the foundation of reading, writing, and communication
- Correct use of grammar will make communication effective
- Learning phonics improves pronunciation, enhances reading skills, facilitates spelling, supports listening skills, and builds vocabulary
- Effective communication builds confidence
- Introduction to content area classes is important for academic success
- The writing process helps improve the acquisition of a second language

ESSENTIAL QUESTIONS

Part A

- How do you greet people?
- What does our name mean?
- Why is it important to learn phonics?
- Why do we read?
- What is a sentence?

Part B

- When do you see and use Science?
- What is Social Studies?
- When do you see and use Math?
- What are electives?
- Why do we write?
- Why do people write online posts?

Acquisition

Students will know…

- Greetings and introductions
- Spelling skills
- Informational texts
- Consonants and short vowels
- Reading, Listening, and Writing strategies
- Knowledge of sentence structure
- The use of science and mathematics
- Areas of social studies
- Story writing

Students will be skilled at…

- Asking and answering simple *wh*-questions
- Using vocabulary to communicate ideas
- Matching oral words in pictures
- Demonstrating active listening
- Answering yes/no questions
- Making predictions about literary/informational texts and understanding the difference between them
- Understanding the relationship between sounds and letters and identifying parts of speech

		- Identifying complete sentences and using correct end punctuation and the use correct capitalization - Content area vocabulary (Science, Social Studies, Mathematics, Electives, and Writing)

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, & M	***Performance Task #1: Unit Test (for all ML levels)*** Answer key from Get Ready! Assessment Program Manual: *Page A-2**	PERFORMANCE TASK(S): For Unit 1 - there will be a unit test, a speaking performance task, and a writing performance task. These three assessments combined will target the four domains of language: Reading, Writing, Listening, and Speaking. *Students will show that they really understand evidence of…*
A, T, & M	***Speaking Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: volume, pronunciation, grammar, vocabulary, and fluency. *Page 18**	***Performance Task #1: Unit Test (for all ML levels)*** **Goal:** Students will demonstrate their understanding of key concepts and skills covered in Unit 1: Introductions, through a variety of assessment tasks. **Role:** Students are scholars tasked with applying their knowledge and skills to respond to a series of test questions.
A, T, & M	***Writing Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: capitalization, punctuation, grammar, content, and spelling. *Page 20**	**Audience:** The audience for this test is the teacher, who will assess students' comprehension and mastery of the unit content. **Situation:** Students will complete the unit test independently to showcase their learning achievements and competencies in the subject matter. **Product:** Students will provide written responses to a range of question types, including multiple-choice, short answer, and extended response questions. Students will also provide spoken/written responses to a range of listening activities. **Standards:** Students' responses should reflect a clear understanding of the unit's learning objectives and content. Accuracy, coherence, and depth in responses will be evaluated to determine students' proficiency in the subject matter. *(Teacher will use the answer key found in the assessment program manual - Page A-2*).*
	**See Resources*	***Speaking Task #1-A: For a Student with Limited or Interrupted Formal Education (SLIFE) ML or Newcomer ML*** **Goal:** The goal is to introduce yourself using the appropriate vocabulary and answer the get to know you questions using sentence frames appropriately. **Role:** New student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You are a new student who just arrived in New Milford and you are attending a welcome event. Your task is to introduce yourself to a new classmate and answer some questions for them to get to know you better. **Product:** Introduce yourself using applicable sentence frames with vocabulary from

		unit 1. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 18*).* ***Speaking Task #1-B: For Level 1 (not SLIFE or Newcomer) ML*** **Goal:** The goal is to tell a story about school using unit 1 vocabulary. **Role:** New student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You are a student who has just completed their first week of school. Your parents have asked you how your first week went. Your task is to explain the following: what classes are you taking, who are your teachers, who are your classmates, what classes do you like, and which classes are fun for you. **Product:** Tell a story using the appropriate vocabulary/sentence frames provided from Unit 1. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 18*).* *For the writing task - students can choose between Task 1-A or Task 1-B.* ***Writing Task #1-A:*** **Goal:** Welcome to school! Write a conversation between you and a new classmate. Use words provided to you in the word bank and/or your own words. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Imagine that you have walked into school and there is a new student starting. Your job is to introduce yourself and ask the new classmate questions to get to know them. **Product:** Students are providing a written response in conversation form about school, using vocabulary from Unit 1. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 20*).* ***Writing Task #1-B:*** **Goal:** Welcome to school! Write a story about your school. Use words provided to

		you in the word bank and/or your own words. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Imagine that you have gone home and your siblings asked you about your school. Using the sentence starters, tell a story about your school. Make sure to write about teachers, classmates, and classes. **Product:** Students are providing a written response about school, using vocabulary from Unit 1. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 20*).* **See Resources*
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Formative assessments such as, unit quizzes, student discourse/class discussions, exit tickets, homework, classwork, and self-assessments. Most formative assessments are provided by the Get Ready! ELD program. Others can be created and determined by the teacher based on student ability. Project: Write an online post

Stage 3 – Learning Plan

Code		
	Pre-Assessment	
A, T, & M	Students will be pre-assessed using the Unit 1 unit test. This will assist the teacher in understanding the MLs background knowledge and gaps in learning. It will also aid in understanding what parts of the unit will need more reinforcement.	
A, T, & M	Speaking Pre-assessment: Raise your hand if you know how to introduce yourself to someone new? The teacher can go around the room and have students try to introduce themselves. (Teachers can use this to pre-assess student's speaking skills and use of vocabulary).	
A, T, & M	Writing Pre-assessment: Welcome to school! Tell me about your school? What do you like/dislike? (Teachers can use this to pre-assess student's writing skills and use of vocabulary).	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* *******Teachers may choose to create word walls when introducing academic vocabulary as well as create anchor charts when introducing a new concept. Creating visual aids to assist with comprehension is very important for MLs******* **Unit 1A: Connect to Language** *Teacher's Edition Page 7-11**	Progress Monitoring **Student Discourse:** Teacher will use student participation and discourse to assess speaking skills and take note of gaps/struggles. **Check for Understanding:** Teacher will use this as an informal check for understanding and pre-assess what vocabulary students may already know or be able to identify. **Self-Assessment:** Students can self-assess by checking their responses to the Communicate activities. **Conferencing:** Teacher can pull the small groups for the project and discuss student work/progress and assist where necessary. **Formative Assessments:** Teacher can use entrance and exit tickets to assess student progress.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 7-11**	
	Unit 1A: Language in Action *Teacher's Edition Page 12-15**	
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 12-15**	
	Teacher will assess student progress: ➔ Quiz: Connect to Language & Quiz: Connect to Language in Action *page 1** of Assessment Program Manual	**Unit 1A: Connect to Language** **Classwork/Homework:** Students can complete pages 7-8* in their student practice book. Independent or group work.
	Unit 1A: Connect to Phonics *Teacher's Edition Page 16-17**	**Unit 1A: Language in Action** **Classwork/Homework:** Students can complete pages 9-10* in their student practice book. Independent or group work.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 16-17**	**QUIZ: Connect to Language and Connect to Language in Action** page 1* of Assessment Program Manual

A, T, & M	**Unit 1A: Connect to Reading** *Teacher's Edition Page 18-19* ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 18-19**	**Unit 1A: Connect to Phonics** **Classwork/Homework:** Students can complete pages 11-12* in their student practice book. Independent or group work.
A, T, & M	**Unit 1A: Connect to Grammar** *Teacher's Edition Page 20-25* ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 20-25* Teacher will assess student progress: ➔ Quiz: Connect to Grammar: Sentences and punctuation marks *page 2** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Capitalization *page 3** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Nouns *page 4** of Assessment Program Manual ➔ Quiz: Connect to Grammar: The verb be *page 5** of Assessment Program Manual	**Unit 1A: Connect to Reading** **Classwork/Homework:** Students can complete pages 13-14* in their student practice book. Independent or group work. **Unit 1A: Connect to Grammar** **Classwork/Homework:** Students can complete pages 15-16* in their student practice book. Independent or group work. **QUIZ: Connect to Connect to Grammar (Sentences and punctuation marks)** page 2* of Assessment Program Manual **Unit 1A: Connect to Grammar** **Classwork/Homework:** Students can complete pages 17-18* in their student practice book. Independent or group work. **QUIZ: Connect to Connect to Grammar (Capitalization)** page 3* of Assessment Program Manual **Unit 1A: Connect to Grammar** **QUIZ: Connect to Grammar (Nouns)** page 4* of Assessment Program Manual **Unit 1A: Connect to Grammar** **QUIZ: Connect to Grammar (The verb *be*)** page 5* of Assessment Program Manual
	Part B begins here (Connect to Content Areas)	
A, T, & M	**Unit 1B: Connect to Science** *Teacher's Edition Page 26-29** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 26-29** Teacher will assess student progress: ➔ Quiz: Connect to Science *page 6** of Assessment Program Manual	**Unit 1B: Connect to Science** **Classwork/Homework:** Students can complete pages 19-20* in their student practice book. Independent or group work. **QUIZ: Connect to Science** page 6* of Assessment Program Manual
A, T, & M	**Unit 1B: Connect to Social Studies** *Teacher's Edition Page 30-33** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 30-33** Teacher will assess student progress: ➔ Quiz: Connect to Social Studies *page 7** of Assessment Program Manual	**Unit 1B: Connect to Social Studies** **Classwork/Homework:** Students can complete pages 21-22* in their student practice book. Independent or group work. **QUIZ: Connect to Social Studies** page 7* of Assessment Program Manual
A, T, & M	**Unit 1B: Connect to Mathematics** *Teacher's Edition Page 34-37** ➔ The teacher should use the Teacher's Edition to follow the specific	

	lesson structure. ➔ Students respond as per instructions on *Pages 34-37** Teacher will assess student progress: ➔ Quiz: Connect to Math *page 8** of Assessment Program Manual	**Unit 1B: Connect to Mathematics** **Classwork/Homework:** Students can complete pages 23-24* in their student practice book. Independent or group work. **QUIZ: Connect to Mathematics** page 8* of Assessment Program Manual
A, T, & M	**Unit 1B: Connect to Electives** *Teacher's Edition Page 38-39** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 38-39** Teacher will assess student progress: ➔ Quiz: Connect to Electives *page 9** of Assessment Program Manual	**Unit 1B: Connect to Electives** **Classwork/Homework:** Students can complete pages 25* in their student practice book. Independent or group work. **QUIZ: Connect to Electives** page 9* of Assessment Program Manual
A, T, & M	**Unit 1B: Connect to Writing** *Teacher's Edition Page 40-41* ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 40-41**	**Unit 1B: Connect to Writing** No classwork/homework or quizzes for this section. Teacher may decide to use the writing sample (A Story About School) as a formative assessment.
A, T, & M	**Unit 1B Project:** Create An Online Post *Page 42** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Page 42** **See Resources*	**Unit 1B: Project** Students will create an online post using pictures and words to show ➔ Hello and Good-bye ➔ Your classes
A, T, & M	**END OF UNIT** ➔ Teacher will prepare students for the Unit 1 test. (*Teacher may decide to create review slides/activities based on what was taught*). Teacher will assess student progress: ➔ Unit 1 Test	**Unit 1 Test:** pages 11-16* of Assessment Program Manual **Speaking Performance Task** pages 17-18* of Assessment Program Manual **Writing Performance Task** pages 19-20* of Assessment Program Manual
	<u>Resources:</u> Get Ready! by Vista Higher Learning, Inc. - Teacher's Edition - ISBN: 978-1-54331-617-9 - Student Book (Textbook) - ISBN: 978-1-54331-615-5 - Student Practice Book (Workbook) - ISBN: 978-1-54331-619-3 - Assessment Program Manual - ISBN: 978-1-54331-621-6 - Digital Platform (Supersite) - vhlcentral.com	*For the performance tasks please see Stage 2

	All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

CELP.9-12. 1: Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing

CELP.9-12. 2: Participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions

CELP.9-12. 4: Construct grade-appropriate oral and written claims and support them with reasoning and evidence

CELP.9-12. 9: Create clear and coherent grade-appropriate speech and text

Transfer

Students will be able to independently use their learning to…

Part A

- Think and communicate in a secondary language
- Articulate ideas in a clear and concise manner

Part B

- Discover the world of Science, Social Studies, Mathematics, Music, and Writing

Meaning

UNDERSTANDINGS

Students will understand that…

- Vocabulary is a building block of communication and helps build oral, reading, writing, and listening skills
- Grammar serves as the foundation of language skills
- The writing process helps improve the acquisition of a second language and helps your write better
- Academic vocabulary supports success in content area classes
- Being a good citizen builds character
- Music education opens doors for children
- Mathematics sustains thinking critically and analyzing situations

ESSENTIAL QUESTIONS

Part A

- How does learning vocabulary help you?
- How does a video help you understand spoken language?
- What makes one word sound different from another word?
- What do you need to think about before, during, and after you read?
- How does learning grammar help you speak better?

Part B

- What is Earth's place in the universe?
- What is a good citizen?
- How can you use mathematics to make sense of your world at school?
- Why is music important to teenagers?
- How does using the writing process help you write?

Acquisition

	Students will know… - Consonants and short vowels - Reading, Listening, and Writing strategies - Sentence structure - Exchanging information and ideas for communication - Pictures/Diagrams help with understanding/comprehension - Academic and content area vocabulary - Civics - Data collection	*Students will be skilled at…* - Identifying places/locations - Using vocabulary to communicate ideas - Matching oral words in pictures - Demonstrating active listening - Inferring by looking at pictures - Using visuals and contextual support - Applying reading strategies - Using correct capitalization - Identifying parts of speech - Understanding what it means to be a good citizen - Gathering data to make predictions - Using diagrams to build understanding

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, & M	***Performance Task #1: Unit Test (for all ML levels)*** Answer key from Get Ready! Assessment Program Manual: *Page A-4**	PERFORMANCE TASK(S): For Unit 2 - there will be a unit test, a speaking performance task, and a writing performance task. These three assessments combined will target the four domains of language: Reading, Writing, Listening, and Speaking. *Students will show that they really understand evidence of…*
A, T, & M	***Speaking Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: volume, pronunciation, grammar, vocabulary, and fluency. *Page 38**	***Performance Task #1: Unit Test (for all ML levels)*** **Goal:** Students will demonstrate their understanding of key concepts and skills covered in Unit 2: At School, through a variety of assessment tasks. **Role:** Students are scholars tasked with applying their knowledge and skills to respond to a series of test questions.
A, T, & M	***Writing Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: capitalization, punctuation, grammar, content, and spelling. *Page 40**	**Audience:** The audience for this test is the teacher, who will assess students' comprehension and mastery of the unit content. **Situation:** Students will complete the unit test independently to showcase their learning achievements and competencies in the subject matter. **Product:** Students will provide written responses to a range of question types, including multiple-choice, short answer, and extended response questions. Students will also provide spoken/written responses to a range of listening activities. **Standards:** Students' responses should reflect a clear understanding of the unit's learning objectives and content. Accuracy, coherence, and depth in responses will be evaluated to determine students' proficiency in the subject matter. *(Teacher will use the answer key found in the assessment program manual - Page A-4*).*
	**See Resources*	***Speaking Task #1-A: For a Student with Limited or Interrupted Formal Education (SLIFE) ML or Newcomer ML*** **Goal:** The goal is to explain where places are located using the map on page 60* in your student book. **Role:** Student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You are a student helping a new classmate who does not know where places are in your school. **Product:** Respond to questions using the map and applicable vocabulary from Unit

		2. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 38*).* ***Speaking Task #1-B: For Level 1 (not SLIFE or Newcomer) ML*** **Goal:** The goal is to have a conversation about people and places in your school. **Role:** Student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Your friends from another district want to learn about your school. You should explain your school using the map and sentence starters from the word to use box. **Product:** Respond to questions using the map and applicable vocabulary from Unit 2. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 38*).* *For the writing task - students can choose between Task 1-A or Task 1-B.* ***Writing Task #1-A:*** **Goal:** Write a conversation between you and a classmate. Ask where people and places are located in your school. Use words from the words to use box and/or your own words. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Your friends from another district want to learn about your school. Write a conversation explaining where people and places are located. **Product:** Students are providing a written response in conversation form about places in school, using vocabulary from Unit 2. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 40*).* ***Writing Task #1-B:*** **Goal:** Write a story about people in your school. Write about friends and school employees. Write where the people are. Use words from the words to use box

		and/or your own words. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Your friends from another district want to learn about your school. Write a conversation explaining where people and places are located. **Product:** Students are providing a written response in conversation form about places in school, using vocabulary from Unit 2. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 40*).* **See Resources*
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Formative assessments such as, unit quizzes, student discourse/class discussions, exit tickets, homework, classwork, and self-assessments. Most formative assessments are provided by the Get Ready! ELD program. Others can be created and determined by the teacher based on student ability. Project: Create an ad for your school

Stage 3 – Learning Plan

Code		
	Pre-Assessment	
A, T, & M	Students will be pre-assessed using the Unit 2 unit test. This will assist the teacher in understanding the MLs background knowledge and gaps in learning. It will also aid in understanding what parts of the unit will need more reinforcement.	
A, T, & M	Speaking Pre-assessment: Teacher will ask, "Where is the main office?" Teacher can make note of how students explain places and location (Teachers can use this to pre-assess student's speaking skills and use of vocabulary).	
A, T, & M	Writing Pre-assessment: Teacher will ask, "Where is the main office? Write a few sentences to answer this question." (Teachers can use this to pre-assess student's writing skills and use of vocabulary).	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* *******Teachers may choose to create word walls when introducing academic vocabulary as well as create anchor charts when introducing a new concept. Creating visual aids to assist with comprehension is very important for MLs******* **Unit 2A: Connect to Language** *Teacher's Edition Page 43-47**	Progress Monitoring - For all unit sections **Student Discourse:** Teacher will use student participation and discourse to assess speaking skills and take note of gaps/struggles. **Check for Understanding:** Teacher will use this as an informal check for understanding and pre-assess what vocabulary students may already know or be able to identify.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 43-47**	**Self-Assessment:** Students can self-assess by checking their responses to the Communicate activities. **Conferencing:** Teacher can pull the small groups for the project and discuss student work/progress and assist where necessary.
A, T, & M	**Unit 2A: Connect to Language in Action** *Teacher's Edition Page 48-51** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 48-51**	**Unit 2A: Connect to Language** **Classwork or Homework:** Students can complete pages 27-28* in their student practice book. They can do so as a whole group or independently.
	Teacher will assess student progress: ➔ Quiz: Connect to Language & Quiz: Connect to Language in Action *page 21** of the Assessment Program Manual	
A, T, & M	**Unit 2A: Connect to Phonics** *Teacher's Edition Page 52-53** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 52-53**	**Unit 2A: Connect to Language in Action** **Classwork or Homework:** Students can complete pages 29-30* in their student practice book. They can do so as a whole group or independently.

A, T, & M	**Unit 2A: Connect to Reading** *Teacher's Edition Page 54-55** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 54-55**	**QUIZ: Connect to Language and Connect to Language in Action** page 21* of Assessment Program Manual
A, T, & M	**Unit 2A: Connect to Grammar** *Teacher's Edition Page 56-61** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 56-61** Teacher will assess student progress: ➔ Quiz: Connect to Grammar: Singular subject pronouns *page 22** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Plural subject pronouns *page 23** of Assessment Program Manual ➔ Quiz: Connect to Grammar: The verb *be page 24** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Articles *page 25** of Assessment Program Manual	**Unit 2A: Connect to Phonics** **Classwork or Homework:** Students can complete pages 31-32* in their student practice book. They can do so as a whole group or independently. **Unit 2A: Connect to Reading** **Classwork or Homework:** Students can complete pages 33-34* in their student practice book. They can do so as a whole group or independently. **Unit 2A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 35-36* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (Singular subject pronouns)** page 22* Assessment Program Manual
A, T, & M	***Part B begins here (Connect to Content Areas)*** **Unit 2B: Connect to Science** *Teacher's Edition Page 62-65** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 62-65** Teacher will assess student progress: ➔ Quiz: Connect to Science *page 26** of the Assessment Program Manual	**Unit 2A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 37-38* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (Plural subject pronouns)** page 23* Assessment Program Manual **Unit 2A: Connect to Grammar** **QUIZ: Connect to Grammar (The verb *be*)** page 24* Assessment Program Manual
A, T, & M	**Unit 2B: Connect to Social Studies** *Teacher's Edition Page 68-71** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 68-71** Teacher will assess student progress: ➔ Quiz: Connect to Social Studies *page 27** of Assessment Program Manual	**Unit 2A: Connect to Grammar** **QUIZ: Connect to Grammar (Articles)** page 25* Assessment Program Manual **Unit 2B: Connect to Science** **Classwork or Homework:** Students can complete pages 39-40* in their student practice book. They can do so as a whole group or independently.
	Unit 2B: Connect to Mathematics *Teacher's Edition Page 70-73**	

A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 70-73** Teacher will assess student progress: ➔ Quiz: Connect to Mathematics *page 28** of Assessment Program Manual **Unit 2B: Connect to Music** *Teacher's Edition Page 74-75**	**QUIZ: Connect to Science** page 26* Assessment Program Manual **Unit 2B: Connect to Social Studies** **Classwork or Homework:** Students can complete pages 21-22* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Social Studies** page 27* of Assessment Program Manual
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 74-75** Teacher will assess student progress: ➔ Quiz: Connect to Music *page 29** of Assessment Program Manual **Unit 2B: Connect to Writing** *Teacher's Edition Page 76-77**	**Unit 2B: Connect to Mathematics** **Classwork or Homework:** Students can complete pages 43-44* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Mathematics** page 28* Assessment Program Manual
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 76-77** **Project:** Creating and Ad for your school *Page 78**	**Unit 2B: Connect to Music** **Classwork or Homework:** Students can complete pages 45* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Music** page 29* Assessment Program Manual
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Page 78** **See Resources* **END OF UNIT**	**Unit 2B: Connect to Writing** No classwork/homework or quizzes for this section. Teacher may decide to use the writing sample (An Informational Text About Your School) as a formative assessment.
A, T, & M	➔ Teacher will prepare students for the Unit 2 test. (*Teacher may decide to create review slides/activities based on what was taught*). Teacher will assess student progress: ➔ Unit 2 Test <u>Resources:</u> Get Ready! by Vista Higher Learning, Inc. - Teacher's Edition - ISBN: 978-1-54331-617-9 - Student Book (Textbook) - ISBN: 978-1-54331-615-5 - Student Practice Book (Workbook) - ISBN: 978-1-54331-619-3 - Assessment Program Manual - ISBN: 978-1-54331-621-6 - Digital Platform (Supersite) - vhlcentral.com	**Unit 2B: Project** Students will design an ad about their school using words and pictures to show ➔ The people ➔ The places ➔ The classes ➔ The activities **Unit 2 Test:** pages 31-36* of Assessment Program Manual **Speaking Performance Task** pages 37-38* of Assessment

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Stage 1 Desired Results

ESTABLISHED GOALS

CELP.9-12. 1: Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing

CELP.9-12. 2: Participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions

CELP.9-12. 4: Construct grade-appropriate oral and written claims and support them with reasoning and evidence

CELP.9-12. 7: Adapt language choices to purpose, task, and audience when speaking and writing

CELP.9-12. 8: Determine the meaning of words and phrases in oral presentations and literary and informational text

Transfer

Students will be able to independently use their learning to…

Part A

- Think and communicate in a secondary language
- Articulate ideas in a clear and concise manner

Part B

- Discover the world of Science, Social Studies, Mathematics, Art, and Writing

Meaning

UNDERSTANDINGS

Students will understand that…

- Vocabulary is a building block of communication and helps build oral, reading, writing, and listening skills
- Multimedia enhances learning by engaging different learning styles
- Grammar serves as the foundation of language skills
- The writing process helps improve the acquisition of a second language and helps your write better
- Academic vocabulary supports success in content area classes
- Poems tell about experiences, ideas, or emotions
- If you follow the engineering process, you can design new objects
- Belonging to a community gives you a sense of belonging
- Looking for structure in mathematics helps you look for patterns, solve problems, and come to conclusions faster
- Art is a way to express yourself and build creativity

ESSENTIAL QUESTIONS

Part A

- How does learning vocabulary help you become a better reader?
- What do you need to think about before, during, and after watching a video?
- What are the sounds that letters represent?
- What makes a good poem?
- How does learning grammar help you become a better reader?

Part B

- What do you think about when you design an object?
- How do you define and describe community?
- How can using the structure of mathematics help you?
- What would the world be like without art?
- Why do people write poems?
- How is a video different from a written paragraph?

Acquisition

	Students will know… - Object identification - Ask for help - Poetry and art - Object design/Engineering - Importance of community - Structure of mathematics	*Students will be skilled at…* - Identifying objects around the classroom - Listen for specific information - Draw and label diagrams - Viewing multimedia skills - Identifying the main idea - Reinforcing relationships between sounds and letters - Understanding the author's message in poetry - Answering questions with the verb *have* - Recognizing singular/plural nouns - Comprehending the importance of engineering design - Using prior knowledge for understanding - Reading signs and symbols - Looking for structure in numbers - Understanding place value - Exploring creativity and the expression of art - Writing short poems - Creating a video

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, & M	***Performance Task #1: Unit Test (for all ML levels)*** Answer key from Get Ready! Assessment Program Manual: *Page A-6**	PERFORMANCE TASK(S): For Unit 3 - there will be a unit text, a speaking performance task, and a writing performance task. These three assessments combined will target the four domains of language: Reading, Writing, Listening, and Speaking. *Students will show that they really understand evidence of…*
A, T, & M	***Speaking Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: volume, pronunciation, grammar, vocabulary, and fluency. *Page 58**	***Performance Task #1: Unit Test (for all ML levels)*** **Goal:** Students will demonstrate their understanding of key concepts and skills covered in Unit 3: In the Classroom, through a variety of assessment tasks. **Role:** Students are scholars tasked with applying their knowledge and skills to respond to a series of test questions.
A, T, & M	***Writing Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: capitalization, punctuation, grammar, content, and spelling. *Page 60**	**Audience:** The audience for this test is the teacher, who will assess students' comprehension and mastery of the unit content. **Situation:** Students will complete the unit test independently to showcase their learning achievements and competencies in the subject matter. **Product:** Students will provide written responses to a range of question types, including multiple-choice, short answer, and extended response questions. Students will also provide spoken/written responses to a range of listening activities. **Standards:** Students' responses should reflect a clear understanding of the unit's learning objectives and content. Accuracy, coherence, and depth in responses will be evaluated to determine students' proficiency in the subject matter. *(Teacher will use the answer key found in the assessment program manual - Page A-6*).*
	**See Resources*	***Speaking Task #1-A: For a Student with Limited or Interrupted Formal Education (SLIFE) ML or Newcomer ML*** **Goal:** The goal is to discuss what school supplies they have and which supplies they need. **Role:** Student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You are going shopping for school supplies. You explain to your parents which school supplies you already have and which ones you still need. **Product:** Respond to questions using the vocabulary from unit 3.

		Standards: Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 58*).* ***Speaking Task #1-B: For Level 1 (not SLIFE or Newcomer) ML*** **Goal:** The goal is to tell a story about school. **Role:** Student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You parents want to know about your school. You're going to tell a story about school using vocabulary from unit 3. **Product:** Respond to questions using the vocabulary from unit 3 and sentence starters from the words to use box. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 58*).* *For the writing task - students can choose between Task 1-A or Task 1-B.* ***Writing Task #1-A:*** **Goal:** Write a conversation between you and a friend. Tell them about what you need for school. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Your friends from another district want to learn about your school. Write a conversation explaining what school supplies you keep in your locker. **Product:** Students are providing a written response in conversation form about places in school, using vocabulary from Unit 3. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 60*).* ***Writing Task #1-B:*** **Goal:** Write about your classroom. What does the classroom have? What do students have? Use words from the box or your own words. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary.

		Situation: Your friends from another district want to learn about your school. Write a story about your classroom explaining what your classroom has and what the students in your class have. **Product:** Students are providing a written response in conversation form about places in school, using vocabulary from Unit 3. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 60*).* **See Resources*
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Formative assessments such as, unit quizzes, student discourse/class discussions, exit tickets, homework, classwork, and self-assessments. Most formative assessments are provided by the Get Ready! ELD program. Others can be created and determined by the teacher based on student ability. Project: A video about your backpack

Stage 3 – Learning Plan

Code		
	Pre-Assessment	
A, T, & M	Students will be pre-assessed using the Unit 3 unit test. This will assist the teacher in understanding the MLs background knowledge and gaps in learning. It will also aid in understanding what parts of the unit will need more reinforcement.	
A, T, & M	Speaking Pre-assessment: Teacher will ask, "What school supplies do you have?" Teacher can make note of how students use supplies vocabulary (Teachers can use this to pre-assess student's speaking skills and use of vocabulary).	
A, T, & M	Writing Pre-assessment: Teacher will ask, "What school supplies do you have? Write a few sentences to answer this question." (Teachers can use this to pre-assess student's writing skills and use of vocabulary).	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* *******Teachers may choose to create word walls when introducing academic vocabulary as well as create anchor charts when introducing a new concept. Creating visual aids to assist with comprehension is very important for MLs******* **Unit 3A: Connect to Language** *Teacher's Edition Page 80-83**	Progress Monitoring - For all unit sections **Student Discourse:** Teacher will use student participation and discourse to assess speaking skills and take note of gaps/struggles. **Check for Understanding:** Teacher will use this as an informal check for understanding and pre-assess what vocabulary students may already know or be able to identify.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 80-83**	**Self-Assessment:** Students can self-assess by checking their responses to the Communicate activities. **Conferencing:**
A, T, & M	**Unit 3A: Connect to Language in Action** *Teacher's Edition Page 84-87** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 84-87**	Teacher can pull the small groups for the project and discuss student work/progress and assist where necessary.
	Teacher will assess student progress: ➔ Quiz: Connect to Language & Quiz: Connect to Language in Action *page 41** of the Assessment Program Manual	**Unit 3A: Connect to Language** **Classwork or Homework:** Students can complete pages 47-48* in their student practice book. They can do so as a whole group or independently.
A, T, & M	**Unit 3A: Connect to Phonics** *Teacher's Edition Page 88-89** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 88-89**	**Unit 3A: Connect to Language in Action** **Classwork or Homework:** Students can complete pages 49-50* in their student practice book. They can do so as a whole group or independently.

A, T, & M	**Unit 3A: Connect to Reading** *Teacher's Edition Page 90-91** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 90-91**	**QUIZ: Connect to Language and Connect to Language in Action** page 41* of Assessment Program Manual **Unit 3A: Connect to Phonics** **Classwork or Homework:** Students can complete pages 51-52* in their student practice book. They can do so as a whole group or independently.
A, T, & M	**Unit 3A: Connect to Grammar** *Teacher's Edition Page 92-97** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 92-97** Teacher will assess student progress: ➔ Quiz: Connect to Grammar: The verb *have page 42** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Questions and answers with *have page 43** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Plural nouns *page 44** of Assessment Program Manual ➔ Quiz: Connect to Grammar: More plural nouns *page 45** of Assessment Program Manual	**Unit 3A: Connect to Reading** **Classwork or Homework:** Students can complete pages 53-54* in their student practice book. They can do so as a whole group or independently. **Unit 3A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 55-56* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (The verb *have*)** page 42* Assessment Program Manual
A, T, & M	***Part B begins here (Connect to Content Areas)*** **Unit 3B: Connect to Science** *Teacher's Edition Page 98-101** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 98-101** Teacher will assess student progress: ➔ Quiz: Connect to Science *page 46** of the Assessment Program Manual	**Unit 3A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 57-58* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (Questions and answers with *have*)** page 43* Assessment Program Manual **Unit 3A: Connect to Grammar** **QUIZ: Connect to Grammar (Plural nouns)** page 44* Assessment Program Manual
A, T, & M	**Unit 3B: Connect to Social Studies** *Teacher's Edition Page 102-105** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 102-105** Teacher will assess student progress: ➔ Quiz: Connect to Social Studies *page 47** of Assessment Program Manual	**Unit 3A: Connect to Grammar** **QUIZ: Connect to Grammar (More plural nouns)** page 45* Assessment Program Manual **Unit 3B: Connect to Science** **Classwork or Homework:** Students can complete pages 59-60* in their student practice book. They can do so as a whole group or independently.
	Unit 3B: Connect to Mathematics *Teacher's Edition Page 106-109**	

A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 106-109** Teacher will assess student progress: ➔ Quiz: Connect to Mathematics *page 48** of Assessment Program Manual **Unit 3B: Connect to Art** *Teacher's Edition Page 110-111**	**QUIZ: Connect to Science** page 46* Assessment Program Manual **Unit 3B: Connect to Social Studies** **Classwork or Homework:** Students can complete pages 61-62* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Social Studies** page 47* of Assessment Program Manual
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 110-111** Teacher will assess student progress: ➔ Quiz: Connect to Art *page 49** of Assessment Program Manual **Unit 3B: Connect to Writing** *Teacher's Edition Page 112-113**	**Unit 3B: Connect to Mathematics** **Classwork or Homework:** Students can complete pages 63-64* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Mathematics** page 48* Assessment Program Manual
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 112-113** **Project:** Creating a video about your backpack *Page 114**	**Unit 3B: Connect to Art** **Classwork or Homework:** Students can complete pages 65* in their student practice book. They can do so as a whole group or independently.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Page 114** **See Resources* **END OF UNIT**	**QUIZ: Connect to Art** page 49* Assessment Program Manual **Unit 3B: Connect to Writing** No classwork/homework or quizzes for this section. Teacher may decide to use the writing sample (An Informational Text About Your School) as a formative assessment.
A, T, & M	➔ Teacher will prepare students for the Unit 3 test. (*Teacher may decide to create review slides/activities based on what was taught*). Teacher will assess student progress: ➔ Unit 3 Test <u>Resources:</u> Get Ready! by Vista Higher Learning, Inc. - Teacher's Edition - ISBN: 978-1-54331-617-9 - Student Book (Textbook) - ISBN: 978-1-54331-615-5 - Student Practice Book (Workbook) - ISBN: 978-1-54331-619-3 - Assessment Program Manual - ISBN: 978-1-54331-621-6 - Digital Platform (Supersite) - vhlcentral.com	**Unit 3B: Project** Students will create a video with a classmate called "This is my backpack." It needs to include/show: ➔ Your name ➔ Where you are from ➔ Name of your school ➔ What's in your backpack ➔ What you have and what you need Students should present their videos to the class. **Unit 3 Test:** pages 51-56* of Assessment Program Manual

	All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	**Speaking Performance Task** pages 57-58* of Assessment Program Manual **Writing Performance Task** pages 58-60* of Assessment Program Manual *For the performance tasks please see Stage 2

Stage 1 Desired Results

ESTABLISHED GOALS

CELP.9-12. 1: Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing

CELP.9-12. 2: Participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions

CELP.9-12. 3: Speak and write about grade-appropriate complex literary and informational texts and topics

CELP.9-12. 5: Conduct research and evaluate and communicate findings to answer questions or solve problems

CELP.9-12. 10: Make accurate use of standard English to communicate in grade appropriate speech and writing

Transfer

Students will be able to independently use their learning to…

Part A

- Think and communicate in a secondary language
- Articulate ideas in a clear and concise manner

Part B

- Discover the world of Science, Social Studies, Mathematics, P.E., and Writing

Meaning

UNDERSTANDINGS

Students will understand that…

- Vocabulary is a building block of communication and helps build oral, reading, writing, and listening skills
- Multimedia enhances learning by engaging different learning styles
- Grammar serves as the foundation of language skills
- The writing process helps improve the acquisition of a second language and helps your write better
- Academic vocabulary supports success in content area classes
- Understanding the sequence of events is crucial for readers to comprehend the plot and characters effectively
- When you read, you think about what you know and what new information you are learning
- Listening closely helps you answer questions
- When you summarize a text, you tell the most important ideas
- Sound and letter relationships assist with decoding text
- Reading captions as well as using visual and

ESSENTIAL QUESTIONS

Part A

- How can you learn more vocabulary?
- Why does it help to watch a video more than once?
- How can I put sounds together to make a word?
- Why do people like to read science fiction?
- How does learning grammar help you become a better writer?

Part B

- How do clues help us know Earth's history?
- How do people use maps?
- Why is it necessary to be precise in math?
- Why is exercise important?
- Why do we read stories that are not true?
- How does talking in front of the class help you?

	contextual supports, helps with comprehension by providing additional context and reinforcing key information visually - Geography shows our place in the world and gives our location - Regular physical activity is important for health and well-being	
	Acquisition	
	Students will know… - Number identification - Time - The genre of science fiction - Earth's history - Geography skills - The writing process - Cognates	*Students will be skilled at…* - Identifying numbers - Asking and giving the time - Talking about activities - Identifying parts of the day - Identifying clues about Earth's history - Defining geography and its importance - Discussing measurements and precision - Describing physical activities - Writing a description - Listening for specific information and key words - Drawing conclusions - Match descriptions to visual representations - Produce short responses - Summarizing short texts - Consonants and short vowels - Identifying and Sequencing information - Recognizing parts of speech - Visualizing to aid in understanding - Utilizing informational text features - Applying the knowledge of cognates - Using visual and contextual supports - Analyzing texts - Estimating and measuring - Presenting information to classmates

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, & M	***Performance Task #1: Unit Test (for all ML levels)*** Answer key from Get Ready! Assessment Program Manual: *Page A-8**	PERFORMANCE TASK(S): For Unit 4 - there will be a unit text, a speaking performance task, and a writing performance task. These three assessments combined will target the four domains of language: Reading, Writing, Listening, and Speaking. *Students will show that they really understand evidence of…*
A, T, & M	***Speaking Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: volume, pronunciation, grammar, vocabulary, and fluency. *Page 78**	***Performance Task #1: Unit Test (for all ML levels)*** **Goal:** Students will demonstrate their understanding of key concepts and skills covered in Unit 4: My Day, through a variety of assessment tasks. **Role:** Students are scholars tasked with applying their knowledge and skills to respond to a series of test questions.
A, T, & M	***Writing Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: capitalization, punctuation, grammar, content, and spelling. *Page 80**	**Audience:** The audience for this test is the teacher, who will assess students' comprehension and mastery of the unit content. **Situation:** Students will complete the unit test independently to showcase their learning achievements and competencies in the subject matter. **Product:** Students will provide written responses to a range of question types, including multiple-choice, short answer, and extended response questions. Students will also provide spoken/written responses to a range of listening activities. **Standards:** Students' responses should reflect a clear understanding of the unit's learning objectives and content. Accuracy, coherence, and depth in responses will be evaluated to determine students' proficiency in the subject matter. *(Teacher will use the answer key found in the assessment program manual - Page A-8*).*
	**See Resources*	***Speaking Task #1-A: For a Student with Limited or Interrupted Formal Education (SLIFE) ML or Newcomer ML*** **Goal:** The goal is to discuss what you do at school **Role:** Student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You have completed the first month of school. Your parents want to know what you do at school? Tell them about it. **Product:** Respond to questions using the vocabulary from unit 4.

		Standards: Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 78*).* ***Speaking Task #1-B: For Level 1 (not SLIFE or Newcomer) ML*** **Goal:** The goal is to tell a story about school. **Role:** Student. **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You have completed the first month of school. Your parents want to know what you do at school? Tell them about it. **Product:** Respond to questions using the vocabulary from unit 4. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 78*).* *For the writing task - students can choose between Task 1-A or Task 1-B.* ***Writing Task #1-A:*** **Goal:** Write a story about your day at school. Use words from the box or your own words. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Your friends from another district want to learn about your school. Write a conversation explaining what a day in your school looks like. **Product:** Students are providing a written response using vocabulary from Unit 4. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 80*).* ***Writing Task #1-B:*** **Goal:** Write a science fiction story about your school. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** You are from Planet Q. You come to school. Write a science fiction story about your school. Write about what you see and who you see. What do

		you do at the school? Use words from the box or your own words. **Product:** Students are providing a written response using vocabulary from Unit 4. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 80*).* **See Resources*
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Formative assessments such as, unit quizzes, student discourse/class discussions, exit tickets, homework, classwork, and self-assessments. Most formative assessments are provided by the Get Ready! ELD program. Others can be created and determined by the teacher based on student ability. Project: Present Your School Day

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
A, T, & M	Students will be pre-assessed using the Unit 4 unit test. This will assist the teacher in understanding the MLs background knowledge and gaps in learning. It will also aid in understanding what parts of the unit will need more reinforcement.	
A, T, & M	Speaking Pre-assessment: Teacher will ask, "What do you do at school?" Teacher can make note of how students use class vocabulary (Teachers can use this to pre-assess student's speaking skills and use of vocabulary).	
A, T, & M	Writing Pre-assessment: Teacher will ask, "Tell me about your day at school? Write a few sentences to answer this question." (Teachers can use this to pre-assess student's writing skills and use of vocabulary).	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* *******Teachers may choose to create word walls when introducing academic vocabulary as well as create anchor charts when introducing a new concept. Creating visual aids to assist with comprehension is very important for MLs******* **Unit 4A: Connect to Language** *Teacher's Edition Page 116-119**	Progress Monitoring - For all unit sections **Student Discourse:** Teacher will use student participation and discourse to assess speaking skills and take note of gaps/struggles. **Check for Understanding:** Teacher will use this as an informal check for understanding and pre-assess what vocabulary students may already know or be able to identify.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 116-119**	**Self-Assessment:** Students can self-assess by checking their responses to the Communicate activities. **Conferencing:**
A, T, & M	**Unit 4A: Connect to Language in Action** *Teacher's Edition Page 120-123** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 120-123**	Teacher can pull the small groups for the project and discuss student work/progress and assist where necessary.
	Teacher will assess student progress: ➔ Quiz: Connect to Language & Quiz: Connect to Language in Action *page 61** of the Assessment Program Manual	**Unit 4A: Connect to Language** **Classwork or Homework:** Students can complete pages 67-68* in their student practice book. They can do so as a whole group or independently.
A, T, & M	**Unit 4A: Connect to Phonics** *Teacher's Edition Page 124-125** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 124-125**	**Unit 4A: Connect to Language in Action** **Classwork or Homework:** Students can complete pages 69-70* in their student practice book. They can do so as a whole group or independently.

A, T, & M	**Unit 4A: Connect to Reading** *Teacher's Edition Page 126-127** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 126-127**	**QUIZ: Connect to Language and Connect to Language in Action** page 61* of Assessment Program Manual
A, T, & M	**Unit 4A: Connect to Grammar** *Teacher's Edition Page 128-133** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 128-133** Teacher will assess student progress: ➔ Quiz: Connect to Grammar: *There is* and *there are page 62** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Verbs (with *I, you, he, she, it*) *page 63** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Telling time (part 1) *page 64** of Assessment Program Manual ➔ Quiz: Connect to Grammar: Telling time (part 2) *page 65** of Assessment Program Manual	**Unit 4A: Connect to Phonics** **Classwork or Homework:** Students can complete pages 71-72* in their student practice book. They can do so as a whole group or independently. **Unit 4A: Connect to Reading** **Classwork or Homework:** Students can complete pages 73-74* in their student practice book. They can do so as a whole group or independently. **Unit 4A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 75-76* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (*There is* and *there are*)** page 62* Assessment Program Manual
	Part B begins here (Connect to Content Areas)	**Unit 4A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 77-78* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (Verbs (with *I, you, he, she, it*)** page 63* Assessment Program Manual
A, T, & M	**Unit 4B: Connect to Science** *Teacher's Edition Page 134-137** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 134-137** Teacher will assess student progress: ➔ Quiz: Connect to Science *page 66** of the Assessment Program Manual	**Unit 4A: Connect to Grammar** **QUIZ: Connect to Grammar (Telling time (part 1))** page 64* Assessment Program Manual
A, T, & M	**Unit 4B: Connect to Social Studies** *Teacher's Edition Page 138-141** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 138-141** Teacher will assess student progress: ➔ Quiz: Connect to Social Studies *page 67** of Assessment Program Manual	**Unit 4A: Connect to Grammar** **QUIZ: Connect to Grammar (Telling time (part 2))** page 65* Assessment Program Manual
	Unit 4B: Connect to Mathematics *Teacher's Edition Page 142-145**	**Unit 4B: Connect to Science** **Classwork or Homework:** Students can complete pages 79-80* in their student practice book. They can do so as a whole group or independently.

A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 142-145** Teacher will assess student progress: ➔ Quiz: Connect to Mathematics *page 68** of Assessment Program Manual **Unit 4B: Connect to P.E.** *Teacher's Edition Page 146-147**	**QUIZ: Connect to Science** page 66* Assessment Program Manual **Unit 4B: Connect to Social Studies** **Classwork or Homework:** Students can complete pages 81-82* in their student practice book. They can do so as a whole group or independently.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 146-147** Teacher will assess student progress: ➔ Quiz: Connect to P.E. *page 69** of Assessment Program Manual **Unit 4B: Connect to Writing** *Teacher's Edition Page 148-149**	**QUIZ: Connect to Social Studies** page 67* of Assessment Program Manual **Unit 4B: Connect to Mathematics** **Classwork or Homework:** Students can complete pages 83-84* in their student practice book. They can do so as a whole group or independently.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 148-149** **Project:** Present Your School Day *Page 150**	**QUIZ: Connect to Mathematics** page 68* Assessment Program Manual **Unit 4B: Connect to P.E.** **Classwork or Homework:** Students can complete pages 85* in their student practice book. They can do so as a whole group or independently.
A, T, & M	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Page 150** **See Resources* **END OF UNIT**	**QUIZ: Connect to P.E.** page 69* Assessment Program Manual **Unit 4B: Connect to Writing** No classwork/homework or quizzes for this section. Teacher may decide to use the writing sample (An Informational Text About Your School) as a formative assessment.
A, T, & M	➔ Teacher will prepare students for the Unit 4 test. (*Teacher may decide to create review slides/activities based on what was taught*). Teacher will assess student progress: ➔ Unit 4 Test <u>Resources:</u> Get Ready! by Vista Higher Learning, Inc. - Teacher's Edition - ISBN: 978-1-54331-617-9 - Student Book (Textbook) - ISBN: 978-1-54331-615-5 - Student Practice Book (Workbook) - ISBN: 978-1-54331-619-3 - Assessment Program Manual - ISBN: 978-1-54331-621-6 - Digital Platform (Supersite) - vhlcentral.com	**Unit 4B: Project** Students will write what they do at school everyday. They will create a presentation about their day to their class. It needs to include/show: ➔ What time do you arrive at school? ➔ Who do you see first? ➔ Where do you go first? ➔ What is your first class? What time is it? Who is the teacher? ➔ What other classes do you have? Tell the time and the teacher's name.

	All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	➔ What time is lunch? Who do you see at lunch? ➔ Do you have an after-school activity? ➔ What time do you go home? Students should present their presentations to the class. **Unit 4 Test:** pages 71-76* of Assessment Program Manual **Speaking Performance Task** pages 77-78* of Assessment Program Manual **Writing Performance Task** pages 79-80* of Assessment Program Manual *For the performance tasks please see Stage 2

Stage 1 Desired Results

ESTABLISHED GOALS

CELP.9-12. 1: Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing

CELP.9-12. 2: Participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions

CELP.9-12. 4: Construct grade-appropriate oral and written claims and support them with reasoning and evidence

CELP.9-12. 6: Analyze and critique the arguments of others orally and in writing

CELP.9-12. 8: Determine the meaning of words and phrases in oral presentations and literary and informational text

Transfer

Students will be able to independently use their learning to…

Part A

- Think and communicate in a secondary language
- Articulate ideas in a clear and concise manner

Part B

- Discover the world of Science, Social Studies, Mathematics, Journalism, and Writing

Meaning

UNDERSTANDINGS

Students will understand that…

- Vocabulary is a building block of communication and helps build oral, reading, writing, and listening skills
- Multimedia enhances learning by engaging different learning styles
- Grammar serves as the foundation of language skills
- The writing process helps improve the acquisition of a second language and helps your write better
- Academic vocabulary supports success in content area classes
- Setting a purpose for reading helps focus attention and comprehension
- Asking for clarification shows active listening
- Text features support the understanding of informational texts
- Weather forecasts help people prepare for storms and other weather related events
- Immigrants bring new ideas, traditions, and cultures that help us learn and grow
- Understanding how to use mathematics tools enhances problem-solving skills and improves mathematical understanding
- The news facilitates the understanding of

ESSENTIAL QUESTIONS

Part A

- Why are the days of the week important to you?
- How do you describe weather?
- How do you decode words with initial consonant blends?
- What is the purpose of an expository text?
- Why is it important to follow the rules of grammar?

Part B

- How can weather data help us?
- Why do people move?
- How do you decide which tools to use in math?
- Why is journalism important?
- Why is it important to stay connected?
- How does working with others make you a good writer and speaker?

	world events -	
	Acquisition	
	Students will know… - Schedules and scheduling - Days of the week - Months of the year - Expository texts - Weather - Climate - Reasons people move/immigrate - Math tools - Journalism - Emailing	*Students will be skilled at…* - Talking about school schedules - Describing events - Identifying days of the week and months of the year - Setting a purpose for reading - Describing weather and understanding forecasts - Reading expository texts - Asking for clarification and practicing active listening - Recognizing contestants/consonant blends (initial, middle, and ending sounds) - Pinpointing the main idea and details of short texts - Understanding text features - Comprehending the rules of grammar - Listening for verb forms - Discussing weather and climate - Identifying reasons people move or immigrate to other places - Analyzing how historical events, ideas, technologies, and cultural practices have influenced migration patterns - Using math tools - Having awareness of graphing - Understanding the importance of journalism - Writing email messages

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, & M	***Performance Task #1: Unit Test (for all ML levels)*** Answer key from Get Ready! Assessment Program Manual: *Page A-10**	PERFORMANCE TASK(S): For Unit 5 - there will be a unit text, a speaking performance task, and a writing performance task. These three assessments combined will target the four domains of language: Reading, Writing, Listening, and Speaking. *Students will show that they really understand evidence of…*
A, T, & M	***Speaking Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: volume, pronunciation, grammar, vocabulary, and fluency. *Page 98**	***Performance Task #1: Unit Test (for all ML levels)*** **Goal:** Students will demonstrate their understanding of key concepts and skills covered in Unit 5: My Class Schedule, through a variety of assessment tasks. **Role:** Students are scholars tasked with applying their knowledge and skills to respond to a series of test questions.
A, T, & M	***Writing Task #1-A & B:*** Rubric from Get Ready! Assessment Program Manual assessing: capitalization, punctuation, grammar, content, and spelling. *Page 100**	**Audience:** The audience for this test is the teacher, who will assess students' comprehension and mastery of the unit content. **Situation:** Students will complete the unit test independently to showcase their learning achievements and competencies in the subject matter. **Product:** Students will provide written responses to a range of question types, including multiple-choice, short answer, and extended response questions. Students will also provide spoken/written responses to a range of listening activities. **Standards:** Students' responses should reflect a clear understanding of the unit's learning objectives and content. Accuracy, coherence, and depth in responses will be evaluated to determine students' proficiency in the subject matter. *(Teacher will use the answer key found in the assessment program manual - Page A-10*).*
	**See Resources*	***Speaking Task #1-A: For a Student with Limited or Interrupted Formal Education (SLIFE) ML or Newcomer ML*** **Goal:** The goal is to choose a day of the week and talk about it **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** A relative asked you to describe your schedule at school. Pick a day of the week and tell them about it. What do you do at school? What do you do outside of school? **Product:** Respond to questions using the vocabulary from unit 5.

		Standards: Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 98*).* ***Speaking Task #1-B: For Level 1 (not SLIFE or Newcomer) ML*** **Goal:** The goal is to talk about the weather this week. **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** A relative asked you to describe the weather this week since they live in another state. How do you feel about it? Use words from the box or words of your own. **Product:** Respond to questions using the vocabulary from unit 5. **Standards:** Your responses will be assessed based on volume, pronunciation, grammar, vocabulary, and fluency. *(Teacher will use rubric found in the assessment program manual - Page 98*).* *For the writing task - students can choose between Task 1-A or Task 1-B.* ***Writing Task #1-A:*** **Goal:** Write about your favorite season **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Write about your favorite season. Describe the weather. What do you do in this weather? Use words from the box or words of your own. **Product:** Students are providing a written response using vocabulary from Unit 5. **Standards:** Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 100*).* ***Writing Task #1-B:*** **Goal:** Write an email to a friend **Role:** Student **Audience:** The audience for this task is the teacher, who will assess students' comprehension and mastery of the unit vocabulary. **Situation:** Write an email to a friend talking about news from your school. Use words from the box or your own words. **Product:** Students are providing a written response using vocabulary from Unit 5.

		Standards: Your responses will be assessed based on capitalization, punctuation, grammar, content, and spelling. *(Teacher will use rubric found in the assessment program manual - Page 100*).* **See Resources*
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* Formative assessments such as, unit quizzes, student discourse/class discussions, exit tickets, homework, classwork, and self-assessments. Most formative assessments are provided by the Get Ready! ELD program. Others can be created and determined by the teacher based on student ability. Project: Report the news

Stage 3 – Learning Plan

Code		
	Pre-Assessment	
A, T, & M	Students will be pre-assessed using the Unit 5 unit test. This will assist the teacher in understanding the MLs background knowledge and gaps in learning. It will also aid in understanding what parts of the unit will need more reinforcement.	
A, T, & M	Speaking Pre-assessment: Teacher will ask, "What do you have at 8:30 (schedule)?" Teacher can make note of how students use class vocabulary (Teachers can use this to pre-assess student's speaking skills and use of vocabulary).	
A, T, & M	Writing Pre-assessment: Teacher will ask, "Tell me about your day at school, what is your schedule? Write a few sentences to answer this question." (Teachers can use this to pre-assess student's writing skills and use of vocabulary).	
A, T, & M	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* *******Teachers may choose to create word walls when introducing academic vocabulary as well as create anchor charts when introducing a new concept. Creating visual aids to assist with comprehension is very important for MLs******* **Unit 5A: Connect to Language** *Teacher's Edition Page 152-155** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 152-155** **Unit 5A: Connect to Language in Action** *Teacher's Edition Page 156-159** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 156-159** Teacher will assess student progress: ➔ Quiz: Connect to Language & Quiz: Connect to Language in Action *page 81** of the Assessment Program Manual **Unit 5A: Connect to Phonics** *Teacher's Edition Page 160-161** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 160-161**	Progress Monitoring - For all unit sections **Student Discourse:** Teacher will use student participation and discourse to assess speaking skills and take note of gaps/struggles. **Check for Understanding:** Teacher will use this as an informal check for understanding and pre-assess what vocabulary students may already know or be able to identify. **Self-Assessment:** Students can self-assess by checking their responses to the Communicate activities. **Conferencing:** Teacher can pull the small groups for the project and discuss student work/progress and assist where necessary. **Unit 5A: Connect to Language** **Classwork or Homework:** Students can complete pages 87-88* in their student practice book. They can do so as a whole group or independently. **Unit 5A: Connect to Language in Action** **Classwork or Homework:** Students can complete pages 89-90* in their student practice book. They can do so as a whole group or independently.

	Unit 5A: Connect to Reading *Teacher's Edition Page 162-165** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 162-165** **Unit 5A: Connect to Grammar** *Teacher's Edition Page 166-171** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 166-171** Teacher will assess student progress: ➔ Quiz: Connect to Grammar: Capitalization *82** of Assessment Program Manual ➔ Quiz: Connect to Grammar: The verb *be*: the forms *is* and *was page 83** of Assessment Program Manual ➔ Quiz: Connect to Grammar: The preposition *on* + days and dates *page 84** of Assessment Program Manual ➔ Quiz: Connect to Grammar: The preposition *in* + months and seasons *page 85** of Assessment Program Manual ***Part B begins here (Connect to Content Areas)*** **Unit 5B: Connect to Science** *Teacher's Edition Page 172-175** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 172-175** Teacher will assess student progress: ➔ Quiz: Connect to Science *page 86** of the Assessment Program Manual **Unit 5B: Connect to Social Studies** *Teacher's Edition Page 176-179** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 176-179** Teacher will assess student progress: ➔ Quiz: Connect to Social Studies *page 87** of Assessment Program Manual **Unit 5B: Connect to Mathematics** *Teacher's Edition Page 180-183**	**QUIZ: Connect to Language and Connect to Language in Action** page 81* of Assessment Program Manual **Unit 5A: Connect to Phonics** **Classwork or Homework:** Students can complete pages 91-92* in their student practice book. They can do so as a whole group or independently. **Unit 5A: Connect to Reading** **Classwork or Homework:** Students can complete pages 93-94* in their student practice book. They can do so as a whole group or independently. **Unit 5A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 95-96* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (Capitalization)** page 82* Assessment Program Manual **Unit 5A: Connect to Grammar** **Classwork or Homework:** Students can complete pages 97-98* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Grammar (The verb *be*: the forms *is* and *was*)** page 83* Assessment Program Manual **Unit 5A: Connect to Grammar** **QUIZ: Connect to Grammar (The preposition *on* + days and dates)** page 84* Assessment Program Manual **Unit 5A: Connect to Grammar** **QUIZ: Connect to Grammar (The preposition *in* + months and seasons)** page 85* Assessment Program Manual **Unit 5B: Connect to Science** **Classwork or Homework:** Students can complete pages 99-100* in their student practice book. They can do so as a whole group or independently.

	➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 180-183** Teacher will assess student progress: ➔ Quiz: Connect to Mathematics *page 88** of Assessment Program Manual **Unit 5B: Connect to Journalism** *Teacher's Edition Page 184-185** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 184-185** Teacher will assess student progress: ➔ Quiz: Connect to Journalism *page 89** of Assessment Program Manual **Unit 5B: Connect to Writing** *Teacher's Edition Page 186-187** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Pages 186-187** **Project:** Present Your School Day *Page 188** ➔ The teacher should use the Teacher's Edition to follow the specific lesson structure. ➔ Students respond as per instructions on *Page 188** **See Resources* **END OF UNIT** ➔ Teacher will prepare students for the Unit 5 test. (*Teacher may decide to create review slides/activities based on what was taught*). Teacher will assess student progress: ➔ Unit 5 Test <u>Resources:</u> Get Ready! by Vista Higher Learning, Inc. - Teacher's Edition - ISBN: 978-1-54331-617-9 - Student Book (Textbook) - ISBN: 978-1-54331-615-5 - Student Practice Book (Workbook) - ISBN: 978-1-54331-619-3 - Assessment Program Manual - ISBN: 978-1-54331-621-6	**QUIZ: Connect to Science** page 86* Assessment Program Manual **Unit 5B: Connect to Social Studies** **Classwork or Homework:** Students can complete pages 101-102* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Social Studies** page 87* of Assessment Program Manual **Unit 5B: Connect to Mathematics** **Classwork or Homework:** Students can complete pages 103-104* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Mathematics** page 88* Assessment Program Manual **Unit 5B: Connect to Journalism** **Classwork or Homework:** Students can complete pages 105* in their student practice book. They can do so as a whole group or independently. **QUIZ: Connect to Journalism** page 89* Assessment Program Manual **Unit 5B: Connect to Writing** No classwork/homework or quizzes for this section. Teacher may decide to use the writing sample (An Email) as a formative assessment. **Unit 5B: Project** Students will pretend to be school reporters. They will write and report a news program. They will work in groups to come up with a story, plan and write a report, and present their reports to the class. Teacher can decide to record and use it as an assessment. **Unit 5 Test:** pages 91-96* of Assessment Program Manual **Speaking Performance Task** pages 97-98* of Assessment

	- Digital Platform (Supersite) - vhlcentral.com All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	Program Manual **Writing Performance Task** pages 99-100* of Assessment Program Manual *For the performance tasks please see Stage 2

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Exercise Physiology

June 2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Exercise Physiology

Grades 10-12

Exercise Physiology is a full year course divided into two semesters. In this course, students will delve into the science behind physical activity and its impact on the human body. Through a blend of theory and practical applications, learners will acquire knowledge and skills that not only enhance their performance as athletes but also prepare them for potential career paths in the field of exercise science. Students will explore topics such as the body's response to exercise, including adaptations in cardiovascular, endocrine, and muscular systems. They will analyze the role of nutrition in fueling physical activity and optimizing performance. Additionally, students will learn about the principles of training and conditioning, including how to design effective workout programs tailored to individual needs and goals. The course will also cover the importance of recovery and rest in maximizing athletic potential, as well as strategies for injury prevention and rehabilitation. Students will gain hands-on experience through laboratory exercises and practical demonstrations, honing their skills in assessing physical fitness and performance metrics. By the end of the course, students will have a deeper understanding of how the body responds to exercise and will also be equipped with practical tools to improve their own athletic abilities. This course will lay a solid foundation for a successful career in the field of exercise physiology including the furtherment of one’s athletic career, or professional aspirations such as pursuing a career as a Coach, Physical Therapist, or Sports Scientist.

This course aligns closely with the school's vision of a graduate by fostering critical thinking, problem-solving, and self-awareness. Through an in-depth exploration of the science of physical activity and its effects on the body, students develop critical thinking skills as they analyze the intricate mechanisms behind exercise adaptations in endocrine, neurological and muscular systems. By designing personalized training programs and understanding the role of energy systems in performance optimization, students enhance their problem-solving abilities. Practical applications in injury prevention and rehabilitation instill a growth mindset, while hands-on experiences in assessing athletic performance cultivate self-awareness and management skills. Furthermore, the emphasis on recovery, rest, and social awareness in maximizing athletic potential nurtures positive relationships and communication skills essential for success in the field of exercise physiology and related professions like coaching, physical therapy, and sports science.

Pacing Guide

Unit 1: Biomechanics	3-4 Weeks
Unit 2: Endocrine Responses to Resistance Training	3-4 Weeks
Unit 3: Adaptations to Anaerobic Training Programs	3-4 Weeks
Unit 4: Administration, Scoring and Interpretation of Selected Tests	2-3 Weeks
Unit 5: Program Design for Resistance Training	5-6 Weeks
Unit 6: Program Design for Speed and Agility Training	5-6 Weeks
Unit 7: Exercise Technique for Free Weight Training	5-6 Weeks
Unit 8: Culture and History	2-3 Weeks
Exam Preparation	1-2 Weeks

Unit 1: Biomechanics

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates the ability to use movement concepts and principles (e.g., force, motion, rotation) to analyze and improve performance of self and/or others in a selected skill. (S2.H2.L1)

Demonstrates the ability to apply the terminology associated with exercise and participation in selected individual-performance activities, dance, net/wall games, target games, aquatics, and/or outdoor pursuits appropriately. (S2.H1.L1)

Demonstrates the ability to identify the structure of skeletal muscle and fiber types as they relate to muscle development. (S3.H9.L2)

Transfer

Students will be able to independently use their learning to…

Develop and use models
Test personally derived hypotheses
Use mathematics and computational thinking
Plan and carry out investigations
Engage in argument from evidence

Meaning

UNDERSTANDINGS

Students will understand that…

- Various type of levers in the musculoskeletal system impact joint biomechanics with exercise
- Resistive force and power can be measured with different exercise devices
- Different components of skeletal musculature impact biomechanics
- Factors contributing to human strength
- Biomechanics is essential for athletes and coaches to optimize training programs and prevent overuse injuries.

ESSENTIAL QUESTIONS

Students will keep considering…

- Why are biomechanical principles essential to skill performance?
- How can biomechanics help in preventing sports-related injuries?
- What is the significance of studying biomechanics in improving athletic performance?

	Acquisition	
	Students will know… ● Vocabulary related to the levers of the musculoskeletal system ● Anatomy of skeletal musculature ● Anatomical Planes and Major Body Movements ● Factors of importance for joint biomechanics with exercise ● Formulas for calculating power, work, torque, force, and velocity ● Difference between strength and power ● Researchers use advanced tools like motion capture systems and force plates to collect data for biomechanical analysis. ● Newton's Laws of Motion ● Walking patterns and common issues	*Students will be skilled at…* ● Applying the Bracketing Technique ● Calculating linear and rotational work and power ● Comparing and contrasting validity of different exercise devices ● Identifying different lever types ● Comparing how different lever types impact muscle force ● Applying functional anatomy and physics ● Drawing conclusions and engage in discussions for best practices relevant to different fitness related goals ● Interpreting biomechanical data ● Explaining muscle mechanics ● Applying biomechanical principles to sports ● Applying acquired knowledge and skills to solve real-world biomechanical challenges ● Analyzing human walking patterns to assess biomechanical issues.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Concepts applied to analysis are logical and justified **Content** - correct formulas are applied to calculate accurate results, qualitative analysis is comprehensive **Quality** - legible, neatly handwritten notes **Process** - Precise and focused conclusions are drawn	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Analyzing movement patterns and determining efficiency of movement patterns **Role:** Students will take on the role of a kinesiologist **Audience:** Both peers and the teacher **Situation:** Athletes are trying to maximize athletic performance and minimize the risk of injury and need corrective coaching through various movements. **Product and/or Performance:** Students will analyze different movements in both qualitative and quantitative measures to determine efficiency of these movements. Based on their analysis, they will draw conclusions for corrective coaching. **Standard:** Students' success will be assessed by accuracy of the application of different formulas for quantitative analysis, and the application of correct coaching cues for the qualitative analysis.
T M A, M, T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Practicing effective movement patterns ● Small and large group discussions ● Google Classroom activities and assignments ● Lab reports

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Brainstorming different factors that contribute to both injury prevention and athletic performance	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	*The teacher will demonstrate the proper gait cycle, as well as common gait issues.* *Students will assess different examples.*	Providing specific feedback, Conferencing
A, T	*The teacher will present information on different physics related formulas, concepts and terms and how they apply to sports science.* *Students will demonstrate understanding through practicing problems.*	Questioning for comprehension, Exit Tickets
A, M, T	*The teacher will demonstrate how to apply the different physics related formulas, concepts and terms for different purposes in different athletic scenarios.* *Students will test and practice the manipulation of biomechanics.*	Teacher observation Class discussion
A, M	*The teacher will demonstrate the bracketing technique in a lab environment.* *Students will practice this technique and reflect on its implications on exercise.*	Guided discovery
A, M, T	*The teacher will invite guest speakers, such as sports scientists or kinesiologists, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	
A, T	*The teacher will present information on how to interpret biomechanical data.* *Students will explore real-life case studies where biomechanical concepts are applied to analyze and improve athletic performance or prevent injuries.*	
M	*The teacher will read various research studies with the class.*	

	Students will interpret meaning from these studies.	
A	*The teacher will guide student research related to different exercise devices.* *Students will compare and contrast different devices.*	
A, M, T	*The teacher will design a laboratory simulation of different muscle levers.* *Students will experiment with different levers and the implication it has on performance output.*	
A, M	*The teacher will exhibit the thought process in analyzing biomechanics related injuries.* *Students will examine real world examples.*	
M	*The teacher will arrange field trips to sports facilities or research labs.* *Students will observe and interact with biomechanical equipment in action.* <u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates the ability to relate physiological responses to individual levels of fitness and nutritional balance. (S3.H8.L1)

Demonstrates the ability to investigate the relationships among physical activity, nutrition, and body composition. (S3.H1.L2)

Demonstrates the ability to examine moral and ethical conduct in specific competitive situations (e.g., intentional fouls, performance-enhancing substances, gambling, current events in sport). (S4.H2.L2)

Transfer

Students will be able to independently use their learning to…

Obtain, evaluate, and communicate information
Analyze and interpret data
Ask questions and define problems
Construct explanations
Make directional hypotheses
Debate

Meaning

UNDERSTANDINGS

Students will understand that…

- Different hormones have different responses to resistance exercise
- Endocrine responses to resistance exercise play a significant role in muscle growth, recovery, and overall physical performance
- Consistent resistance training can lead to adaptations in the endocrine system, improving hormone balance and overall metabolic health.
- The endocrine responses to resistance exercise can vary based on factors such as exercise intensity, volume, rest periods, and individual fitness levels.

ESSENTIAL QUESTIONS

Students will keep considering…

- How can understanding endocrine responses to resistance exercise optimize training programs?
- What is the relationship between hormones and resistance training?
- How is endocrine research going to impact the field of exercise physiology?

Acquisition

	Students will know… ● Synthesis, storage and secretion of different hormones in the body ● The General Adaptation Syndrome ● Patterns of training responses and stress in athletes ● Anabolic, Permissive, and Catabolic mechanisms ● Interactions between the nervous system and endocrine system ● Roles of receptors in mediating hormonal changes ● Categories of hormones ● Steroid hormone interactions ● Polypeptide hormone interactions ● Adaptations in the endocrine system ● Common performance enhancing drugs and the legality of these drugs	*Students will be skilled at…* ● Developing training programs that demonstrate the understanding of human endocrine responses ● Explain the physiological roles of anabolic hormones ● Describe hormonal responses to resistance exercise ● Investigate the relationships among the endocrine system and body composition. ● Critique sample training programs based on disparities between fitness related goals and endocrine responses ● Drawing conclusions and engage in discussions for best practices relevant to different desired hormonal adaptations ● Interpreting sample patient blood profile ● Examine real world examples of training methods and their implications on athlete's hormonal synthesis, storage and secretion ● Examine moral and ethical conduct in specific competitive situations (the use of performance enhancing drugs)

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Further information: Alignment with the National Strength and Conditioning Association research concepts and practice parameters. **Impact** - Proposed modifications are evidence based **Content** - Techniques are properly applied with a comprehensive explanation of the endocrine implications **Quality** - The program modifications are typed, written in a table, and free of errors. The explanation for the suggested changes are also typed with sources provided. **Process** - Detailed, evidence based claims are made for each modification	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Evaluating training programs and their implications on the human endocrine system **Role:** Students will take on the role of a strength and conditioning coach **Audience:** The teacher **Situation:** Athletes are developing chronic injuries and conditions as a result of hormonal issues. They are seeking help to assess their training program to address these issues. **Product and/or Performance:** Students will evaluate given fictional and non-fictional training programs based on hormonal concepts. Based on their assessment, they will make modifications to the program to address hormonal issues that can arise as a result of different training programs. **Standard:** Students' success will be assessed by the proper application of different techniques used to manipulate hormonal responses in the body. This will be judged in their proposed modifications to the given programs. OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Debating ethics involving performance enhancing drug use while considering the hormonal implications ● Lab reports ● Traditional quizzes and tests ● Google Classroom activities and assignments ● Small and large group discussions
M A, M, T T A, M, T M		

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Teacher checks for prerequisite and prior knowledge via warm-up and questioning activities, including what hormones they are familiar with and their role in human function.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, T	The teacher will present information on hormones, mechanisms, and muscle growth. Students will create a concept map showing the connections between topics.	Class discussions, quizzes
A, M, T	The teacher will assign groups of students to research and present a case study on a specific hormone's role in the endocrine response to resistance training. Students will research and present their findings in a jigsaw format.	Providing specific feedback to individual responses
M	The teacher will invite guest speakers, such as endocrinologists, to share their experiences and insights in the field. Students will interact with them and record valuable information and insight.	Teacher Observation
A, T	The teacher will demonstrate different exercise techniques and methods that manipulate endocrine responses in the body. Students will practice these exercise techniques and methods.	Conferencing, Polls
M, T	The teacher will create and distribute sample training programs. Students will critique the programs based on disparities between fitness related goals and endocrine responses.	Exit Tickets
A, M, T	The teacher will organize a laboratory simulation of the relationship between stress and how it impacts patterns of training. Students will experiment with different exercise equipment to measure various metrics of how stress impacts patterns of training.	

A, M	The teacher will read various research studies with the class. Students will interpret meaning from these studies.	
M, T	The teacher will propose thought provoking questions and assign students to positions for a debate. Students will debate ethical considerations related to performance enhancing drugs.	
A, M, T	The teacher will present information on pertinent blood profile markers relating to the endocrine system. Students will practice analyzing sample cases and will reflect on medical issues that can be present as a result of their profile. <u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association *Nancy Clark's Sports Nutrition Guidebook (5th Edition)* by Nancy Clark All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

[Health Education and Physical Education Connecticut State Standards]

Demonstrates the ability to relate physiological responses to individual levels of fitness and nutritional balance.
(S3.H8.L1)

Demonstrates the ability to identify the different energy systems
used in a selected physical activity (e.g., adenosine triphosphate and phosphocreatine, anaerobic glycolysis, aerobic).
(S3.H8.L2)

Demonstrates the ability to use movement concepts and principles (e.g., force, motion, rotation) to analyze and improve performance of self and/or others in a selected skill.
(S2.H2.L1)

Transfer

Students will be able to independently use their learning to…

Compare and Contrast
Construct explanations
Analyze and interpret data
Plan and carry out investigations
Design, evaluate, and/or refine a solution to a complex real-world problem

Meaning

UNDERSTANDINGS

Students will understand that…

- There are different aerobic, anatomical, physiological and performance adaptations following anaerobic training
- Anaerobic training impacts the nervous system
- Overtraining can have negative effects on different body systems
- Anaerobic training has the potential to enhance muscular strength, power, muscular endurance, flexibility and motor performance

ESSENTIAL QUESTIONS

Students will keep considering…

- How can athletes optimize their anaerobic training programs for peak performance?
- What is the effect of exercise devices on anaerobic training?
- What is the best way to avoid overtraining or detraining?
- What is the most important adaptation that comes as a result of anaerobic training?

Acquisition

Students will know…

- Neural adaptations from anaerobic training modalities
- Differences between different energy systems

Students will be skilled at…

- Differentiating between aerobic training adaptations and the anatomical, physiological,

	● Primary metabolic demands of various sports ● Adaptations of motor units ● Vocabulary terms related to bone physiology ● Common research tools to examine neural activation ● Muscle fiber adaptations as a result of anaerobic training ● Connective tissue adaptations as a result of anaerobic training ● Endocrine responses and adaptations to anaerobic training ● Cardiovascular and respiratory responses to anaerobic exercise	and performance adaptations following anaerobic training ● Discussing the central and peripheral neural adaptations to anaerobic training ● Manipulating acute training variables of a periodized program to alter bone, muscle and connective tissue ● Explaining the acute and chronic effects of anaerobic training on the endocrine system ● Applying the concept of energy systems to improve anaerobic training programs ● Differentiate between metabolic demands in different sports ● Applying the concept of neuromuscular reflex potentiation to real world examples ● Applying the principles of anaerobic training to increase bone strength ● Debating the compatibility of aerobic and anaerobic modes of training

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Effective and engaging presentation **Content** - Accurate and evidence based claims are made **Quality** - The visual diagram is aesthetically pleasing, free of errors, and has a logical arrangement **Process** - Accurate claims are made from applicable research studies	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Examining research in the field and elucidating the anatomical adaptations following anaerobic training **Role:** Students will take on the role of a researcher in the field **Audience:** Both peers and the teacher **Situation:** There is an upcoming exercise science conference in which there are researchers giving presentations to educate their peers. **Product and/or Performance:** Students will examine different research studies and create a diagram illustrating the anatomical adaptations following anaerobic training from their findings. The diagram will be presented to the class. **Standard:** Students' success will be assessed by both accuracy of content as well as being able to effectively communicate this information to their peers.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…*
A, M, T M T M, T M M, T A, M, T		Lab reports Small and large group discussions Traditional assessments (tests and quizzes) Written essays Socratic seminars Case Studies Google Classroom activities and assignments

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** The teacher will engage students with a discussion about real-world scenario in what adaptations should be prioritized for anaerobic training for a real-world athlete.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	The teacher will explain the acute and chronic effects of anaerobic training on the endocrine system. Students will research and present a case study on an athlete showcasing the endocrine system's response to anaerobic training over time.	Class discussion
A, M, T	The teacher will present information on the concept of energy systems to enhance anaerobic training programs. Students will analyze and compare the metabolic demands of different sports.	Individual whiteboard work, Polls
M, T	The teacher will facilitate a debate on the compatibility of aerobic and anaerobic training modes. Students will debate arguments both for and against the integration of aerobic and anaerobic training in an athlete's regimen.	Providing specific feedback to individual responses
A, M, T	The teacher will invite guest speakers, such as sports scientists and strength and conditioning coaches, to share their experiences and insights in the field. Students will interact with them and record valuable information and insight.	Teacher Observation
A, T	The teacher will demonstrate different modes of anaerobic training in a lab setting. Students will participate in and practice these different modes.	Conferencing
A, M, T	The teacher will model how to access reputable research studies and how	Exit Tickets

	to extract pertinent information from them. Students will access different research studies and will interpret meaning from these studies.	
A, M	The teacher will discuss neuromuscular reflex potentiation and provide real-world examples. Students will demonstrate how neuromuscular reflex potentiation can improve athletic performance through a practical demonstration.	
A, M, T	The teacher will instruct how to manipulate acute training variables in a periodized program to impact bone, muscle and connective tissue. Students will design an anaerobic training program with varying acute variables and explain the rationale for each.	
A	The teacher will demonstrate the manipulation of acute training variables in a periodized anaerobic training program. Students will practice and reflect on the differences among acute training variables.	
A, T	The teacher will demonstrate the use of anaerobic exercise devices. Students will practice using these devices.	
	<u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association *Science of Sports Training* by Thomas Kurz All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates the ability to develop and maintain a fitness portfolio (e.g., assessment scores, goals for improvement, plan of activities for improvement, log of activities being done to reach goals, timeline for improvement). (S3.H11.L2)

Demonstrates the ability to use movement concepts and principles (e.g., force, motion, rotation) to analyze and improve performance of self and/or others in a selected skill. (S2.H2.L1)

Demonstrates the ability to apply the terminology associated with exercise and participation in selected individual-performance activities, dance, net/wall games, target games, aquatics, and/or outdoor pursuits appropriately. (S2.H1.L1)

Transfer

Students will be able to independently use their learning to…

Plan and carry out investigations
Analyze and interpret data
Use evidence to make well-informed decisions
Use mathematics and computational thinking
Make measurements and record data
Engage in arguments from evidence
Ask questions and define problems

Meaning

UNDERSTANDINGS

Students will understand that…

- Different tests measure different performance indicators
- Training program successes are measured through different performance indicators
- There are factors that impact test validity
- Data can be used to adapt training programs

ESSENTIAL QUESTIONS

Students will keep considering…

- Which tests are best to measure different athletic factors such as agility, power, strength, etc.?
- How well do test scores align with sport performance?
- What is the future for test administration on athletic performance?

Acquisition

Students will know…

- Principles of test selection and administration
- Testing terminology
- Reasons for testing
- Factors that can impact the validity of results

Students will be skilled at…

- Administering test protocols properly and safely
- Statistical evaluation of test data
- Developing an athletic profile
- Compare scores with appropriate norms from

	● How energy systems influence proper testing sequence ● Measuring parameters of athletic performance ● Test protocols and scoring data	different groups ● Evaluating an athlete's area of weakness from analyzing test scores ● Safely participate in various tests

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Test battery is performed in the proper order **Content** - Tests are properly administered to maximize validity **Quality** - Results are to be recorded on paper through observation and then transferred to a typed athlete profile **Process** - Scores are precisely compared to the appropriate norms to develop a focused evaluation.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Administering a test battery in the proper order according to energy demands to determine an athlete's area of strength and weaknesses. **Role:** Students will take on the role of a strength and conditioning coach **Audience:** Both peers and the teacher **Situation:** Athletes are looking for guidance on what they need to improve on in their sport and need to be tested on different athletic factors. **Product and/or Performance:** Students will properly administer various tests to develop an athlete profile. **Standard:** Students' success will be assessed by proper test selection, test validity during administration, as well as performing the tests in the correct order (non fatiguing tests, agility, maximum power, maximum strength, sprint tests, local muscular endurance, fatiguing anaerobic capacity, and then aerobic capacity). Students will then determine areas of strength and areas of improvement for athletic performance through comparing the profile with appropriate norms.

T A, M M, T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Practicing effective movement patterns seen in the test battery ● Small and large group discussions ● Traditional quizzes and tests ● Google Classroom activities and assignments

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** The teacher will have students recall and discuss athletic based tests that they have either performed or have seen administered in the past (both in school or in other settings).	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	*The teacher will exhibit the thought process in statistical evaluation of test data.* *Students will examine real world examples.*	Providing specific feedback, Conferencing Questioning for comprehension, Exit Tickets
A, M, T	*The teacher will develop a fictional athlete profile.* *Students will analyze the profile and determine areas of need based on test scores.*	Teacher observation
A, M, T	*The teacher will demonstrate the proper test battery and relate the information to the energy systems.* *Students will justify the reasoning behind the sequence and demonstrate understanding through practice problems.*	Class discussion
A, M	*The teacher will invite guest speakers, such as sports scientists or kinesiologists, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Lab Reports
A, M, T	*The teacher will present information related to non-fatiguing tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, M, T	*The teacher will present information related to agility tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, M, T	*The teacher will present information related to power tests and demonstrate how to perform various tests.*	

	Students will practice performing the tests and reflect on which sports they are most applicable to.	
A, M, T	*The teacher will present information related to strength tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, M, T	*The teacher will present information related to sprint tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, M, T	*The teacher will present information related to local muscular endurance tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, M, T	*The teacher will present information related to fatiguing anaerobic tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, M, T	*The teacher will present information related to aerobic capacity tests and demonstrate how to perform various tests.* *Students will practice performing the tests and reflect on which sports they are most applicable to.*	
A, T	*The teacher will demonstrate how to use different exercise testing devices. Students will practice using the devices, and compare and contrast different devices.*	
M, T	*The teacher will arrange field trips to sports facilities or research labs. Students will observe and interact with testing equipment in action.* <u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association	

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Unit 5: Program Design for Resistance Training

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates the ability to analyze the components of skill related fitness in relation to life and career goals and designs an appropriate fitness program for those goals. (S3.H12.L2)

Demonstrates the ability to develop and maintain a fitness portfolio (e.g., assessment scores, goals for improvement, plan of activities for improvement, log of activities being done to reach goals, timeline for improvement). (S3.H11.L2)

Demonstrates the ability to identify types of strength exercises (isometric, concentric, eccentric) and stretching exercises (static,

Transfer

Students will be able to independently use their learning to…

Test personally derived hypotheses
Use mathematics and computational thinking
Plan and carry out investigations
Engage in argument from evidence
Construct explanations and design solutions

Meaning

UNDERSTANDINGS

Students will understand that…

- There are conditions that indicate when exercise load should be increased
- Training volume should be dictated by training status and goals
- Rest periods are determined by the training goal
- Exercise selection is determined by a number of factors

ESSENTIAL QUESTIONS

Students will keep considering…

- How close can effective resistance training programs get an athlete to their sport performance ceiling?
- How important is resistance training for field athletes?
- What does the future of resistance training look like?

proprioceptive neuromuscular facilitation (PNF), dynamic) for personal fitness development (e.g., strength, endurance, range of motion). (S3.H9.L1)	***Acquisition***	
	Students will know… ● Principles of anaerobic exercise prescription ● Vocabulary related to systematic training ● Body and limb movement patterns and muscular involvement ● Strength, power, hypertrophy and muscular endurance priorities ● Common sites for joint and muscle injury and causative factors ● Core and assistance exercises ● Structural and power exercises ● Exercises to promote recovery ● Difference between supersets and compound sets ● Terminology used to quantify mechanical work ● Terminology used to qualify mechanical work ● Repetition-Maximum Continuum ● 1RM Testing Protocol ● Rest period length assignments ● 2-for-2 Rule	*Students will be skilled at…* ● Applying the SAID principle to real world situations ● Manipulating program design variables ● Conducting a needs analysis ● Making informed exercise selections for a resistance training program ● Analyzing movements of sports ● Determining training frequency for an effective resistance training program ● Sequencing resistance exercises appropriately ● Determining the training load and repetitions in a specific resistance exercise program ● Testing maximal strength in a 1RM ● Estimating maximal strength of a 1RM ● Analyzing the amount of training volume in both sessions and total programs ● Allocating rest periods based on relative load lifted and amount of muscle mass involved in each exercise

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Training program is effective **Content** - Manipulation of variables are justified **Quality** - Training load and repetitions are clearly written in an easy to follow four week typed format **Process** - Variables are selected based on the focus of the athlete's goals and needs	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Designing a resistance training program for an athlete **Role:** Students will take on the role of a strength and conditioning coach and an athlete **Audience:** A partner and the teacher **Situation:** Athletes need a resistance training program to try to maximize athletic performance and minimize the risk of injury. **Product and/or Performance:** Students will be put in pairs and will take turns in taking on the roles of a strength and conditioning coach and also as an athlete. The strength and conditioning coach will conduct a needs analysis of the athlete, and will manipulate various program design variables to create a structured four week resistance training program. **Standard:** Students' success will be assessed by properly conducting a needs analysis, and then making informed decisions in manipulating the different variables to design an effective four week program.

T M T A, M, T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Practicing effective movement patterns ● Small and large group discussions ● Traditional written assessments ● Google Classroom activities and assignments ● Lab reports

stage 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Discussing what a typical resistance training routine might look like for high school athletes	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	*The teacher will differentiate between core and assistance exercises in resistance programs.* *Students will select core and assistance exercises for a given exercise routine.*	Providing specific feedback, Conferencing
A, T	*The teacher will present information on common sites for joint and muscle injuries in resistance training.* *Students will discuss causative factors for injuries and ways to prevent them.*	Questioning for comprehension, Exit Tickets
A, M, T	*The teacher will model how to determine the amount of training volume in individual sessions and overall programs.* *Students will calculate the training volume for a given resistance training program.*	Teacher observation
A, M, T	*The teacher will provide examples and an analysis of the SAID principle and its relevance to resistance training.* *Students will identify real-world scenarios where the SAID principle can be applied.*	Class discussion
A, M, T	*The teacher will invite guest speakers, such as strength and conditioning coaches or kinesiologists, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Guided discovery
A, M, T	*The teacher will demonstrate how to conduct a needs analysis for designing programs.* *Students will practice conducting a needs analysis for program design.*	

M	*The teacher will read various research studies with the class.* *Students will interpret meaning from these studies.*	
A	*The teacher will instruct how to order exercises in a single exercise session.* *Students will practice arranging and justifying the sequence of exercises in given scenarios.*	
A, M, T	*The teacher will provide different studies and guide a discussion on work to rest ratios in resistance training.* *Students will evaluate given rest periods for real world scenarios.*	
A, M	*The teacher will exhibit the thought process in analyzing movements in sports.* *Students will examine real world examples.*	
A	*The teacher will demonstrate different methods for testing for, calculating and estimating a one rep maximum for different exercises.* *Students will practice these different methods for various exercises.*	
M	*The teacher will arrange field trips to fitness facilities.* *Students will observe and interact with different resistance training equipment.* <u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates the ability to create a practice plan to improve performance for a self-selected skill. (S2.H3.L1)

Demonstrates the ability to develop and maintain a fitness portfolio (e.g., assessment scores, goals for improvement, plan of activities for improvement, log of activities being done to reach goals, timeline for improvement). (S3.H11.L2)

Demonstrates the ability to refine activity-specific movement skills in one or more lifetime activities (outdoor pursuits, individual performance activities, aquatics, net/wall games, or target games). (S1.H1.L2)

Transfer

Students will be able to independently use their learning to…

Test personally derived hypotheses
Plan and carry out investigations
Engage in argument from evidence
Construct explanations and design solutions

Meaning

UNDERSTANDINGS

Students will understand that…

- Speed is a trainable skill, not a talent
- Speed and agility training should be methodical
- Mechanics impact performance
- Speed training is different from conditioning

ESSENTIAL QUESTIONS

Students will keep considering…

- How close can effective speed and agility training programs get an athlete to their sport performance ceiling?
- How important is speed training for field athletes?
- What does the future of speed and agility training look like?

Acquisition

Students will know…

- Biomechanical constructs of sprint, change-of-direction, and agility performance
- Movement principles
- Physics of sprinting, change of direction and agility
- Rate of force development and the force-velocity curve
- Neurophysiological basis for speed
- Stretch-shortening cycle
- Postactivation Potentiation
- Spring-Mass Model

Students will be skilled at…

- Analyzing the abilities and skills needed to perform specific movement tasks
- Effectively monitor the development of sprint, change of direction and agility abilities
- Apply sound means and methods for developing speed, change of direction and agility
- Design and implement training programs to maximize athletic performance
- Practice effective movement patterns
- Identifying and coaching technical errors
- Communicating with athletes

	● Neurophysiological considerations for change of direction and agility development ● Factors affecting change of direction and perceptual-cognitive ability ● Metabolic requirements of various agility tests	● Testing different metrics related to speed and agility ● Determining training frequency for an effective speed and agility training program ● Manipulating program design variables

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Training program is effective **Content** - Manipulation of variables are justified **Quality** - Training load and repetitions are clearly written in an easy to follow four week typed format **Process** - Variables are selected based on the focus of the athlete's goals and needs	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Designing a speed and agility training program for an athlete **Role:** Students will take on the role of a strength and conditioning coach and an athlete **Audience:** A partner and the teacher **Situation:** Athletes need a speed and agility training program to try to maximize athletic performance and minimize the risk of injury. **Product and/or Performance:** Students will be put in pairs and will take turns in taking on the roles of a strength and conditioning coach and also as an athlete. The strength and conditioning coach will conduct a needs analysis of the athlete, and will manipulate various program design variables to create a structured four week speed and agility training program. **Standard:** Students' success will be assessed by properly conducting a needs analysis, and then making informed decisions in manipulating the different variables to design an effective four week speed and agility program.

T M T A, M, T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Practicing effective movement patterns ● Small and large group discussions ● Traditional written assessments ● Google Classroom activities and assignments ● Lab reports

stage 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Discussing what a typical practice plan might look like for high school athletes and where speed and agility training fits into the plan.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	*The teacher will exhibit the process of analyzing sprint mechanics.* *Students will examine different examples.*	Providing specific feedback, Conferencing
A, T	*The teacher will demonstrate proper and improper sprinting mechanics.* *Students will participate in different drills to improve their mechanics.*	
A, M, T	*The teacher will demonstrate various speed and agility tests.* *Students will practice participating in and coaching other students on mechanics during these drills.*	Questioning for comprehension, Exit Tickets
A, T	*The teacher will exemplify how to use the force-velocity curve in program design.* *Students will apply the concepts in the force-velocity curve to different examples.*	Teacher observation
A, M, T	*The teacher will invite guest speakers, such as strength and conditioning coaches or kinesiologists, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Class discussion
A, M, T	*The teacher will demonstrate how to use different exercise devices related to speed and agility.* *Students will practice using the devices.*	Guided discovery
M	*The teacher will read various research studies with the class.* *Students will interpret meaning from these studies.*	
A, T	*The teacher will instruct on* means and methods for developing speed, change of direction and agility.	

	Students will practice creating general practice plans for team sports.	
A, M	*The teacher will present information related to* the metabolic requirements of various agility tests. *Students will examine real world examples.*	
A, M, T	*The teacher will design a laboratory experiment related to speed and agility training.* *Students will experiment with the neurophysiological concepts of speed and agility training and the implications they have on performance output.*	
M	*The teacher will arrange field trips to fitness facilities where students can observe and interact with different speed and agility training equipment.* <u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association *What We Need is Speed* by Henk Kraaijenhof All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates competency in two or more specialized skills in health-related fitness activities. (S1.H3.L2)

Demonstrates appropriate technique on resistance training machines and with free weights. (S3.H7.L1)

Demonstrates the ability to apply best practices for participating safely in physical activity, exercise, and dance (e.g., injury prevention, proper alignment, hydration, use of equipment, implementation of rules, sun protection). (S4.H5.L1)

Transfer

Students will be able to independently use their learning to…

Obtain, evaluate, and communicate information
Assess situations for safety
Make well informed decisions
Adapt to situations
Think analytically

Meaning

UNDERSTANDINGS

Students will understand that…

- There are proper and improper techniques when performing exercises
- There is equipment that can make certain exercises more safe
- There are different, specific techniques to spot different exercises

ESSENTIAL QUESTIONS

Students will keep considering…

- How important is it to warmup and cool down when engaging in free weight training?
- How do you stay safe in the weight room?
- How necessary is adhering to strict form?

Acquisition

Students will know…

- Proper breathing guidelines
- Recommendations for spotting free weight exercises
- Appropriateness of different safety equipment
- Handgrip fundamentals in exercise technique
- Stable body and limb positioning
- Range of motion and speed for free weight exercises
- Five-Point Body Contact Position
- General Anatomy and Kinesiology Vocabulary

Students will be skilled at…

- Spotting free weight exercises
- Practicing sound form for hinging movement patterns
- Practicing sound form for squatting movement patterns
- Practicing sound form for pressing movement patterns
- Practicing sound form for carrying movement patterns
- Practicing sound form for pulling movement

	● When and how to appropriately spot various lifts ● Major muscles involved in various lifts ● Different phases of the clean and jerk ● Vocabulary related to olympic weightlifting	patterns ● Practicing sound form for lunging movement patterns ● Practicing sound form for rotational movement patterns ● Communicating between spotter and athlete ● Giving corrective feedback ● Properly execute olympic lifts and their derivatives ● Judging for “good” and “no lifts,” per the USA Weightlifting Rules and Regulations

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Demonstration given is complete in having all steps for each movement **Content** - Cues given are accurate and appropriately timed **Quality** - Cues and demonstration are clearly articulated **Process** - Proper technique is enforced throughout each movement.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Demonstrating proper form in the fundamental movements (hinging, squatting, pressing, pulling, lunging and carrying) in free weight exercises **Role:** Students will take on the role of an athlete and coach **Audience:** Both peers and the teacher **Situation:** Athletes are new to free weight training styles and need demonstrations on how to perform various exercises **Product and/or Performance:** Students will take turns taking on the role of a coach and demonstrating the fundamental movements through a series of free weight exercises to both small groups and the whole class **Standard:** Students' success will be assessed by communicating the proper mechanics to their peers, both in a physical demonstration, as well as verbally describing the cues OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Practicing effective movement patterns ● Small and large group discussions ● Traditional written assessments ● Google Classroom activities and assignments ● Lab reports
T M T A, M, T A, M, T		

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Polling students for what exercises and training they might have experience with, and what are cues to properly perform them	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	*The teacher will provide research studies regarding various pieces of safety equipment.* *Students will discuss the conditions when these pieces of equipment should and should not be used.*	Providing specific feedback, Conferencing
A, T	*The teacher will present information on breathing guidelines during free weight exercise.* *Students will describe when and how to alter breathing during various exercises.*	Questioning for comprehension, Exit Tickets
A, M, T	*The teacher will demonstrate the five-point body contact position.* *Students will experiment with using the five-point body contact position and compare and contrast data from the experiment.*	Teacher observation
A	*The teacher will exhibit the thought process of spotting an athlete during exercise.* *Students will critique both positive and negative examples of spotting free weight exercises.*	Class discussion
A, M, T	*The teacher will invite guest speakers, such as Olympic Weightlifting and Powerlifting Coaches, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Guided discovery
A, M, T	*The teacher will demonstrate sound form for hinging movements in free weight exercises.* *Students will practice using hinging movements through free weight exercises and will provide corrective feedback to other students.*	
A, M, T	*The teacher will demonstrate sound form for squatting movements in free*	

	weight exercises. *Students will practice using squatting movements through free weight exercises and will provide corrective feedback to other students.*	
A, M, T	*The teacher will demonstrate sound form for pressing movements in free weight exercises.* *Students will practice using pressing movements through free weight exercises and will provide corrective feedback to other students.*	
A, M, T	*The teacher will demonstrate sound form for lunging movements in free weight exercises.* *Students will practice using lunging movements through free weight exercises and will provide corrective feedback to other students.*	
A, M, T	*The teacher will demonstrate sound form for pulling movements in free weight exercises.* *Students will practice using pulling movements through free weight exercises and will provide corrective feedback to other students.*	
A, M, T	*The teacher will demonstrate sound form for carrying movements in free weight exercises.* *Students will practice using carrying movements through free weight exercises and will provide corrective feedback to other students.*	
A, M, T	*The teacher will demonstrate sound form for rotational movements in free weight exercises.* *Students will practice using rotational movements through free weight exercises and will provide corrective feedback to other students.*	
A, M	*The teacher will read various research studies with the class.* *Students will interpret meaning from these studies.*	
M, T	*The teacher will arrange field trips to fitness facilities.* *Students will observe and interact with different speed and agility training equipment.* <u>Resources:</u> USA Weightlifting Official Rules and Guidelines	

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Unit 8: Culture and History

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates the ability to identify and discuss the historical and cultural roles of games, sports, and dance in a society. (S2.H1.L2)

Demonstrates the ability to examine moral and ethical conduct in specific competitive situations (e.g., intentional fouls, performance-enhancing substances, gambling, current events in sport). (S4.H2.L2)

Transfer

Students will be able to independently use their learning to…

Debate topics
Analyze and interpret data
Construct explanations
Ask questions and define problems
Engage in arguments from evidence
Conduct research
Interpret meaning from studies

Meaning

UNDERSTANDINGS

Students will understand that…

- Different athletic dynasties had different training regimes
- Training programs have changed over time
- Technology has impacted the growth and development of strength training

ESSENTIAL QUESTIONS

Students will keep considering…

- How important are incorporating Olympic Weightlifting movements in training programs?
- Which sport has historically been the most difficult to physically prepare for?
- Which athletic dynasty is the most impressive?
- How ethical are performance enhancing drugs in

		professional organizations?
	Acquisition	
	Students will know… ● German Volume Training ● Soviet Method ● Current state of American system of training versus other countries' approach to training ● The Conjugate Method ● Chinese Olympic Weightlifting ● Influential people in the history of performance training ● Monumental teams in the history of Olympic Weightlifting ● Notable organizations that have impacted the field of performance training ● Technological advancements in sport performance ● History of performance enhancing drugs ● History of the most successful sports dynasties and their training regimes	*Students will be skilled at…* ● Interpreting meaning from various research studies related to athletic performance training programs ● Comparing and contrasting different training programs through history ● Debating the effectiveness of the American system of training versus other methods across the globe ● Evaluating ethical dilemmas that have arisen in the history of exercise science and propose solutions based on ethical principles ● Exploring historical case studies and present findings ● Evaluating the feasibility of different historical programs and how well they could be implemented today ● Interpreting data related to historical trends in exercise science and performance training ● Applying historical knowledge to solve real-world challenges in exercise science and performance training ● Recognizing the influence of different cultures on the development of exercise science practices ● Analyzing historical developments in exercise science and performance training to understand their impact on current practices ● Conducting research on key figures and events in the history of exercise science, and evaluate their contributions ● Communicating ideas and findings related to the historical and cultural aspects of exercise science through written and oral presentations

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	Teacher rubric evaluating content accuracy and analysis. **Impact** - Effective and engaging claims are made to help develop a comprehensive response **Content** - Claims are research based and accurate **Quality** - Clear verbal articulation during the socratic seminar, including appropriate volume, tone of voice and inflection **Process** - Precise and focused conclusions are drawn	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Conduct research on key figures and events in the history of exercise science and evaluate their contributions to performance training **Role:** Students will take on the role of a researcher **Audience:** Both peers and the teacher **Situation:** Researchers and sports scientists are having a round table discussion on different figures and events that contributed to the development of performance training **Product and/or Performance:** Students will participate in a socratic seminar. They will prepare themselves accordingly by conducting research on given topics and questions. **Standard:** Students' success will be assessed by participation in and accurate contributions to the socratic seminar. Contributions made should help the development of a sophisticated response to each question.

T M A, M, T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Small and large group discussions ● Google Classroom activities and assignments ● Traditional assessments (quizzes and tests) ● Practicing and reflecting on different techniques and concepts

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Engage students with a discussion on how they think athletic training has evolved over the years	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M, T	*The teacher will facilitate a group jigsaw activity.* *Students will compare and contrast different training programs throughout history.*	Providing specific feedback, Conferencing
A, T	*The teacher will discuss ethical dilemmas that have occurred in the history of exercise science..* *Students will propose solutions to ethical dilemmas based on ethical principles learned in class.*	Questioning for comprehension, Exit Tickets
A, M, T	*The teacher will present historical data on trends in exercise science for students to interpret..* *Students will analyze historical data to identify trends and patterns in exercise science practices.*	Teacher observation Class discussion
A, M	*The teacher will organize and facilitate a debate on the American system of training versus other global training methods.* *Students will formulate arguments based on research to debate the effectiveness of different training systems.*	Guided discovery
A, M, T	*The teacher will discuss technological advancements in sport performance and their impact on training methods..* *Students will investigate how technology has revolutionized performance training and present findings to the class.*	
A, T	*The teacher will read various research studies with the class.* *Students will interpret meaning from these studies.*	
	The teacher will guide research on historical Olympic Weightlifting teams and their significance in the field of performance training.	

M A A, M, T A, M M	*Students will create a timeline highlighting key events in the history of Olympic Weightlifting.* *The teacher will design a laboratory simulation of different muscle levers. Students will experiment with different levers and the implication it has on performance output.* *The teacher will introduce the Conjugate Method of training and its applications in performance sports.* *Students will analyze case studies on the effectiveness of the Conjugate Method in improving athletic performance.* *The teacher will demonstrate different historical and cultural methods of training.* *Students will practice using these techniques.* <u>Resources:</u> *Essentials of Strength Training and Conditioning* (4th Edition) by National Strength & Conditioning Association *Supertraining* by Yuri Verkhoshansky, Mel Siff All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Explorations in Science

06/2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Explorations in Science

Juniors and Seniors

Course Description

Explorations in Science will provide students a chance to learn about a range of science topics across the three major disciplines of the NGSS, life, physical, and Earth sciences will be covered. Course content will be tailored to student's interests to foster a deeper learning environment. Explorations in Science is student centered and focuses on providing hands-on learning activities that reinforce NGSS science skills to meet the needs of upperclassmen that need a half credit of STEM classes.

Vision of a Graduate

Throughout the Explorations in Science course students will connect with the characteristics identified in New Milford's Vision of a Graduate. Students will enhance their problem solving skills by applying critical thinking skills while developing positive relationships with their peers.

Critical Thinking: Students will make logical connections between the knowledge they have and information they have gathered. Students will then be able to connect their knowledge together in order to solve a problem. Students will use their prior knowledge to determine if the results they have reached are logical answers to their questions or lab results.

Problem Solving: Students will work on understanding the questions that are posed to them and identifying the information within the questions and use their prior knowledge to help them find solutions. Students then will be able to predict the correct outcomes for future problems that they will face in society after graduating.

Positive Relationships: Students will develop positive relationships with their peers by performing laboratory experiments, group work, and delivering productive criticism or encouragement while working in small groups. Students will build relationships by working on long term projects over the course.

Pacing Guide

Include a list of the units and the approximate number of days/weeks it will take to teach the unit.

	Units	Number of Blocks
Unit 1:	**Introduction to Explorations in Science**	3 Blocks
Unit 2:	**Physical Science**	10 Blocks
Unit 3:	**Life Science**	12 Blocks
Unit 4:	**Earth and Space Sciences**	10 Blocks
Unit 5:	**Science Application**	10 Blocks

Final Exam

Key for National and State Standards

HS-PS = Next Generation Science Standards: Physical Sciences

HS-LS = Next Generation Science Standards: Life Sciences

HS-ES = Next Generation Science Standards: Earth Sciences

HS-ETS = Next Generation Science Standards: Engineering, Technology, and Applications of Science

SEP = Science and Engineering Practices

CCC = Cross Cutting Concepts

RST = Common Core Reading Standards for Literacy in Science 6-12

WHST = Common Core Writing Standards for Science and Technology

5E Model (In lieu of WHERETO)
E1- Engage (H)
E2 - Explore (E1,T)
E3 - Explain (WTO)
E4 - Extend (RT)
E5 - Evaluate (E2)

AMT Coding

A - Acquire
M - Meaning
T - Transfer

Unit 1: Introduction to Explorations in Science

Phenomenon: Science Stations (different phenomenon set up, videos showing animals, chemical reactions, physics demos, science articles) students will try to explain the different stations, probe for interest

Stage 1: Desired Results

ESTABLISHED GOALS

CCSS.ELA-LITERACY.RST.11-12.3
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CCSS.ELA-LITERACY.RST.9-10.7
Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

CCSS.ELA-LITERACY.RST.11-12.6
Analyze the author's purpose in providing an explanation, describing a procedure, or

Transfer

Students will be able to independently use their learning to…

- SEP 1 - Ask Questions and Define Problems
- SEP 3 - Plan and Carry Out Investigations
- SEP 4 - Analyzing and interpreting data
- SEP 6 - Construct Explanations
- SEP 7 - Engage in Argument from Evidence

Meaning

UNDERSTANDINGS
Students will understand that…

- Science is the pursuit of explanations of the natural world, and technology and engineering are means of accommodating human needs, intellectual curiosity and aspirations
- Science is a process of testing hypotheses
- Science involves producing evidence based evidence based explanations not based on biases or opinions

ESSENTIAL QUESTIONS
Students will keep considering…

- How is science conducted?
- What is the nature of true science?
- How can you think about and solve a real world question?
- How can we use the scientific method to test possible answers to questions?

discussing an experiment in a text, identifying important issues that remain unresolved. WHST.9-12.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	***Acquisition***	
	Students will know… ● Scientific method to test and retest their theories (CCC: Interdependence of Science, Engineering, and Technology) ● the difference between independent and dependent variables in an experiment ● What is determined as science and what is pseudoscience (CCC: Scientific Knowledge Assumes an Order and Consistency in Natural Systems)	*Students will be skilled at…* ● Analyzing and interpreting data collected by themselves and their peers ● Thinking about a question they have and determining the answer ● Creating a graph based on the data that the students have collected ● Separating real science from pseudoscience ● Using the scientific method to test a controlled experiment

Stage 2: Evidence

Code	**Evaluative Criteria**	**Assessment Evidence**
A & M M M M & T M & T	Rubric assessing: ● Formulating hypotheses and identifying independent and dependent variables ● Accurately taking measurements ● Accurately graphing data ● Evaluating data to draw conclusions ● Predicting what could happen if the data were misinterpreted	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Inquiry Based Lab -** As a class, students will think about a problem in the school that they would like to solve. Students will make a hypothesis about a topic and then test that hypothesis. Students will need to define the problem and state what the constants will be in the experiment. Students will then graph their results and compare them to the rest of the class data.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Verbal Questioning / Class Discussions ● Lab analysis questions ● Warm-ups and exit tickets ● Practice problem questions

Stage 3: Learning Plan		
Code	***Pre-Assessment*** ● Informal assessment of prior knowledge ● Ask students to talk about the phenomenon - can you explain the different things that are happening at the different stations? What are some questions you have about the stations? ● Formal pre-assessments to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A & M	- Phenomena: Science Stations - Teacher will set up stations with different science videos, articles, or demonstrations, Students will make observations, or try and explain how these things are happening. (E1, E2, E3)	● Warm-Up / Exit tickets ● Monitor progress for depth and accuracy, specifically looking at how they are graphing and describing the scientific method ● Questions on activities/labs ● Verbal questions for comprehension ● End of unit assessment
A	- Teacher asks students for their opinion on what they would like to learn about this semester. (E1)	
A	- Students fill out their interest on the Google form provided by the teacher (E1, E2)	
A	- Teacher will introduce science vs	

	pseudoscience with examples. (E2, E3)	
M	- Students will see other examples and identify/explain why these are science or pseudoscience (E3, E5)	
A & M	- Teacher introduces scientific method and graphing with small amount of notes and checks for student's prior knowledge using Google forms (E1, E4, E5)	
M & T	- Students take notes on scientific method and graphing, then work on a graphing worksheet (E2, E3, E4)	
A	- Teacher introduces the Inquiry Lab Project (E1)	
A, M & T	- Students identify a question, generate hypotheses, design controlled experiments, analyze data and draw conclusions (E2, E3, E4, E5)	
M & T	- Teacher will give a quiz next class about science vs pseudoscience, scientific method, and graphing. (E5)	
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Unit 2: Physical Science

Phenomenon: **Bed of Nails**, Hover Mower video clips

Stage 1: Desired Results

ESTABLISHED GOALS

HS-PS2-1: Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2: Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

WHST.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Transfer

Students will be able to independently use their learning to…

- SEP 1 - Ask Questions and Define Problems
- SEP 3 - Planning and carrying out investigations
- SEP 4 - Analyzing and interpreting data
- SEP 5 - Using mathematics and computational thinking
- SEP 6 - Constructing explanations and designing solutions

Meaning

UNDERSTANDINGS

Students will understand that…

PS2-A: Forces and Motion

- Newton's second law accurately predicts changes in the motion of macroscopic objects
- Momentum is defined for a particular frame of reference; it is the mass times the velocity of the object
- If a system interacts with objects outside itself, the total momentum of the system can change; however, any such change is balanced by changes in the momentum of objects outside the system

ESSENTIAL QUESTIONS

Students will keep considering…

How can one explain and predict interactions between objects and within systems of objects?

Why do objects keep moving and what causes objects' motions to change?

How are energy transformations and the conservation of energy related to real-world situations?

What role does physics play in construction in

		the modern world?
	Acquisition	
	Students will know… ● Newton's three laws of motion (CCC: Energy and Matter) ● The formula for force ● The difference between speed and velocity ● The concept of inertia ● The ways an object can increase and decrease its speed (CCC: Cause and Effect)	*Students will be skilled at…* ● Determining which of Newton's three laws a certain situation applies to ● Calculating the force of an object ● Calculating the speed and velocity of objects ● Increasing and decreasing the speed of an object by manipulating variables

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A & M A & M M & T A, M & T	● Accurately calculating the force of an object ● Accurately calculating the speed of an object ● Being able to increase and decrease the speed of an object on a race track by altering variables	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Box Car Derby -** Students will design and build a car to maintain a speed within the parameters set. Students will also consider the cost efficiency of materials used.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Verbal Questioning / Class Discussions ● Lab analysis questions ● Warm-ups and exit tickets ● Practice problem questions

Stage 3: Learning Plan

Code	***Pre-Assessment*** ● Informal assessment of prior knowledge ● Ask students to talk about the phenomenon - can you explain why the person does not feel pain, how does the mower hover above the ground? ● Formal pre-assessments to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A & M	- Phenomena: Bed of Nails and Hover Mower - Teacher will show the videos of these demonstrations to the students (E1)	● Warm-Up / Exit tickets ● Monitor progress for depth and accuracy, specifically looking at how they are solving the problems and how they are determining the speed ● Questions on activities/labs ● Verbal questions for comprehension ● End of unit assessment
M	- Students will make observations and try to explain what is making these demonstrations work (E2, E3)	
A	- Teacher will introduce Newton's three laws of motion as notes (E3)	
A	- Students will take notes on Newton's three laws of motion (E3)	
M	- Teacher will assign the practice problem set on Newton's laws (E2)	
M	- Students will complete the practice set on Newton's laws (E2)	

A & M A & M M & T A, M & T	- Teacher will introduce speed and velocity and show students how to calculate them (E1, E3) - Students will take notes and make observations on speed and velocity (E2) - Teacher will introduce the Box Car Derby challenge (E2, E4, E5) - Students will begin designing their race cars using the limited budget to make a car that goes fast but does not break the speed limit and is cost efficient (E2, E4, E5) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 3: Life Science

Phenomenon: [How does the Covid-19 Vaccine work?] - video clip

Stage 1: Desired Results

ESTABLISHED GOALS

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

HS-LS4-4: Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

WHST.9-12.2: Write informative/explanatory texts; including the narration of historical events, scientific procedures/experiments, or technical processes.

Transfer

Students will be able to independently use their learning to…

- SEP 2 - Developing and using models
- SEP 4 - Analyzing and interpreting data
- SEP 7 - Engaging in argument from evidence
- SEP 8 - Obtaining, evaluating, and communicating information

Meaning

UNDERSTANDINGS

Students will understand that…

LS1.A: Structure and Function

- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

LS4.C: Adaptation

- Natural selection leads to adaptation, that is, to a population dominated by organisms that are anatomically, behaviorally, and physiologically well suited to survive and reproduce in a specific environment. That is, the

ESSENTIAL QUESTIONS

Students will keep considering…

- How do the body systems work together to sustain life?
- How do viruses and microorganisms affect the body?
- What is the role of evolution in the survival of organisms?

	differential survival and reproduction of organisms in a population that have an advantageous heritable trait leads to an increase in the proportion of individuals in future generations that have the trait and to a decrease in the proportion of individuals that do not.	
	Acquisition	
	Students will know… ● The organs that make up the different body systems in a human body ● Specific organs that work together to make up a specific organ system (CCC: Systems and System Models) ● The impact viruses and bacteria can have on the human both positively and negatively ● The differences between and effectiveness of vaccines and antibiotics ● The process of natural selection leads to evolution of populations not individuals ● That diseases have shaped the evolution of humans (CCC: Cause and Effect)	*Students will be skilled at…* ● Identifying specific organs and organ systems ● Connecting functions of organs to the rest of the organ system ● Distinguishing between a virus and a bacteria ● Explaining the process of natural selection ● Applying their knowledge of diseases to explain how humans have evolved over time

Stage 2: Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A & M M & T A & M M & T A & M T	• Accurately identifying specific organs within an organ system • Predicting what would happen if an organ were to not work • Accurately identifying viruses and bacteria • Predicting what the most effective treatment would be for a virus or bacteria infection • Accurately describing how human evolution has occurred over time • Explaining how a disease has shaped human evolution	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Survival of the Sickest -** Students will research a disease that has impacted humans and describe how that disease has shaped our human population. Students will make a presentation to present to the "CDC" on either past impacts or future impacts on human health. Students should consider the impact of organ systems, if the disease is viral or bacterial, and the evolution of the disease.
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* • Quizzes and Tests • Verbal Questioning / Class Discussions • Lab analysis questions • Warm-ups and exit tickets • Practice problem questions

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Informal assessment of prior knowledge ● Ask students to talk about the phenomenon - can you explain how vaccines work? How is the Covid-19 vaccine different from normal vaccines? ● Formal pre-assessments to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A	- Phenomena: Teacher shows the video on vaccines specifically looking at the Covid-19 mRNA vaccine. (E1)	● Warm-Up / Exit tickets ● Monitor progress for depth and accuracy, specifically looking at how they are labeling organs, comparing viruses and bacteria and connecting their disease to how humans evolved ● Questions on activities/labs ● Verbal questions for comprehension ● End of unit assessment
A & M	- Students will explain how vaccines work and how the Covid-19 vaccine is different (E1, E3)	
A	- Teacher provides notes about viruses and bacteria (E2,E3)	
A	- Students write notes about viruses and bacteria and watch some short clips about them (E1, E2, E3)	
M & T	- Hypothetical Pathogen Activity - Students will develop a hypothetical virus or bacteria and explain how it infects humans and how it can be stopped (E2, E3, E5)	
A	- Teacher provides notes on organs and organ systems (E2,E3)	
A & M	- Students write notes on organs and organ systems and see some short clips about how the organ systems work, students complete station activity with different types of bones (E1, E2, E3)	
M & T	- Gizmo/Virtual Lab on Organ Systems - Students learn about each organ system and predict what would happen in a certain organ system if a certain	

A A & M A, M & T A, M & T M & T	organ were to lose its function (E3, E4) - Teacher creates a discussion about evolution using slides and video clips (E1, E2, E3) - Students discuss different aspects of evolution with small groups (E2, E3) - Teacher begins the discussion with the Survival of the Sickest project (E3, E4, E5) - Students begin Survival of the Sickest project (E3, E4, E5) - Teacher evaluates students with a quiz on organs systems, viruses, bacteria, and evolution (E5) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 4: Earth and Space Sciences

Phenomenon: [Google Earth Timelapse]

Stage 1: Desired Results

ESTABLISHED GOALS

HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

HS-ESS3-3: Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.

MP.2: Reason abstractly and quantitatively.

Transfer

Students will be able to independently use their learning to…

- SEP 2 - Developing and using models
- SEP 4 - Analyzing and interpreting data
- SEP 5 - Using mathematics and computational thinking
- SEP 6 - Constructing explanations and designing solutions
- SEP 8 - Obtaining, evaluating, and communicating information

Meaning

UNDERSTANDINGS

Students will understand that…

ESS3.B: Natural Hazards

- Natural hazards and other geologic events have shaped the course of human history; [they] have significantly altered the sizes of human populations and have driven human migrations.

ESS3.C: Human Impacts on Earth Systems

- The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources.

ESSENTIAL QUESTIONS

Students will keep considering…

- How are fossil fuels less sustainable than renewable sources of energy?
- What effect do natural disasters have on the ecosystem and human populations?
- How are sustainable resources used in different parts of the world?
- What are the ways that sustainable resources impact the environment and how can humans make a more sustainable planet?

Acquisition

	Students will know… ● The impact fossil fuels have had on our environment ● The impact natural disasters have on human populations ● Sustainable resources can decrease human's dependency on fossil fuels ● The sustainable resources that can be a part of society to decrease our carbon footprint	*Students will be skilled at…* ● Communicating the impact fossil fuels have had on our environment ● Identifying how natural disasters have impacted the human population ● Developing reasoning for surviving on Earth and what the cost would be to live in that area on Earth.

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
M M & T M M & T	● Describing how natural disasters have impacted the human population ● Explaining how natural disasters are becoming more severe ● Describing the energy and resource efficiency of each design choice ● Including visuals of each design choice	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Dream Green Home -** You will be one of several experts designing and presenting your plan for the perfect "Green" dream home. The client will then choose/hire the designer with the plan that is the most eco-friendly. A Google Slide or Poster presentation will display all required material for the house including samples and/or visuals of all products and materials used. A brief description of each product and material must be included and the rationale behind why it was chosen (how is it beneficial from an environmental perspective). You must highlight the following key elements in your home and elaborate on your choices.

		Location – Where will this home be located? Rural/Suburban? Climate? Energy Sources – how will electricity, heat, and hot water be provided? Layout – include a diagram of the floor plan and landscaping to scale Choose 3 Additional Materials Used (with samples and cost) - insulation - flooring - wall coverings - appliances - fixtures (bathroom, kitchen, lighting) - potential furniture (not required)
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Verbal Questioning / Class Discussions ● Lab analysis questions ● Warm-ups and exit tickets ● Practice problem questions

Stage 3: Learning Plan	
Code	***Pre-Assessment*** ● Informal assessment of prior knowledge ● Ask students to talk about the phenomenon - can you explain why these changes are happening to Earth? What can humans do to stop or slow down these changes? ● Formal pre-assessments to match the post assessment (optional)

	Summary of Key Learning Events and Instruction	Progress Monitoring
A	- Phenomena: Teacher shows students different time lapses of specific points on Earth (E1)	● Warm-Up / Exit tickets ● Monitor progress for depth and accuracy, specifically looking at how students are identifying natural disasters, how they are discussing the sustainable resources, and how their model relates to being sustainable on Earth ● Questions on activities/labs ● Verbal questions for comprehension ● End of unit assessment
A & M	- Students try and explain how these time lapses are happening and how humans can slow them down (E1, E2)	
A & M	- Teacher discusses the use of fossil fuels and how it impacts the environment (E2, E3)	
M & T	- Students discuss the use of fossil fuels and explain how specific fossil fuels are used and impact the environment (E3, E4)	
A	- Teacher introduces different types of sustainable energy sources (E3)	
A, M & T	- Students engage with different sustainable energy sources and determine which one they think is the most practical (E3, E4)	
A & M	- Learning Stations Activity - students work through teacher designed stations to understand the causes and effects of various natural disasters (hurricanes, tornados, earthquakes, etc.)	
M	- Gizmo/Virtual Lab Simulation - students design an earthquake or hurricane proof house	
A, M & T	- Teacher will introduce the Dream Green Home project (E4, E5)	
A, M & T	- Students will work on the Dream Green Home project and construct a model of a potential home on another planet using resources discussed	

	earlier (E4, E5) Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 5: Science Application

Phenomenon: [How Realistic Are Today's Robots?]

Stage 1: Desired Results

ESTABLISHED GOALS

HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

RST.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Transfer

Students will be able to independently use their learning to…

- SEP 1 - Asking questions and defining problems
- SEP 3 - Planning and carrying out investigations
- SEP 5 - Using mathematics and computational thinking
- SEP 6 - Constructing explanations and designing solutions
- SEP 8 - Obtaining, evaluating, and communicating information

Meaning

UNDERSTANDINGS

Students will understand that…

ETS1.A: Defining and Delimiting Engineering Problems

- Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed through engineering. These global challenges also may have manifestations in local communities.

ESSENTIAL QUESTIONS

Students will keep considering…

- What are some real world problems facing humans?
- How can these problems be solved?
- What is the cost of solving these problems?

Acquisition

Students will know…

Students will be skilled at…

	• The ways to research a design idea • The budget constraints how a problem can be solved • That robotics and A.I. can help solve problems	• Researching design ideas • Maintaining and designing within a budget to solve a problem • Using A.I. to help them determine the best solution for their problem

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M & T A, M & T A, M & T	• Accurately determining which design would best solve their problem • Including data to support if their problem will be solved with their solution • Generating a solution to a problem within a budget	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Science Problem Project -** Students will develop a solution to a real world problem. Their first step is to define their problem (ex: longer cell phone battery), their second step is to think of possible ways to fix the problem (different elements, bigger battery, etc), their third step would be to design the best solution in the most cost effective way possible (more lithium in the battery).
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* • Verbal Questioning / Class Discussions • Lab analysis questions • Warm-ups and exit tickets

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Informal assessment of prior knowledge ● Ask students to talk about the phenomenon - can you explain how these robots work? Do you think A.I. and robotics are a problem in today's society? ● Formal pre-assessments to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction	Progress Monitoring
A	- Phenomena: Teacher will introduce How Realistic are Today's Robots? (E1)	● Warm-Up / Exit tickets ● Monitor progress for depth and accuracy, specifically looking at how students are thinking about their problem and if they are coming up with reasonable conclusions and solutions to their problem ● Questions on activities/labs ● Verbal questions for comprehension ● End of unit assessment
A & M	- Students will watch How Realistic are Today's Robots and explain how robots will fit into today's society and in the future (E1, E2)	
M	- Teacher will then show them the VEX robotics kit with some sample robots prebuilt (E1, E2)	
M	- Students will explore the VEX robotics kits and explain how the robots are working and can be applied to the real world (E2, E3)	
A, M & T	- Teacher will introduce the Science Problem Project (E4, E5)	
A, M & T	- Students will begin the project by identifying a problem they would like to try and solve (E4, E5)	
A, M & T	- Students will then research ways to solve their problem (E2, E4)	
A, M & T	- Students will then explain the most cost effective way to solve their problem (E4, E5)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations	

	and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

French I - CP

12/2023

New Milford Board of Education

Superintendent of Schools

Dr. Janet Parlato

Assistant Superintendent

Mrs. Holly Hollander

Authors of Course Guide

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

FRENCH ONE CP

Grades 9-12

French I is an introductory course that exposes students to input containing high-frequency grammar and vocabulary. Many themes explore topics related to the self, promoting positive relationship building. Some themes explored are student life in school, preferred leisure activities, sports and music, clothing and technology. Additionally, most units expose students to Francophone countries around the world, such as France, Senegal, the Ivory Coast and Canada.

Pacing Guide

Approximate Time Frame	Unit
4-5 weeks	Unit 1: Petite conversations (Personal & Public Identities)
4-6 weeks	Unit 2: Ma vie à l'école (Contemporary Life)
4-6 weeks	Unit 3: À la mode (Beauty & Aesthetics)
4-6 weeks	Unit 4: Pendant mon temps libre (Families & Communities)
4-6 weeks	Unit 5: La technologie (Science & Technology)
4-5 weeks	Unit 6: Livre-Nouvelle école, nouveaux amis (Personal & Public Identities)

UbD Template 2.0 Petite Conversation: Introduction à la classe de Français

<table>
<tr><td rowspan="5">ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

<u>1.1 Interpersonal Communication</u> - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

<u>1.2 Interpretive Communication</u> - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

<u>1.3 Presentational Communication</u> - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

<u>2.1 Relating Cultural Practices to Perspectives</u>: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…
- see how language opens the door to new connections through conversation.
- use context to expand vocabulary.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
- French is spoken around the world.
- Studying French can expose you to a wide variety of practices, perspectives and products.
- There are many similar words in French and in English.</td><td>ESSENTIAL QUESTIONS

- What are things we all have in common?
- What makes each of us unique?
- Who am I in the world?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
</table>

studied. 2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied. 4.1 Language Comparisons: Learners use the language to investigate, explain, and reflect on the nature of language through comparisons of the language studied and their own.	*Students will know…* - the pronunciation of the French alphabet - feelings vocabulary - greetings and leave-takings - the French alphabet and vocabulary to say your name - nationalities - numbers from 0-31 - the months of the year - the days of the week - the difference between formal and informal speech	*Students will be skilled at…* - understanding the spelling of various names and cities - reading a calendar, including times and days of the week. - practicing simple conversations about names, feelings, age, birthdays, etc… - forming the correct mouth position to pronounce French vowels - talking about where they are from and their nationality - introducing themselves in writing with a few details about themselves. - saying where they are from - saying their nationality - saying their age - saying the date (of their birthday)

Code	Evaluative Criteria	Assessment Evidence
Indicate the specific Stage 1 element being assessed by each assessment: (T) transfer, (M) Meaning, (A) acquisition TMA	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid) ACTFL - Interpretive Performance and Proficiency Rubrics (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - meeting your host sister and getting to know her a little Role for student - exchange student in Francophone country Audience for student work - host sister in a Francophone country Situation - you're on a video conference meeting your host sister for the first time Products and performances generated by student - answering her questions about you (host sister will be played by teacher) Standards/criteria for judging success - rubric specific to this performance task
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - alphabet quiz - can-do "calendar" - formal and informal interpretive listening assessments - informal presentational speaking assessments

stage 3

Code	***Pre-Assessment***
	Questions to help complete this portion: Students complete KWL prior to exploring different unit themes.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
TM	- teacher and students will discuss a slide full of photos of francophone culture.	- self-paced completion of can-do "calendar" - teacher observation of pair practice - informal speaking/listening/reading assessments - participation in storytelling asking and answering
TMA	- teacher will scaffold interviews related to the unit personal questions.	
TMA	- students will practice asking and answering unit personal questions together.	
MA	- teacher presents target structures using total physical response(tprs), visuals, circling and personalized questions and answers(pqa).	
A	- students watch a video about students counting in class.	
MA	- students write the dialogue for a formal and an informal conversation in French.	
MA	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
MA	- students complete a variety of cloze activities, filling in missing names, ages, facial expressions, etc…	
TMA	- teacher and students engage in guessing game to determine the different birthdays of the students in the class.	
MA	- students will rewrite a paragraph that the teacher wrote about themself, changing the information for themselves.	
	<u>Resources:</u> - https://docs.google.com/document/d/1_uZV3i8_pDGoWqxzBI8rZErmd4-1XDfkkcP9m7e3Myk/edit (examples of French ID cards to practice names and nationalities) - https://docs.google.com/document/d/1MsRNHEGYMxxT-WMjo2n6iL8tD6MHK7sYy0NZq3Q3-zg/edit (reading comprehension to practice numbers from 1-20) - https://docs.google.com/document/d/18FfxWPpkQL-V7A_zusfN1HXZjbVJRo5XneaYQD7HEsQ/edit (article about Kylian Mbappé to recognize cognates) - https://docs.google.com/document/d/1SDXSp1UeTxqhLWk3oZWG5N8BMlVJ9WOVpvgVOGnM4IE/edit (can-do calendar) All Resources and materials must adhere to all New Milford Board of	

	Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0 MA VIE À L'ÉCOLE

ESTABLISHED GOALS	***Transfer***	
1.1 Interpersonal Communication - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions. 1.2 Interpretive Communication - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics. 1.3 Presentational Communication - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers. 2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.	*Students will be able to independently use their learning to…* - appreciate the many different approaches to our universal experiences and goals. - share their school experiences with a wider audience.	
	Meaning	
	UNDERSTANDINGS *Students will understand that…* - French is spoken around the world. - many French-speakers outside of France also speak another language. - cultural perspectives influence school systems.	ESSENTIAL QUESTIONS - How does my school day differ from that in some Francophone countries? - How do I find success in school?
	Acquisition	
	Students will know… - that there are different verb forms - masculine vs. feminine - how to negate a sentence - how to describe a person - some school supplies - some school subjects - different languages spoken by students	*Students will be skilled at…* - understanding short stories related to school in French. - reading a schedule, including times and days of the week. - comparing their schedules with those of students in Francophone countries. - understanding a video about school.

2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied. 4.2 Cultural Comparisons - Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.	- numbers 40-100 - the days of the week - some basic information about Senegal	- talking about where they are from, where they live and information about school. - introducing themselves in writing with a few details about themselves.

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
TMA	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - interpreting a school schedule from a Francophone country Role for student - exchange student in Francophone country Audience for student work - host family Situation - host family inquires about your school schedule Products and performances generated by student - answering questions about your schedule Standards/criteria for judging success - rubric specific to this performance task

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - vocabulary quiz - formal and informal interpretive reading assessments - formal and informal interpretive listening assessments - informal presentational speaking assessments

Code	***Pre-Assessment*** <u>Questions to help complete this portion:</u> Students complete KWL prior to exploring different unit themes.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
TM	- teacher will prepare a lesson to introduce students to different Francophone countries.	- completion of personal question slides - teacher observation of pair practice - informal speaking/listening/reading assessments - participation in storytelling asking and answering
TMA	- teacher will scaffold interviews related to the unit personal questions.	
TMA	- students will practice asking and answering unit personal questions together.	
MA	- teacher presents target structures using total physical response(tprs), visuals, circling and personalized questions and answers(pqa).	
MA	- teacher and student co-construct stories throughout the unit using target structures.	
MA	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, tprs and repetition.	
TMA	- teacher uses a variety of comprehensible input techniques to engage students in stories about school supplies, a new student in school, a girl in Dakar and different teachers.	
TA	- students watch a video about French students' favorite and least favorite classes.	
TMA	- students and teacher engage in a discussion about a school schedule from a Francophone country.	
A	- teacher and students discuss images from a movie short about school and bullying.	
TA	- students write their own schedules in French.	
TMA	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
TMA	- students complete an independant “map talk” about Sénégal	
	<u>Resources:</u> - https://docs.google.com/presentation/d/1bSrhqKkQo5K6TTVcGqsCcwSxne37K5XuEXzH_GYzgK0/edit#slide=id.p (map “talk” about Sénégal) - https://docs.google.com/document/d/1u7u7eySNKOtGC9-YpEYb_QxitpxCXZ2pH1yD1SJnQ3g/edit?usp=sharing (interview with	

	several partners about school) - https://docs.google.com/presentation/d/1jVhwgJI7tdaQtQQTcib4FJhEgvZiFd3R6KH4yo70B7c/edit#slide=id.g28a33416c1f_0_226 (slides with unit PQAs) - Voces stories and website All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0 UNIT TITLE À la mode

Stage 1 Desired Results

ESTABLISHED GOALS

1.1 Interpersonal Communication - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

1.3 Presentational Communication - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.

2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied.

Transfer

Students will be able to independently use their learning to…

- Effectively communicate with varied audiences and for varied purposes while displaying appropriate cultural understanding.
- see how our outward appearance conveys a message to the outside world.

Meaning

UNDERSTANDINGS

Students will understand that…

- new environments can change how you dress.
- there is always something deeper beyond a stereotype.
- people can have different opinions about the same thing.

ESSENTIAL QUESTIONS

Students will keep considering…

- How do beauty standards affect daily life?
- What sources influence fashion and definitions of beauty?
- What is considered beautiful in different cultures?
- What changes when we travel?

Acquisition

Students will know…

- nouns can be feminine or masculine in French
- different definite articles exist in French
- different indefinite articles exist in French
- different possessive adjectives exist in French
- vocabulary related to clothing and fashion
- yes/no question formation
- basic geographical and cultural information about the Ivory Coast.
- modern and traditional dress in the Ivory Coast.
- vocabulary for several family members.

Students will be skilled at…

- understanding short stories about clothing and fashion and travel in French.
- saying what clothing they like and dislike and why.
- saying what is mine and yours.
- understanding a video about clothing and travel.

3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.		

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T. M, A	Interpretive Performance and Proficiency Rubric ACTFL - Interpersonal Performance and Proficiency Rubric (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS **Goal** - discuss with your traveling partner what you will pack for a trip to Monaco **Role for student** - a friend **Audience for student work** - a friend **Situation** - packing for a fancy trip to Monaco **Products and performances generated by student** - reactions to a friend's suggestions of what to pack Standards/criteria for judging success ● Rubric specific to this performance task ● ACTFL Novice Mid rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - vocabulary quiz - formal and informal interpretive reading assessments - formal and informal interpretive listening assessments - informal presentational speaking and writing assessments

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit, for example I can read a story about packing for a trip, I can describe what I am wearing, etc.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring - completion of personal question slides - teacher observation of pair practice - informal speaking/listening/reading and writing assessments - participation in storytelling, asking and answering
TMA	- teacher will scaffold interviews related to the unit's personal questions.	
TMA	- students will practice asking and answering unit's personal questions together	
MA	- teacher presents target structures using total physical response (TPR), visuals, circling and personalized questions and answers (PQA).	
MA	- teacher and student co-construct stories throughout the unit using target structures.	
MA	- teacher engages in storytelling by circling, yes or no questions, visuals, TPRS and repetition.	
TMA	- teacher uses a variety of comprehensible input techniques to engage students in stories about sisters with unique styles, shopping for clothes, traveling to the ivory coast, and a story about a prince in Monaco.	
MA	- students and teacher engage in a discussion about pictures of modern and traditional clothing in the Ivory Coast.	
A	- listening and drawing activities where students describe what their drawing of a person is wearing and students color in their own person based on the description	
TMA	- students watch a video about adolescents favorite clothes	
MA	- students watch a video about fashion in the Ivory Coast and engage in a webquest, exploring designers and stating their opinion about various pieces.	
A	- movie talk about dolls and kids that look alike	
A	- students describe what they are wearing	
TMA	- teacher and students engage in a “map talk” about the Ivory Coast.	

	Resources https://www.youtube.com/watch?v=Aw0uORumRts (Alma movie) Voces online access - items of clothing for dress up and story acting - Gimkit https://www.youtube.com/watch?v=TpVYANYJASs (video about Ivory Coast fashion) https://enseigner.tv5monde.com/fiches-pedagogiques-fle/quest-ce-que-tu-portes-616 (educational video about French teenager's clothes) https://www.buzzfeed.com/fr/jenniferpadjemi/11-astuces-pour-faire-vos-valises-efficacement-et-facilement?utm_source=dynamic&utm_campaign=bfsharecopy&sub=0_120837240#120837240 (packing checklist) All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0 UNIT TITLE En vacances

Stage 1 Desired Results

ESTABLISHED GOALS

1.1 Interpersonal Communication - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

1.3 Presentational Communication - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.

2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied.

Transfer

Students will be able to independently use their learning to…

- Determine what role travel will play in their life.
- View, listen, interpret and synthesize information from a variety of media sources.

Meaning

UNDERSTANDINGS

Students will understand that…

- People in French-speaking countries value their leisure time.
- Culture influences how and where people go on vacation.
- Climate influences leisure choices.

ESSENTIAL QUESTIONS

Students will keep considering…

- How do people in different cultures spend their leisure time?
- What are some differences between your daily life and the daily life of people in French-speaking countries?

Acquisition

Students will know…

- modal verbs
- sentence structure with modal verbs
- the verb ALLER, to go
- vocabulary related to free time activities and vacation
- vocabulary related to sports (the verbs FAIRE and JOUER)
- vocabulary related to weather
- basic cultural and geographical information about Switzerland and Burkina Faso.

Students will be skilled at…

- understanding short stories about vacation and leisure time in French.
- saying what they like to do in their free time.
- saying what they want and don't want to do on vacation.
- compare popular vacation destinations in French-speaking countries to those in my own country.
- understanding a video about a vacation destination.
- listening to a weather forecast.
- letter writing

4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.		

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T. M, A	Interpretive Performance and Proficiency Rubric ACTFL - Interpersonal Performance and Proficiency Rubric (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS **Goal** - planning a trip to Paris & Switzerland **Role for student** - a tourist going to Europe **Audience for student work** - friend going on trip with student **Situation** - student is planning a trip to Europe and uses a variety of web sites, blogs and videos to plan their trip. **Products and performances generated by student** - an email to their friend about planning their trip **Standards/criteria** for judging success ● Rubric specific to this performance task ● ACTFL Novice Mid rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - vocabulary quiz - formal and informal interpretive reading assessments - formal and informal interpretive listening assessments - informal presentational speaking and writing assessments - postcard writing from vacation destination

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit, for example I can read a story about traditional German clothing, I can describe what I am wearing, etc.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
TMA	- teacher will scaffold interviews related to the unit's personal questions.	- completion of personal question slides - teacher observation of pair practice - informal speaking/listening/reading and writing assessments - participation in storytelling, asking and answering
TMA	- students will practice asking and answering unit's personal questions together	
MA	- teacher presents target structures using total physical response (TPR), visuals, circling and personalized questions and answers (PQA).	

MA MA TMA MA A A A TMA TMA	- teacher and student co-construct stories throughout the unit using target structures. - teacher engages in storytelling by circling, yes or no questions, visuals, TPRS and repetition. - teacher uses a variety of comprehensible input techniques to engage students in stories about Burkina Faso, going to the beach, trips to Switzerland, a cold day in Switzerland and a famous mountain in the Alps. - students and teacher engage in a discussion about pictures of Francophone holiday destinations - information gap activities about hobbies, free time preferences and the weather - students watch a French weather forecast - movie talk a family's day out on the beach - students describe what they like to do on their free time and want to do on vacation - teacher and students will go through “map talks” about Switzerland and Burkina Faso. <u>Resources</u> https://www.youtube.com/watch?v=JaRk6i8s3D4 video and written weather forecasts Voces stories and website Gimkit All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0 NEW TECHNOLOGIES

ESTABLISHED GOALS

1.1 Interpersonal Communication - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

1.3 Presentational Communication - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.

2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on

Transfer

Students will be able to independently use their learning to…

- reflect on the advantages and disadvantages of new technologies.
- decide what role technology will play in their life.

Meaning

UNDERSTANDINGS

Students will understand that…

- there are safe and unsafe online behaviors.
- different French-speaking countries have similar and different practices.
- technology can connect us to new people.

ESSENTIAL QUESTIONS

Students will keep considering…

- how does technology help people?
- why do we use technology?

Acquisition

the relationship between the products and perspectives of the cultures studied. 3.1 Making Connections: Learners build, reinforce, and expand their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively.	*Students will know…* - how to say different media and literature that they read - how to say different media that they watch - how to discuss their online and telephone habits - the basic configuration of the Paris métro - different genres of music - different locations and times of day - about popular Canadian music - the difference between formal and informal speech - how to say & write what they do or don't do in the present tense - all of the subject pronouns - all forms of present tense -er verbs - the conjunction: parce que	*Students will be skilled at…* - understanding short stories related to technology in French. - reading a poster about how to be safe online. - comparing what they do on their phones to what French-speaking teens do on their phones. - understanding a video about the personal use of technology. - talking about where they are from, where they live and information about technology. - writing an email about cultural events in Canada. - giving reasons for their habits and opinions

STAGE 2

Code	**Evaluative Criteria**	**Assessment Evidence**

	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid) ACTFL - Presentational Rubric (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Buying a new cellphone in Québec Role for student - Client in a store Audience for student work - New friend in Québec Situation - You buy a new cell phone and then tell your friend about it Products and performances generated by student - You listen to a video of an employee in a store telling you about cell phones. You read an advertisement about different smart phones. You engage in a role-play about your new phone. Standards/criteria for judging success - rubric specific to this performance task

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - vocabulary quiz - formal and informal interpretive reading assessments - formal and informal interpretive listening assessments - informal presentational speaking assessments

Code	***Pre-Assessment*** Questions to help complete this portion: Students complete KWL prior to exploring different unit themes.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
		- completion of personal question slides - teacher observation of pair practice - informal speaking/listening/reading assessments - participation in storytelling asking and answering
TMA	- teacher will prepare a lesson to introduce students to various Canadian musical artists.	
TMA	- teacher and students will engage in a discussion comparing Canadian music with music they listen to.	
MA	- teacher will scaffold interviews related to the unit personal questions.	
MA	- students will practice asking and answering unit personal questions together.	
MA	- teacher presents target structures using total physical response(tprs), visuals, circling and personalized questions and answers(pqa).	
TMA	- teacher and student co-construct stories throughout the unit using target structures.	
TMA	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, tprs and repetition.	
TMA	- teacher uses a variety of comprehensible input techniques to engage students in stories about meeting someone on twitter(X), using apps to get around the Paris and Montréal métro, and sending texts.	
TMA	- students watch several videos about what people use their smartphones for.	
TMA	- students and teacher engage in a discussion about what New Milford teenagers vs. French teenagers use their phones for.	
TMA	- teacher and students discuss a poster about how to be safe online.	
TMA	- students write a pie chart of their cell phone usage.	
MA	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary. For example, about what they read and watch and do on their phones.	
MA	- students will “buy” a ticket for a music concert in Québec and answer questions about the ticket/concert	
MA	- students will use the internet to plan trips using the Paris and Montréal métros.	
	<u>Resources:</u> - Voces stories and website	

	- https://www.youtube.com/watch?v=OVmfGb8XKSg (song about cellphone use) - https://www.billets.ca/concerts/ (canadian website to buy concert tickets) All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

UbD Template 2.0 Livre: Nouvelle école, nouveaux amis

<table>
<tr><td rowspan="6">ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

<u>1.1 Interpersonal Communication</u> - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

<u>1.2 Interpretive Communication</u> - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

<u>1.3 Presentational Communication</u> - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

<u>5.2 Lifelong Learning</u> - Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…
- understand that love, emotions and challenges can be temporary and changing.
- develop skills for meeting and getting to know people.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
- people don’t always have your best interest in mind.
- friendships are important.
- common interests can connect people.</td><td>ESSENTIAL QUESTIONS

- What are challenges faced by students moving to a new school?
- What attracts people to one another?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…

- modal verbs
- cultural information about Grenoble
- places in town
- ordering food at a café (Je voudrais…)
- adjectives</td><td>Students will be skilled at…

- reading a short novel related to school in French.
- summarizing the main idea
- identifying details
- describing setting and main characters
- identifying characteristics and motivations</td></tr>
</table>

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
TMA	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Write an email describing your new life in Paris (friends, school, after school activities, etc…) Role for student - Antoine Audience for student work - Friend from his hometown of Grenoble Situation - Friend has asked Antoine how the move is going. Products and performances generated by student - Email (8-10 sentences) Standards/criteria for judging success - rubric specific to this performance task
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - vocabulary quiz - formal and informal interpretive reading assessments - formal and informal interpretive listening assessments - informal presentational speaking assessments

Code	***Pre-Assessment*** Questions to help complete this portion: Students compete in a game that includes previously learned vocabulary that will be recycled in the book.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
TM	- teacher will prepare a lesson to introduce students to the two different French cities mentioned in the book.	- completion of personal question slides - teacher observation of pair practice - informal speaking/listening/reading assessments - participation in storytelling asking and answering
TMA	- teacher will scaffold interviews related to the unit personal questions.	
TMA	- students will practice asking and answering unit personal questions together.	
MA	- teacher presents target structures using total physical response(tprs), visuals, circling and personalized questions and answers(pqa).	
MA	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, tprs and repetition.	
MA	- teacher does a lesson on French/Belgian chocolate and the student's opinions regarding the different types of chocolate.	
A	- students make predictions about what will happen in the book.	
MA	- students will create “smash doodles” about individual chapters	
MA	- students will compare themselves to the characters in the book using a Venn Diagram.	
MA	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
A	- students will place the events of the story in chronological order.	
MA	- teacher and students will engage in review games, group review activities and individual comprehension checks.	
MA	- students will create their own true or false statements about the text.	
MA	- students participate in a pair activity to determine facts about Grenoble, France.	
	<u>Resources:</u> - Book: Nouvelle école, nouveaux amis - infographic about chocolate consumption in France - https://edpuzzle.com/media/640625cbf87eaf42b4db5486 (song about chocolate) - https://www.grenoble-tourisme.com/fr/ All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board	

	of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

French IV/V CP

June 2024

Do Not Distribute Not BOE Approved

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Ms. Holly Hollander

Author of Course Guide

Stephanie Acheson HS Teacher - World Languages

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

French IV/V CP

Grade 11/12

The course is a combined French IV-CP and French V-CP course with a two-year rotating curriculum. One curriculum

will be offered each year with a proficiency objective of Intermediate-Low + for the French IV-CP students and

Intermediate-Mid for the French V-CP students. The existing French IV-CP curriculum will be used for the alternate year.

Connection to the Vision of a Graduate

Critical Thinking: Critical thinking encourages students to consider issues from multiple perspectives and debate contrasting arguments. Critical thinking is important for a student's personal and professional growth. Students will learn how to express their opinions and beliefs in the target language with logical and reasonable support. This will support the development of oral language, reading, listening and writing skills.

Personal Relationships and Social Awareness: Students will be encouraged to display respect to one another as well as to their teacher. They will be encouraged to understand that even though we may not all agree or may engage in different practices or have different perspectives, we can respect each other’s point of view and even have positive relationships, whether in the classroom or around the world.

Communication: By engaging students in various speaking and listening activities, providing opportunities for meaningful interactions, and encouraging practice both inside and outside the classroom, communication and the value of communication is the bedrock of a language classroom.

Growth Mindset: Students will set goals for themselves based on the ACTFL Proficiency Guidelines at various points in the school year, with an understanding of how to measure and achieve them.

Pacing Guide

Approximate Time Frame	Unit
3-4 weeks	Unit 1: Les Noms (Personal and Public Identities)
5-6 weeks	Unit 2: L'Identité et les contes (Personal and Public Identities)
4-6 weeks	Unit 3: Carnaval/Mardi Gras (Beauty and Aesthetics)
4-6 weeks	Unit 4: Produits/Publicités (Science and Technology)
4-5 weeks	Unit 5: L'Amitié (Families and Communities)
4-6 weeks	Unit 6: Quelques villes francophones (Contemporary Life and Global Challenges)

UbD Template 2.0 Les Noms (Names)

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).
ACTFL World Readiness Standards for Learning Language

1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.

1.3 Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.

Transfer

Students will be able to independently use their learning to…

- form deeper relationships with others through conversational techniques.
- pay attention to words and details, knowing that they matter to people.

Meaning

UNDERSTANDINGS

Students will understand that…

- Society has a big influence on the popularity of names.
- Parents have different reasons for choosing names.
- Individuals have different reactions to their names.
- Certain names can evoke a response in others.
- Some individuals choose to change their name for a variety of reasons.

ESSENTIAL QUESTIONS

- How does a name reflect our own identity?
- How does a name reflect the society we live in?
- How can a name influence how we are viewed by others?

Acquisition

Students will know…

- the verb ‘s’appeler’
- name vocabulary: first name, middle name, etc…

Students will be skilled at…

- asking questions to learn more about their classmates.
- telling the story of their name.
- writing the story of someone’s name.
- conjugating reflexive verbs.

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (4CP: Novice High/Intermediate Low - 5CP: Intermediate Low) ACTFL - Interpretive Performance and Proficiency Rubrics (4CP: Novice High/Intermediate Low - 5CP: Intermediate Low) ACTFL - Presentational Performance and Proficiency Rubrics (4CP: Novice High/Intermediate Low - 5CP: Intermediate Low)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Create an attractive pamphlet with the class' name stories, for example, the meaning of their name, how it was chosen, their opinion of the name, etc… Role for student - Journalist and interviewee Audience for student work - School community Situation - Students will interview one another, taking notes and then, using the notes, write a short article for a class pamphlet about each other's names. Products and performances generated by student - Article for pamphlet Standards/criteria for judging success - teacher-generated rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - formal and informal interpretive listening assessments - formal and informal reading assessments - formal and informal presentational speaking assessments - formal and informal writing assessments - quiz on the verb ‘s’appeler’

Stage 3

Code	***Pre-Assessment*** Students will take a pre-test on what they remember about reflexive verbs. The class will engage in a discussion about why names are important.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M	- class will discuss a list of names that are illegal to have around the world (hook)	- teacher observation of pair practice - full-class "circle response" - informal speaking/listening/reading assessments - journal writing
T, M	- students analyze how different comic strips reflect differing perspectives on names	
T, M, A	- students watch videos on choosing names for children and the importance of names	
A	- students do a partner activity, putting in chronological order the "Life of a name"	
A	- students test one another on examples of types of names	
M, A	- students do a partner activity, deciding whether statements are positive/negative/either reactions to names (Teacher pre-prepares strips of paper with various reactions)	
A	- students will create a family tree to practice the forms of 's'appeler' in context	
T, M, A	- students will read an article about how many French-Canadian names tell a story (Teacher might prepare a list of teachers/students with French-Canadian last names that class can analyze. (Q: What does this name probably tell us about their ancestors?))	
T, M	- students will read a story about a teenager who changes their name	
T, M	- students will read what meaning, history and personality associated with their name is and react in agreement or disagreement	
T, M	- students will read an article about the under-estimated influence that a name has for an individual	
T, M, A	- students will watch a video about choosing a name for their child	
T, M, A	- students will watch a video and engage in a discussion about what assumptions people make or could make about certain names, including their own	
A	- students will fill in a graphic organizer with information regarding their teacher's name (Teacher prepares story about their own name in advance)	
A	- students will interview each other about an infographic about popular names	

	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. - article (in French) about changing your name in the US (https://www.parents.fr/actualites/enfant/a-5-ans-cette-fillette-economise-de-largent-pour-changer-son-prenom-879853) - article about a teenager who changes their name (https://docs.google.com/document/d/1CR0PizWD0odRBTdsH1WqiwtF3OjHRvuGUt6gzR0R2P0/edit) - article about the influence of pop culture on name choice (https://www.huffingtonpost.fr/life/article/l-infographie-qui-montre-comment-la-culture-pop-influence-le-choix-des-prenoms-en-france_116328.html) - video about parents choosing a name (https://www.youtube.com/watch?v=U9OoOvJhQ0I) - video about the importance of first names (https://www.youtube.com/watch?v=zAFd5hr1Q7Q)	

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.

1.3 Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.

4.1 Language Comparisons: Learners use the language to investigate, explain, and reflect on the nature of language through comparisons of the language studied and their own.

Transfer

Students will be able to independently use their learning to…

- improve the understanding of a student's native language through cognates.
- access other cultures through sharing a common language and common human experience..
- form personal connections to works of art.

Meaning

UNDERSTANDINGS
Students will understand that…

- everyone has a different physical appearance.
- everyone has a unique emotional response to the world.
- folk tales exist to help us understand our own physical and emotional lives.

ESSENTIAL QUESTIONS

- How is our physical description part of our identity?
- How do emotions drive our lives?
- How can story-telling help us understand our own lives?

Acquisition

Students will know…

- body parts
- vocabulary of physical description
- vocabulary of emotions/character traits
- the elements of a fairy/folk tale
- the present tense (especially of the verbs être & avoir)

Students will be skilled at…

- using the present tense to form a detailed description of a person.
- changing the form of adjectives depending on who or what they are describing.
- attributing the elements of a fairy tale to a variety of fairy tales.
- retelling a Moroccan folk tale
- analyzing a fairy or folk tale for it’s real-life purpose

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (4CP: Novice High/Intermediate Low - 5CP: Intermediate Low) ACTFL - Interpretive Performance and Proficiency Rubrics (4CP: Novice High/Intermediate Low - 5CP: Intermediate Low) ACTFL - Presentational Performance and Proficiency Rubrics (4CP: Novice High/Intermediate Low - 5CP: Intermediate Low)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Put on a play of a Moroccan folk tale Role for student - Writer/Actor/Critic Audience for student work - School community Situation - Class is putting on a play of the Moroccan tale, “Le garçon aux grandes oreilles” Products and performances generated by student - Script and play Standards/criteria for judging success - teacher-generated rubric GRASPS (Option B) Goal/challenge - Write a letter to Mark Zuckerberg Role for student - Concerned citizen Audience for student work - Instagram Situation - Student is concerned about the effect of Instagram on teenagers, especially teenage girls. Products and performances generated by student - Letter Standards/criteria for judging success - teacher-generated rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - formal and informal interpretive listening assessments - formal and informal reading assessments - formal and informal presentational speaking assessments - formal and informal writing assessments - quiz on the verbs/expressions used to describe physical appearance and personality - quiz on vocabulary for physical description and personality - matching quiz image/oral description of Moroccan folk tale

Stage 3

Code	***Pre-Assessment*** Students will take a pre-test on body parts, physical description and personality. The class will engage in a discussion about what they think the elements of a fairy tale are.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
T, M, A	- class will look at pictures of teacher's friends and make assumptions about them based on physical appearance (hook)	- teacher observation of pair practice - full-class "circle response" - informal speaking/listening/reading assessments - journal writing
T, M, A	- students will read an article about how people judge people who have tattoos	
A	- students will imagine having been witness to a robbery and describe the suspect's physical appearance	
M, A	- students will ask and answer questions about different selfies	
A	- students will engage in same/different and matching partner activities using unit vocabulary	
M, A	- students will answer questions about an infographic about selfies	
A	- students will study the song "Je ne t'aime plus" by Pink Martini	
T, M, A	- students will connect what people DO with their personality or emotions	
M, A	- students will do an oral "bracket" activity to express what trait they would most and least want in a partner	
A	- students will determine what the personality of the class is through peer interviews	
T, M, A	- students will attribute the elements of a fairy tale to a fairy tale of their choice	
T, M, A	- students will choose the fairy tale they most relate to and explain why	
M, A	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, TPRs, and repetition.	
T, M, A	- teacher uses a variety of comprehensible input techniques to engage students in a story about a father who is ashamed of his son's physical appearance.	
M, A	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

	- infographic about selfies (https://sciencepost.fr/infographie-13-statistiques-interessantes-sur-les-selfies/) - infographic about selfies (https://www.leparisien.fr/laparisienne/actualites/pourquoi-on-fait-tous-des-selfies-06-07-2018-7809390.php) - infographic about teenagers and body image: (https://buzz-esante.fr/infographie-les-ados-bien-dans-leurs-corps/) - article about tattoos (Articletatouages.pdf) - Moroccan tale: Le garçon aux grandes oreilles (Conte marocain: modifié) - partner activity to get background information on Morocco, prior to reading folk tale (Le Maroc: Activité de partenaire (A) & Le Maroc: Activité de partenaire (B))	

<table>
<tr><td rowspan="8">ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.

1.3 Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…
- Respect the different ways that people celebrate around the world.
- Communicate ideas effectively in writing to a variety of audiences while demonstrating cultural sensitivity and understanding.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
- There are similarities and differences in the way people celebrate Carnaval around the world.
- Using relative pronouns makes writing more engaging to your reader.</td><td>ESSENTIAL QUESTIONS

- Why do different cultures have different celebrations and why does it matter?
- How do celebrations in French-speaking countries compare with my own?
- How do celebrations reflect the culture in which they occur?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…

- the significance of Carnaval.
- elements of the celebrations of Carnaval in different French-speaking countries.
- vocabulary related to the celebration of Carnaval.
- the relative pronouns qui, que and où.
- greetings and goodbyes used in letter writing and emails.
- the past tenses (passé composé/imparfait)</td><td>Students will be skilled at…

- combining clauses with relative pronouns.
- writing a postcard in the past tense.
- describing experiences at Carnaval in the past tense.
- watching videos and reading articles about Carnaval.</td></tr>
</table>

3.1 Making Connections: Learners build, reinforce, and expand their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively. 4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own. 5.1 School and Global Communities: Learners use the language both within and beyond the classroom to interact and collaborate in their community and the globalized world.		

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (4CP: Intermediate Low - 5CP: Intermediate Low+) ACTFL - Interpretive Performance and Proficiency Rubrics (4CP: Intermediate Low - 5CP: Intermediate Low+) ACTFL - Presentational Performance and Proficiency Rubrics (4CP: Intermediate Low - 5CP: Intermediate Low+)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Write a postcard about attending a Carnaval celebration in a specific French-speaking country Role for student - Traveller Audience for student work - Friend Situation - Student travels to a French-speaking country that celebrates Carnaval and writes a postcard about their experience Products and performances generated by student - Postcard Standards/criteria for judging success - teacher-generated rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - formal and informal interpretive listening assessments - formal and informal reading assessments - formal and informal presentational speaking assessments - formal and informal writing assessments - quiz on the vocabulary of Carnaval - quiz on the difference between Passé Composé and Imparfait (based on a story about attending Carnaval) - quiz on combining clauses using relative pronouns

Stage 3

Code	***Pre-Assessment*** Students will take a pre-test on what they remember about Passé Composé and Imparfait. Class will engage in a discussion around what they know about Carnaval, Lent and Mardi Gras.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
T, M, A	- class will watch a video of people celebrating Carnaval(hook)	
T, M, A	- teacher presents the history and significance of Carnaval	- teacher observation of pair practice
T, M, A	- student will complete a pair activity reviewing and elaborating on the history and significance of Carnaval	- full-class “circle response” - informal speaking/listening/reading assessments
T, M, A	- students watch videos and read articles about Carnaval/Mardi Gras in different countries	- journal writing
M, A	- students complete a pair crossword activity with vocabulary and events from Carnaval	
A	- students play Guess Who based on the activities different people participated in at Carnaval (past tense)	
M, A	- students will interview one another about what activities they would like to do at Carnaval.	
T, M, A	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, TPRs, and repetition.	
T, M, A	- teacher uses a variety of comprehensible input techniques to engage students in a story about a wolf who celebrates Carnaval.	
M, A	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
T, M, A	- students watch a children’s show about celebrating Carnaval.	

<u>Resources:</u>

All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.

- video of Mini-Loup au Carnaval
  Des élèves de GS racontent "Mini-Loup au carnaval"
- video of interviews with children celebrating Carnaval
  C vous qui le dites : Carnaval des enfants
- slideshow about Carnaval’s significance Slides,Carnaval
- Guess Who game about celebrating Carnaval
  Devine Qui: Carnaval
- PBS show about Carnaval
  https://www.pbs.org/video/carnival-in-the-guadeloupe-islands-part-1-4ticfo/

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.

1.3 Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.

2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures

Transfer

Students will be able to independently use their learning to…

- use language for advancement.
- think critically about what they are exposed to through advertisements.

Meaning

UNDERSTANDINGS

Students will understand that…

- France is consistently one of the top 10 economic forces in the world.
- France has a diverse economy and is a leader in artisan and luxury goods.
- Advertisements reflect the society they are made in/for.
- Advertisements can be helpful and harmful to society.

ESSENTIAL QUESTIONS

- Why is France one of the world's SuperPowers?
- How does a country's geography affect their economy?
- What are the advantages and disadvantages of advertisements?

Acquisition

Students will know…

- adjectives to describe products
- forms of adjectives
- the comparative and superlative
- products essential to the French economy
- vocabulary of marketing/advertising

Students will be skilled at…

- using adjectives to describe products.
- comparing products with adjectives.
- explaining why France has a strong economy.
- forming an argument.
- identifying and demonstrating what makes an effective advertisement.
- creating an effective advertisement.

studied. 3.1 Making Connections: Learners build, reinforce, and expand their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively. 3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures. 4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.		

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (4CP: Intermediate Low - 5CP: Intermediate Low+) ACTFL - Interpretive Performance and Proficiency Rubrics (4CP: Intermediate Low - 5CP: Intermediate Low+) ACTFL - Presentational Performance and Proficiency Rubrics (4CP: Intermediate Low - 5CP: Intermediate Low+)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Create an advertisement for a French product based on effective marketing techniques and including a press release addressing concerns about advertising's possible harmful effects. Role for student - Advertising agency employee Audience for student work - Advertising agency/Anti-advertisement lobby Situation - See Goal/Challenge Products and performances generated by student - Advertisement and letter Standards/criteria for judging success - teacher-generated rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - formal and informal interpretive listening assessments - formal and informal reading assessments - formal and informal presentational speaking assessments - formal and informal writing assessments - quiz on adjectives/forms of adjectives - quiz on comparative/superlative - quiz on products - quiz on readings about products/the economy and advertisements

Stage 3

Code	***Pre-Assessment*** Students will take a pre-test on what they remember about adjectives and the comparative/superlative. The class will engage in a discussion about what they know about the US and French economies and what the driving industries and products might be and why.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
T, M, A	- class will draw a visual and geographical representation of the French economy based on a text (hook)	- teacher observation of pair practice - full-class "circle response" - informal speaking/listening/reading assessments - journal writing
T, M, A	- students will watch a variety of French commercials (product/brand/target audience/strategy/cultural difference with US)	
T, M, A	- students will complete a slideshow finding examples of advertisements that represent the advantages and disadvantages of advertisements	
T, M, A	- students will complete an IPA (Integrated Performance Assessment) which includes readings, videos and conversations on marketing strategies and the advantages and disadvantages of advertisements culminating in the GRASP	
M, A	- students will interview each other about their personal preferences around products	
A	- students will interview each other about what products are better than others (meilleur/aussi bon/moins bon)	
T, M, A	- students will engage in an informal oral assessment presenting what they know about the French economy during an "interview" for an internship with the Minister of the Economy	
T, A	- teacher will present a lesson on the French economy	
T, M, A	- teacher will lead a class discussion around pre-selected advertisements to give students a deeper understanding of marketing strategies	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. - article about marketing strategies (https://www.topito.com/top-astuces-psychologiques-pub-marketing-manipulation) - podcast about the preponderance of advertisements (https://www.1jour1actu.com/monde/pourquoi-il-y-a-autant-de-p	

	ublicites) - wikipedia page for recent information about the French economy (https://fr.wikipedia.org/wiki/%C3%89conomie_de_la_France) - article about France's top 10 "products" (https://www.goldenbees.fr/blog/10-secteurs-ou-la-france-est-premiere-au-monde) - presentation to class to discuss marketing strategies Quelles stratégies publicitaires?? - Instruction for slide show about advantages and disadvantages of advertisements Positifs/Négatifs des Publicités - video about negatives of advertisements https://www.youtube.com/watch?v=TtpkWnswBNQ	

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.

1.3 Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.

Transfer

Students will be able to independently use their learning to…

- make informed decisions by weighing the positives and negatives in a situation.
- make a convincing argument in favor of something.

Meaning

UNDERSTANDINGS

Students will understand that…

- Different animals have unique benefits and challenges.
- Certain personalities and life situations make it more or less difficult to own a pet.
- Your past experiences can affect how you feel about things in the present.

ESSENTIAL QUESTIONS

- How do I take care of a pet?
- Why are some pets more popular than others?
- What role do pets play in our lives?
- What are the positives and negatives of having a pet?

Acquisition

Students will know…

- the Conditional tense
- different animals
- verbs and objects associated with pet care

Students will be skilled at…

- explaining why they are more of a cat or dog person
- understanding readings and videos about pets and pet care
- convincing classmates why they should buy a certain pet
- writing the elements of caring for a pet

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (4CP: Intermediate Low 5CP: Intermediate Mid) ACTFL - Interpretive Performance and Proficiency Rubrics (4CP: Intermediate Low 5CP: Intermediate Mid) ACTFL - Presentational Performance and Proficiency Rubrics (4CP: Intermediate Low 5CP: Intermediate Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Brochure for a French pet adoption agency Role for student - Employee at pet adoption agency Audience for student work - Community Situation - Student will write/illustrate a brochure that tries to convince people to adopt a pet while outlining the possible challenges of pet ownership. Finally, the brochure highlights certain specific animal that are up for adoption Products and performances generated by student - Brochure Standards/criteria for judging success - teacher-generated rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - formal and informal interpretive listening assessments - formal and informal reading assessments - formal and informal presentational speaking assessments - formal and informal writing assessments - quiz on the conditional tense - quiz on comprehension of video (Lou! Un chat sans nom)

Stage 3

Code	***Pre-Assessment*** Students will take a pre-test on what they remember about the Conditional tense. The class will engage in a discussion about who has a pet or not and why.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
T, M, A	- class will discuss their own pets (create slideshow of pictures) (hook)	- teacher observation of pair practice - full-class "circle response" - informal speaking/listening/reading assessments - journal writing
M, A	- pair activity about an infographic comparing dogs and cats	
T, M, A	- students will read an article about the disadvantages of pet ownership	
T, M, A	- students will read infographics and watch a video about the benefits of pet ownership	
M, A	- students will interview one another to determine which student will take the best care of their pet while they are away	
M, A	- students will create slideshows to convince each other to get a certain pet	
A	- class will play a BINGO game using the unit vocabulary	
A	- partners will complete a pair crossword activity using the unit vocabulary	
A	- partners will discuss what they WOULD do if they were different animals	
T, M, A	- students will take notes of the positives and negatives of specific animals	
T, M, A	- students will interpret the messages of various comic strips about pets	
T, M, A	- students will engage in a role play between a parent and child trying to convince them to get a pet	
A	- class will discuss in the conditional, if we were pets, what pets would we be and why?	
A	- students discuss what they would do the same or differently than the characters from a video (Lou!)	
M, A	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, tprs and repetition.	
M, A	- teacher uses a variety of comprehensible input techniques to engage students in a story about a girl who adopts a cat.	
T, M, A	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
	-	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board	

	of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. - video about convincing your parents to buy you a pet 6 ASTUCES POUR CONVAINCRE SES PARENTS D'ADOPTER U… - Jeopardy game to review video https://jeopardylabs.com/play/2021-05-13-218 - episode of Lou! Un chat sans nom Un chat sans nom 🐈😸	Lou! français	Episode complet |… - Movie talk slide for Lou! Un chat sans nom Copy of Lou! ep.2 peardeck intro - comic strips about pet ownership Blagues et memes: les animaux de compagnie	

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.

1.3 Presentational Communication: Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.

2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures

Transfer

Students will be able to independently use their learning to…

- use the language both within and beyond the classroom to interact and collaborate in their community and the globalized world.
- find value in learning French, travel and cultural differences.

Meaning

UNDERSTANDINGS

Students will understand that…

- French is widely spoken around the world.
- The largest francophone country is found in Africa.
- There is much to do and experience in Kinshasa, Paris and Montréal.

ESSENTIAL QUESTIONS

- How do Francophone cities reflect the perspectives of the people who live there?
- How does geography affect culture?

Acquisition

Students will know…

- general information about RDC and Kinshasa
- tourist sites in Kinshasa
- general information about “la Sape” in RDC
- animals in RDC
- some famous residents of Kinshasa
- tourist sites in Paris
- activities to do in Paris
- ce, cette, ces (this/that/these/those)
- tourist sites and activities in Montréal
- that weather plays an important part in the culture of Montréal

Students will be skilled at…

- asking and answering questions about photos of the 3 largest francophone cities
- reading reviews of tourist activities
- writing a biography
- identifying animals
- understanding songs
- understanding articles
- writing blogs and letters
- identifying monuments
- retell a ghost story

studied. 3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures. 4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own. 5.2 Lifelong Learning: Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.		

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (4CP: Intermediate Low 5CP: Intermediate Mid) ACTFL - Interpretive Performance and Proficiency Rubrics (4CP: Intermediate Low 5CP: Intermediate Mid) ACTFL - Presentational Performance and Proficiency Rubrics (4CP: Intermediate Low 5CP: Intermediate Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS Goal/challenge - Conversation with a friend Role for student - Friend Audience for student work - Friend Situation - Two friends have a conversation about where they want to take a vacation (Kinshasa, Paris or Montréal) by discussing the pros and cons of each location. Products and performances generated by student - Conversation Standards/criteria for judging success - teacher-generated rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* - formal and informal interpretive listening assessments - formal and informal reading assessments - formal and informal presentational speaking assessments - formal and informal writing assessments - quiz on readings about the different cities - quiz on ce, cette, ces - quiz on identifying sites and monuments - quiz on comprehension of ghost story

Stage 3

Code	***Pre-Assessment*** Students will take a pre-test on what they know about the geography and culture of Kinshasa, Paris and Montréal.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
T, M, A	- students will engage in "I see…, I think… & I wonder…" activities about photographs in the 3 cities	- teacher observation of pair practice - full-class "circle response" - informal speaking/listening/reading assessments - journal writing
T, M, A	- students will watch a video about tourist activities in Kinshasa and set an itinerary	
A	- students will complete a sorting activity with animal vocabulary.	
M, A	- students will listen to songs by Gims (RDC), Zaz (France) and Coeur de Pirate(Québec)	
T, M, A	- teacher will present "La Sape" through a slide presentation	
T, M, A	- students will doing a partner, matching activity with "les sapeurs"	
T, M, A	- students will read an article about "La Sape"	
T, M, A	- students will watch videos about Parisian tourist sites and activities	
T, M, A	- students will do a pair activity based on an infographic about Paris	
T, M, A	- students will engage in a jigsaw activity to learn more "in-depth" information about 4 Parisian monuments	
M, A	- student will play a Guess Who game based on fictional trips taken to Paris	
T, M, A	- students will read an infographic about what to do in Montréal	
M, A	- teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, TPRs, and repetition.	
M, A	- teacher uses a variety of comprehensible input techniques to engage students in a ghost story that takes place in Montréal.	
M, A	- in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
M, A	- students write a letter and response based on the characters from the ghost story.	
T, M, A	- students will compare what people in New Milford do with what people in Montréal do	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

	- film: Debout Kinshasa Debout kinshasa - Un Film de Sébastien Maitre - Comédie - … - film: Amélie or Le monstre de Paris - short description of Kinshasa https://fr.vikidia.org/wiki/Kinshasa - video about visiting Kinshasa Destination Surprise Visiter Le Congo Kinshasa! #CongoIBeli… - infographic about Paris https://www.youscribe.com/BookReader/Index/2347873/?documentId=2325297 - video about visiting Paris https://www.youtube.com/watch?v=9FbPvmsivL8&t=214s - Guess Who game about Paris https://docs.google.com/document/d/1LOW-Fll-g-Q1GhgOUmZGt1UPl_af6tJ1UQYkfdxXf_I/edit	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

College Prep Integrated Science

June 2024

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

College Prep Integrated Science

9th Grade

The Integrated Science is a year course broken into two semesters, which involves the study of major Earth science concepts with an emphasis on the environment. Areas of study include properties of stars, the Big Bang, cycling of matter, tectonic processes and Earth's history, pollution, energy sources and resource management. Science practices outlined in the NGSS are embedded throughout the course. Students are also encouraged to consider the real-world application of Earth science concepts. Study and organizational skills are emphasized through the use of reading assignments, homework, modeling, lab reports and group discussions.

Vision of a Graduate

Throughout the Integrated Science course students will connect with the characteristics identified in New Milford's Vision of a Graduate. Students will enhance their problem solving skills by applying critical thinking skills while developing positive relationships with their peers.

Critical Thinking: Students will make logical connections between the knowledge they have and information they have gathered. Students will then be able to connect their knowledge together in order to solve a problem. Students will use their prior knowledge to determine if the results they have reached are logical answers to their questions or lab results.

Problem Solving: Students will work on understanding the questions that are posed to them and identifying the information within the questions and use their prior knowledge to help them find solutions. Students then will be able to predict the correct outcomes for future problems that they will face in society after graduating.

Positive Relationships: Students will develop positive relationships with their peers by performing laboratory experiments, group work, and delivering productive criticism or encouragement while working in small groups. Students will build relationships by working on long term projects over the course.

Integrated Science will provide students a chance to learn about a range of topics across Earth and Space Science. Integrated Science is student centered and focuses on providing hands-on learning activities that reinforce NGSS science skills to meet 21st century learning.

Pacing Guide

Include a list of the units and the approximate number of days/weeks it will take to teach the unit.

UNITS	Number of Blocks
SEMESTER ONE	
Unit 1: Stars - Energy	7
Unit 2: Stars - Nucleosynthesis	7
Unit 3: Universe Formation	8
Unit 4: Solar System Formation	9
Unit 5: Earth's Formation and Change	8
FINAL EXAM	
SEMESTER TWO	
Unit 6: Earth Systems: Weathering and Erosion	9
Unit 7: Earth Systems: Water Resources and Pollution	8
Unit 8: Earth Systems: Carbon (Cycle)	5
Unit 9: Earth Systems: Energy and Humidity (Weather)	10
Unit 10: Earth Systems: Climate and Climate Change	7
FINAL EXAM	

Key for National and State Standards

HS- ESS: Next Generation Science Standards: Earth and Space Sciences

SEP: Next Generation Science: Science and Engineering Practices

CCC: Next Generation Science: Cross Cutting Concepts

RST: Common Core Reading and Literacy in Science 6-12

WHST: Common Core Writing Standards for Science and Technology

5-E Model

E1- Engage

E2- Explore

E3- Explain

E4- Extended

E5- Evaluate

SEMESTER ONE

Unit 1: Stars and Energy

Phenomena: All electromagnetic radiation starts as Gamma Rays

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-1
Earth's Place in the Universe
Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.A: The Universe and its Stars

- The star called the sun is changing and will burn out over a lifespan of approximately 10 billion years

PS3.D: Energy in Chemical Processes and Everyday Life

- Nuclear fusion processes in the center of the sun release the energy that ultimately reaches the earth as radiation

ESSENTIAL QUESTIONS

- What types of energy are at work in the universe around us?
- Which processes are involved in the creation, movement and transformation of matter and energy in stars?

Acquisition

Students will know…

- The structure of the sun (CCC: Structure and Function)
- The role of nuclear fusion in the sun's life cycle
- The process that allows nuclear fusion (proton-proton fusion) to release energy (CCC: Energy and Matter)
- the changes that happen to photons as it goes

Students will be skilled at…

- Developing a model showing the release of energy from nuclear fusion
- Developing a model of the sun's layers
- Identifying an element based on its unique spectral pattern
- investigating the energy production and changes as it moves through the layers of a star

	through the process of random walk. (CCC: Cause and Effect) ● The types of radiation that reach Earth from the sun ● elements have unique spectral patterns. ● Hydrogen is the fuel for nuclear fusion ● Helium is the product of nuclear fusion ● the relationships between energy, escape time and wavelength (CCC: Patterns) ● ***VOCABULARY:*** Nuclear Fusion (proton-proton fusion), spectra, electromagnetic radiation (classifications), random walk, photon	● Predicting the amount of energy a photon has based on the number of collisions and/or time it takes to reach the surface of a star. ● Modeling and describing the electromagnetic spectrum.

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Graphing -** inclusion and correctness of all required graph components **Claim Evidence Reasoning (CER) Writing -** accuracy of claim, appropriateness of evidence, and reasoning that is thorough and connects to content accurately.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The processes that generate radiation (energy) in stars and the impact of the photon's path on the type of energy it will be upon escaping from the star's surface. **Goal/Challenge:** Create a model showing the path a photon might take on its way out of the sun. **Role for student:** Astronomer at JJ McCarthy Observatory (JJMO) **Audience:** Visitors to JJMO **Situation:** You have been asked to create a presentation for the observatory in light of the recent solar eclipse to explain how the sun is producing light/energy and why we get more of certain wavelengths of light than others. **Products generated by student:**

		1) A model showing the potential path of a photon including labels for the starting and ending wavelength, energy level, and type of radiation of the photon 2) A graph of class data 3) Claim Evidence Reasoning paragraph (CER) explaining why the majority of the energy received from the sun is in the form of visible light. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
M, A	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…* ***Teacher prepares notes and leads class discussion***- to introduce unit, provide content, provide opportunity for formative assessments, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension

M, A	● ***Electromagnetic Spectrum Foldable:*** students construct the electromagnetic spectrum using random wavelengths and answer questions related to energy, frequency, wavelength and classification of the wave. (H, E1, T)	
T, M	● ***Spectroscopy Activity:*** students construct and deconstruct spectral patterns using multiple elements. (H, E1, T)	
T, M	● ***Star Spectra Gizmo:*** students will complete the simulation on star spectra and spectroscopy to enhance and reinforce the information. (H, E1, R, T)	
T, M, A	● ***Random Walk Activity:*** students will collect and analyze the path of a photon from its creation in the core of a star to exiting the radiative zone and identify the relationship between residence time, energy, and wavelength changes that photon goes through (H, E1, E2, O)	
M, A	● ***Nuclear Fusion Activity:*** students will model the process of nuclear fusion within the core of a star and explain how energy is produced (W, E1, E2, T, O)	
M, A	● ***Sun-Layer Activity:*** Students will construct a cut-out model of the different layers of a star. (H, E1, T)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Stars and Nucleosynthesis

Phenomena: "We are made of star stuff" - Carl Sagan

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-3
Earth's Place in the Universe
Communicate scientific ideas about the way stars, over their life cycle, produce elements

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.A: The Universe and Its Stars

- Other than the hydrogen and helium formed at the time of the Big Bang, nuclear fusion within stars produces all atomic nuclei lighter than and including iron, and the process releases electromagnetic energy. Heavier elements are produced when certain massive stars achieve a supernova stage and explode.
- The study of stars' light spectra and brightness is used to identify compositional elements of stars, their movements, and their distances from Earth.

ESSENTIAL QUESTIONS

- What types of energy are at work in the universe around us?
- Which processes are involved in the creation, movement and transformation of matter and energy in stars?

Acquisition

Students will know…

- the life cycle of a star based on its mass (CCC: Stability and Change, Cause and Effect)
- elements are produced at the different stages of star life (CCC: Stability and Change)
- hydrogen is the fuel for Proton-Proton fusion, which produces helium (alpha particle)
- helium is fuel for larger elements (up to

Students will be skilled at…

- Producing spectra diagrams of different elements
- Identifying elements in a star based on its spectral pattern
- Identifying the stage of life based on the elements it is producing
- Sequencing stages of a star based on its mass
- Modeling stages of a star and nucleosynthesis of

	carbon) ● the conditions necessary for different nuclear fusion reactions (CCC: Stability and Change) ● the changes that occur in a nucleus during proton-proton fusion (CCC: Stability and Change) ● ***VOCABULARY:*** nucleosynthesis, stages of a star's life, main sequence, nuclear fusion, parts of a nucleus, elements, pressure, gravity, equilibrium	elements on its mass ● Drawing conclusion about nucleosynthesis and the changes a nucleus goes through

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	Rubric to assess for: **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The various types of stars, their developmental stages, and the reasoning behind the observed differences in the life cycles of stars of different masses. **Goal/Challenge:** Create a children's book detailing the life cycle of a star and how/why its life cycle would be different if it were a star of a different mass, including a description of nuclear fusion and the elements produced in different stages of star life. **Role for student:** Astronomer at JJMO **Audience:** a third grade student **Situation:** You are a famous astronomer and have been asked to write a children's book explaining why not all stars in the night sky look the same **Products generated by student:** A fiction or nonfiction children's book including pictures/illustrations.

		Standards/Criteria for judging success: Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Star Life Cycle Stations***: Construct a timeline of developmental stages to compare/contrast the life cycles of stars of varying masses (W, E1, T, O) ○ Station 1 - Stages that all stars go through ○ Station 2 - Low Mass Star stages ○ Station 3 - High Mass Star stages	
M, A	● ***HR Diagram Gizmo:*** Analyze a variety of stars based on temperature and luminosity to identify trends in the HR diagram and describe how those trends identify stars of	

T, M, A	different masses and at different stages of their lives (W, E1, E2, T, O) ● ***Build-An-Atom PhET:*** students will go through the steps of proton-proton fusion describing the causes of a nucleus to be stable or unstable, and the required changes to make it stable. (H, E1, T,) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 3: Universe Formation

Phenomena: The Big Bang Theory The Beginning of Everything -- The Big Bang

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-2
Earth's Place in the Universe
Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.

RST 9-10.7
Integration of Knowledge and Ideas
Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or description.

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

HS-ESS1.A: The Universe and its Stars

- The study of stars' light spectra and brightness is used to identify compositional elements of stars, their motion, and their distances from Earth.
- The Big Bang Theory is supported by observations of distant galaxies receding from our own, of the measured composition of stars and non-stellar gasses, and the maps of spectra of primordial radiation (cosmic microwave background) that still fills the universe.
- All hydrogen in the universe was formed during the Big Bang

ESSENTIAL QUESTIONS

- What is the future of the universe?
- What types of energy are at work in the universe around us?
- Which processes are involved in the creation, movement and transformation of matter and energy in stars?
- How has technology aided us in our study of the universe?

Acquisition

Students will know…

- Spectra of light can change due to a relative shifting of distance between a light source and Earth.
- Almost all galaxies are moving away from each

Students will be skilled at…

- Evaluating Hubbel's Redshift data to support Big Bang
- Citing evidence to support Big Bang
- Modeling the stages of Big Bang

	other ● The universe started as mostly Hydrogen and a small amount of Helium ● The three primary pieces of evidence that support the Big Bang Theory ● the initial energy wavelength of the Big Bang has changed to a longer wavelength. ● ***VOCABULARY:*** Cosmic Background Radiation, Hubbel's Redshift, doppler effect (redshift/blueshift), composition, singularity	● Predicting if a light source is close or far from Earth based on the spectral shift. ● Evaluating the wavelength of energy as the universe expands

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components **Graphing -** inclusion and correctness of all required graph components	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The evidence of red shift of light from galaxies, cosmic microwave background radiation, and the composition of matter in the universe as evidence of the Big Bang and the continued expansion of the universe. **Goal/Challenge:** Create a magazine article for the general public to explain the evidence that scientists use to support the Big Bang Theory. **Role for student:** Astronomer and author **Audience:** Readers of Astronomy magazine **Situation:** You are an author for Astronomy magazine and your current assignment is to write an article about "Why We Believe the Big Bang Theory". **Products generated by student:** A report in the style of a magazine article that explains the three primary pieces of evidence that support the Big Bang

		Theory, using the activities completed throughout the unit as their sources of evidence, including written explanations, pictures/illustrations, data tables, and graphs. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit test ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Shifting Spectra / Hubble's Law Activity:*** Analyze given spectra and explain the impact of the Doppler Effect on them. Create spectra of moving objects based on the	

T, M, A M, A	Doppler Effect. (W, E1, T, O) ● ***Expansion of the Universe Balloon Lab:*** Graph and analyze data related to the expansion of the universe using a balloon as a model, with a focus on expansion's impact on wavelengths of light and distances between galaxies. (H, E1, R, T) ● ***Big Bang Theory Evidence Analysis:*** Analyze all three pieces of evidence for the Big Bang Theory, explaining how they relate to each other and to the concepts that we have studied earlier in the year. (R, E2) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 4: Solar System Formation

Phenomena: Pictures showing the orbital paths of planets in our solar system

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-4
Earth's Place in the Universe
Use mathematical or computational representations to predict the motion of orbiting objects in the solar system

Transfer

Students will be able to independently use their learning to…

- SEP 3: Plan and Carry Out Investigations
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematics and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…
ESS1.B: Earth and the Solar System

- Kepler's laws describe common features of the motion of orbiting objects, including their elliptical paths around the sun. Orbits may change due to the gravitational effects from, or collisions with, other objects in the solar system.

ESSENTIAL QUESTIONS

- What is Earth's place in the solar system?
- Why is the power of gravity so important to the solar system?
- How has technology aided us in our study of the universe?
-

Acquisition

Students will know…

- Kepler's three laws of planetary motion (CCC: Patterns, Scale, Proportion and Quantity)
- How the gravity between two objects is impacted by distance between them and their mass. (CCC: Cause and Effect)
- The five basic stages of solar system formation(CCC: Stability and Change)
- How the stages of solar system formation were influenced by gravity and Kepler's Laws

Students will be skilled at…

- Using Kepler's 1st law to calculate different eccentricities of planets
- Evaluating different orbits
- Predicting if a planet is satisfying Kepler's 2nd Law
- Predicting how the distances of a planet (aphelion/perihelion) affects the gravity and speed of a planet at that point in the orbit.
- Illustrating different eccentricities of planets around a star

	(CCC: Systems and System Models) ● the locations of aphelion and perihelion on an elliptical orbit ● ***VOCABULARY:*** aphelion, major axis, perihelion, ellipse, Kepler's 3 laws, gravity, focal distance	● Measuring focal distance and major axis in an elliptical orbit

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	Rubric to assess for: **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How Kepler's Laws of planetary motion and Universal Gravitation allow scientists to evaluate the properties of planets that orbit other stars. **Goal/Challenge:** Create a model of a newly discovered star system, predicting the orbital paths of two planets based on all three of Kepler's laws and the law of universal gravitation. **Role for student:** NASA planetary scientist **Audience:** International Planetary Science Committee (IPSC) **Situation:** You have been asked to create a model of a newly discovered star system to present at an upcoming conference for the IPSC **Products generated by student:** 1) A poster showing the expected orbit of the two planets 2) A report explaining the process that they used to figure out the orbits using each of Kepler's laws and gravity. **Standards/Criteria for judging success:** Student self-grade, peer grade, and teacher grade based on the same rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts	
M, A	● ***Solar System Formation Flowchart:*** Model and describe the five major stages of solar system development (W, E1, E2, T, O)	
T, M, A	● ***Kepler's First Law Activity:*** Model Kepler's first law of motion, calculate eccentricity of model orbits, and determine how changes to eccentricity affect different points on an orbit. (E1, R, O)	
T, M, A	● ***Gravity and Orbits PhET Simulation:*** Develop an understanding of the factors that	

T, M, A T, M, A	affect the stability of planets around a star by manipulating their masses and the distances between them. (E1, R, O) ● ***Kepler's Second Law Activity:*** Use evidence to support Kepler's second law of motion that planets cover equal area during orbits in equal amounts of time. (E1, R, O) ● ***Kepler's Third Law Activity:*** Determine the mathematical relationship between orbital period and a planet's distance from the sun, and use it to identify a trend in the orbital periods of planets in our solar system. (E1, R, E2, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 5: Earth's Formation and Change

Phenomena: Pangaea vs. present time

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-5
Earth's Place in the Universe
Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks

HS-ESS2-1
Earth's Systems
Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features

- Focus on **internal** processes

HS-ESS2-3
Earth's Systems
Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.C: The History of Planet Earth

- Continental rocks, which can be older than 4 billion years, are generally much older than the rocks of the ocean floor, which are less than 200 million years old.
- Although active geologic processes such as plate tectonics and erosion have destroyed or altered most of the very early rock record on Earth, other objects in the solar system, such as lunar rocks, asteroids, and meteorites have changed little over billions of years. Studying these objects can provide information about Earth's formation and early history.

ESS2.B: Plate Tectonics and Large-scale Systems Interactions

- Plate tectonics is the unifying theory that explains the past and current movements of the rocks at Earth's surface and [provides a framework for understanding its geologic

ESSENTIAL QUESTIONS

- How does the position of Earth in the solar system affect the conditions on our planet?
- What methods, objects, and features do scientists use to uncover the formation of the earth and other solar system objects?

	history.	
	Acquisition	
	Students will know… ● The theory of plate tectonics (CCC: Patterns) ● Alfred Wegener's evidence to support the theory of plate tectonics ● The theory of seafloor spreading (CCC: Patterns, Scale/Proportion and Quantity) ● The evidence used to support seafloor spreading ● how convection of the magma is the cause of plate tectonics (CCC: Cause and Effect) ● The crustal materials of different ages are arranged on earth's surface in a pattern that can be attributed to plate tectonics. ● There is formation of new rocks from magma rising where plates are moving apart (and hotspots). ● ***VOCABULARY:*** Alfred Wegener, Continental Drift, Sea-floor Spreading, Plate Tectonics, convection	*Students will be skilled at…* ● Explaining the different pieces of evidence from Wegener ● Evaluating the difference between Wegener evidence and Sea-floor spreading evidence ● Measuring rates of sea-floor spreading in the Atlantic and Pacific Oceans ● Describing features created by to Plate Tectonics ● Illustrating magma convection ● Modeling plate tectonics ● Citing evidence to support Continental Drift and Plate Tectonics ● Discovering the cause for convection ● Determining comparative ages of surfaces using relative dating techniques ● Identifying the number of half lives that have passed using a graph of parent and daughter isotope ratios

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	Rubric to assess for: **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The cycling of matter inside the Earth's mantle and its impact on the motion of continental and oceanic crust, causing seafloor spreading and continental drift. **Goal/Challenge:** Create a model showing the convection currents inside of Earth's mantle and detailing their impact on seafloor spreading and continental drift **Role for student:** Planetary geologist **Audience:** Geological Society of America (GSA) **Situation:** You are a member of the GSA and have been asked to create a presentation on mantle convection for an upcoming conference **Products generated by student:** A model showing mantle convection and detailing, with both pictures and descriptions, the impact of convection on the processes of seafloor spreading and continental drift. **Standards/Criteria for judging success:** Student self-grade, peer grade, and teacher grade based on the same rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quiz and end of unit Test ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts	
M, A	● ***Wegener Evidence Inquiry:*** Analyze fossil evidence and geologic features to recreate Pangea (W, H, R)	
T, M, A	● ***Plate Motion and Seafloor Spreading Activity:*** Calculate the rate of seafloor spreading in the Atlantic and Pacific oceans using the mid-ocean ridge and hot spots. Then, compare and contrast the relative motions of the plates through geologic time. (E1, R, T, O)	
M, A	● ***Mantle Convection Model:*** modeling activity to show the convection currents in Earth's mantle. (W, E1, R, E2, T, O)	
T, M, A	● ***Relative and Absolute Dating Stations:*** Explore the concepts of relative and absolute dating, how we use them to find the age of Earth, and how they give evidence for continental drift and seafloor spreading. (W, H, E1, R, E2, O)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

SEMESTER TWO

Unit 6: Weathering and Erosion

Phenomena: Pictures of headstones and statues that have been chemically and mechanically weathered

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS2-1
Earth's Systems
Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features

- Focus on **surface** processes

HS-ESS2-5
Earth's Systems
Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes

Transfer

Students will be able to independently use their learning to…

- SEP 3: Plan and Carry Out Investigations
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS2.A: Earth Materials and Systems

- Earth' systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes.

ESS2.C: The Roles of Water in Earth's Surface Processes

- The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planter's dynamics. These properties include water's exceptional capacity to absorb, store and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks.

ESSENTIAL QUESTIONS

- How do the properties and movements of water shape Earth's surface and affect its systems?
- How do Earth's systems interact?

Acquisition

	Students will know… ● weathering and erosion wear down Earth's surface over time ● the difference between mechanical and chemical weathering (CCC: Cause and Effect) ● the specific mechanical process of abrasion and frost wedging ● the specific chemical weathering of oxidation and hydrolysis/dissolving ● temporal/spatial scales of the different weathering processes (CCC: Scale, Proportion and Quantity) ● temporal/spatial scales of erosional processes (CCC: Scal, Proportion and Quantity) ● stream transportation and deposition of rock material through the different stages of a river (CCC: Patterns, System and System Models) ● the relationship between river velocity and particle carrying size. ● relationship between river slope and velocity of the water ● ***VOCABULARY:*** mechanical weathering, chemical weathering, river stages, deposition, erosion	*Students will be skilled at…* ● conducting labs to determine the effects of chemical weathering ● conducting labs to determine the effects of mechanical weathering ● illustrate different weathering processes ● modeling a river systems stages, particle carry capacity and erosional/depositional features. ● evaluating stream velocity and particle size graphs ● citing evidence from a variety of graphs to support weathering and erosional claims ● distinguishing weathering processes and the attributes they create

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	<u>Rubric to assess for:</u> **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components **Graphing -** inclusion and correctness of all required graph components **CER Writing -** accuracy of claim, appropriateness of evidence, and reasoning that is thorough and connects to content accurately.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The processes of chemical and mechanical weathering, what causes each, and the similarities and differences by which they weather different types of rocks (surface materials). **Goal/Challenge:** To determine which type of rock will be most resistant to chemical and mechanical weathering. **Role for student:** Geologist **Audience:** CT Stone Masons' Guild **Situation:** You have been hired by the CT Stone Masons' Guilt to investigate the best material for them to use when carving headstones. They would like you to investigate what the best rock will be the most resistant to both chemical and mechanical weathering. **Products generated by student:** 1) A report outlining the results of their experiments, including data tables and graphs from their lab 2) A CER paragraph explaining which rock type would make the best material for a headstone based on its resistance to the types of chemical and mechanical weathering that were tested. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quiz and end of unit Test ● Formative assessments ● Verbal questioning / class discussions ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts	
T, M, A	● ***Weathering Gizmo:*** students will complete the simulation on weathering of a variety of rocks and conditions to enhance and reinforce the concepts. (W, H, E1)	
T, M, A	● ***Weather and Climate Graph Activity:*** Utilize a graph showing how the temperature and precipitation impact the type of weathering that will be dominant in an area. Then, analyze the type of weathering that is dominant in New Milford based and make predictions about how that would change with different annual temperature and precipitation. (H, E1, T, O)	
T, M, A	● ***River Erosion Gizmo:*** students will complete the simulation on river erosion to identify the variables that influence water velocity and particles carried, as well as the requirements for cutbanks and point bar development. (W, H, E1)	
M, A	● ***Erosion and Deposition Model:*** Modeling activity to show how erosion and deposition vary at different points along a river. (W, E1, R, E2, T, O)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and	

	materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 7: Water Resources and Pollution

Phenomena: Flooding impacts on societies

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS3-1
Earth and Human Activity
Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity

HS-ESS3-4
Earth and Human ACtivity
Evaluate or refine a technological solution that reduces impacts of human activities on natural resources.

Transfer

Students will be able to independently use their learning to…

- SEP 1: Ask Questions and Define Problems
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS3.A: Natural Resources
Resources availability has guided the development of human society

ESS3.B Natural Hazards
Natural hazards and other geologic events have shaped the source of human history; [they] have significantly altered the sizes of human populations and have driven human migration.

ETS1B: Developing Possible Solution
When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.

ESSENTIAL QUESTIONS

- How do humans depend on Earth's resources?
- How do humans change the planet?

Acquisition

Students will know…

- the variety of ways water is used by society
- different types of pollution is transported with

Students will be skilled at…

- evaluating technologies and solutions to reduce water pollution

	water ● Water transmission (permeability) through the ground is determined by the grounds porosity (size, shape and sorting of particles) and connectedness ● that human surface modification and development has affected runoff and infiltration in an area by affecting the properties of the surface ● Runoff of water is impacted by slope, vegetation, surface material and duration of rainfall ● the difference between point source and nonpoint source pollution ● the different types/classifications of pollution ● the causes of flooding, both natural and humanity induced ● the variety of impacts of flooding, including pollution, quality of water resources and physical/structural damage. ● design technologies/strategies (i.e. buffer systems) that reduce runoff and pollution from entering the environment ● VOCABULARY: permeability, porosity, infiltration, pollution, runoff, slope, flooding, buffer systems	● evaluating the impact of changing surfaces and runoff/infiltration ● predicting permeability rates of material using different diagrams with different porosity characteristics ● classifying different pollutants by source and type ● predict the impact of flooding when changing surfaces from natural to human developed ● describing how to reduce water use by society

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	<u>Rubric to assess for:</u> **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How expected natural hazards such as annual flooding should influence the way that towns and cities are constructed, and how the development patterns of towns/cities can influence natural events such as the amount of annual flooding an area experiences. Additionally, technologies can be put in place such as riparian buffers to mitigate the impact that towns and river systems have on each other in terms of pollution and flooding. **Goal/Challenge:** Design the layout of a town with a specific focus and including specific requirements (example: the town with an agricultural focus will have a significant number of required farms) in a way that will minimally impact the watershed and river system. **Role for student:** City planner **Audience:** Town council **Situation:** You have been hired to plan a new town in a way that will minimally impact the watershed that you are building on. The town council has supplied you with a list of exactly what is to be included in the town plan. **Products generated by student:** 1) A poster showing your suggested layout for the town 2) A report detailing your explanations for why you have chosen to put each area where it is on your map, the impacts that you expect your layout to have on the watershed, and some suggested laws to help minimize pollution from different possible source locations. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Formative assessments ● Verbal questioning / class discussions ● Lab analysis and reflection ● Warm-ups and exit tickets

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts	
T, M, A	● ***Society's Impact on Watersheds Inquiry:*** Analyze the ways that differences in landscape influence water's ability to infiltrate the ground. Then, analyze how a watershed has changed over 100 years and how those human impacts will change the amounts of runoff vs. infiltration in the watershed. Calculate changes in surface coverage and amounts of runoff. (W, E1, E2, T)	
M, A	● ***Porosity and Permeability Lab:*** Compare the porosity and permeability of three types of substrate to determine the best material for an aquifer. (W, E1, R, E2)	
M, A	● ***Aquifers and Groundwater Activity:*** Use a model to visualize parts of an aquifer and how the aquifer will change during flood or drought conditions. (W, E1, R, T, O)	
M, A	● ***Pollution Problem Investigation:*** Plot and analyze groundwater data to determine the source of pollution. Explain impacts and possible remediation strategies. (W, H, E1, E2, T, O)	
T, M, A	● ***Buffers Activity:*** Identify the function of riparian buffers and the different ways that they help a watershed. Create models of buffers to serve different purposes and	

	analyze why different types of buffers might be helpful. Explain which buffer may have been useful in the Pollution Problem Investigation. (W, E1, R, E2, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 8: Earth's Systems - Carbon

Phenomena: Humans' impact on the carbon cycle

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HE-ESS2-2
Earth's Systems
Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems

HS-ESS2-6
Earth's Systems
Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere

Transfer

Students will be able to independently use their learning to…

- SEP 1: Ask Questions and Define Problems
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS2.A: Earth MAterials and Systems

- Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes.

ESS2.D: Weather and Climate

- Gradual atmospheric changes were due to plants and other organisms that capture carbon dioxide and released oxygen
- Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate.

ESSENTIAL QUESTIONS

- How do humans depend on Earth's resources?
- How do humans change the planet?
- How are Earth's resources being exploited for human use?

Acquisition

Students will know…

- the different spheres of the Earth System
- the processes of carbon flux between spheres
- the different carbon molecular forms and the spheres they reside

Students will be skilled at…

- Measuring changes of carbon flux between spheres
- iIentifying the cause of changes as carbon moves between spheres

	• how humans have impacted the carbon cycle • personal daily choices and decisions impact the carbon cycle • whether a feedback effect is positive or negative (CCC: Cause and Effect) • the changes in one system (or sphere) can change a different system (or sphere) (CCC: Cause and Effect, Stability and Change, Systems and System Models) • the difference between an open and closed system (CCC: Energy and Matter) • the main locations (residence) and forms carbon is stored within it • VOCABULARY: open/closed system, the four spheres, carbon and forms of carbon, photosynthesis, respiration, diffusion, combustion, carbon footprint	• Predicting how changing one sphere will cause a change in a different sphere • Modeling the carbon cycle • Concluding the impact of humans on the carbon cycle • Justifying choices we make on a daily basis related to the carbon cycle • Critiquing other people's lifestyle choices related to the carbon cycle

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The way that human activities impact their carbon footprint and therefore the carbon cycle. **Goal/Challenge:** Compare and contrast the carbon footprints of two families, then compare it to their own family. **Role for student:** Environmental Scientist **Audience:** Themselves **Situation:** You are an environmental scientist and have decided to compare the carbon footprints of different families to analyze how different activities might have more or less impact on their carbon footprint.

		Products generated by student: 1) A page of calculations for the two families that they are assigned detailing their carbon use based on a set of annual activities 2) Answers to questions comparing and contrasting the two families' carbon usage based on these activities 3) A self-reflection of their own family comparing and contrasting their expected carbon use to their assigned families. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit Quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets

Stage 3: Learning Plan

Code	***Pre-Assessment*** ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
M, A	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…* ***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension

M, A T, M, A T, M, A	● ***Carbon Cycle Game:*** Model the path of carbon through Earth's spheres by rolling dice and recording the randomized path you follow. (H, E1) ● ***Carbon Cycle Model:*** Add all of the possible paths from the carbon cycle game to a map of the carbon cycle to give a full representation of the ways that carbon can move between each of Earth's spheres. (W, H, E1, T) ● ***Carbon Cycle Analysis:*** Calculate the amount of carbon moving among Earth's spheres with and without human activity to illustrate how human activities have altered the carbon balance on Earth. (E1, R, E2, T, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 9: Earth's Systems - Weather

Phenomena: Latitude's impact on climate or Glaciers Melting Glacier Video

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HE-ESS2-2
Earth's Systems
Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems

HS-ESS2-4
Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate

Transfer

Students will be able to independently use their learning to…

- SEP 3: Plan and Carry Out Investigations
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematics and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.B: Earth and Solar System
Cyclical changes in the shape of Earth;s orbit around the sun, together with changes in the tilt of the planet's axis of rotation, both occurring over hundreds of thousands of years, have altered the intensity and distribution of sunlight falling on the earth. These phenomena cause a cycle of ice ages and other gradual changes.

ESS2.A Earth Materials and Systems
Earth' systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original change.

ESS2.D: Weather and Climate
The foundation for Earth;s global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution

ESSENTIAL QUESTIONS

- How do different parts of Earth's climate systems impact one another?
- What factors regulate weather and climate?

	among the atmosphere, ocean and land systems, and the energy's re-radiation into space.	
	Acquisition	
	Students will know… ● the angle of insolation occurs because of the curving surface of a sphere ● the angle changes with latitude (CCC: Patterns) ● energy reaching the surface changes due to the angle of insolation (CCC: Energy and Matter) ● the daily temperature pattern is caused by the change in angle of insolation of the sun's movement across the sky (CCC: Cause and Effect) ● the seasonal temperature patterns are caused by a changing angle of insolation due to the 23.5^0 tilt (CCC: CAuse and Effect) ● albedo is reflected energy back to space ● different surfaces will absorb different amounts of energy. (CCC: Patterns, Structure and Function) ● energy absorbed is transferred to the air as infrared through conduction ● the greenhouse effect traps some infrared to keep the lower atmosphere warm, while some escapes to space. (CCC: Cause and Effect) ● air temperature impacts capacity which impact relative humidity (CCC: Patterns, Cause and Effect) ● 100% relative humidity is called dew point, which is when condensation can occur ● the different feedbacks of Earth on global or regional temperature ● ***VOCABULARY:*** angle of insolation, albedo, capacity, dew point, relative humidity, latitude, seasons, tilt,	*Students will be skilled at…* ● Modeling energy flow through Earth systems ● Investigating the impact of surface color (albedo) and energy absorption/temperature ● Discovering the impact in the change of capacity and relative humidity ● Investigating the effect tilt and latitude has on seasons. ● Drawing conclusions about light angle and energy absorption ● Drawing conclusions about how city development has impact temperature of an area

	insolation, infrared radiation, condensation/evaporation	

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	Rubric to assess for: **CER Writing -** accuracy of claim, appropriateness of evidence, and reasoning that is thorough and connects to content accurately. **Graphing -** inclusion and correctness of all required graph components **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How the color and texture of a surface impacts the albedo of that surface and therefore the temperature of the air above it. **Goal/Challenge:** Measure the surface temperatures of multiple surfaces and the air temperature just above them to determine which surfaces have the highest and lowest albedo. **Role for student:** Environmental Scientist **Audience:** New Milford Department of Parks and Recreation **Situation:** The New Milford Parks and Rec department has asked you which surface material they should use the most in a new park to help keep the temperatures down in the summertime. **Products generated by student:** A CER explaining which of the surfaces had the highest albedo and why based on the surface's texture and color, including data, graphs, and diagrams from their lab for support. **Standards/Criteria for judging success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit Test ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Angle of Insolation stations:*** students will move through a variety of topics about angle of insolation and albedo. (W, H, E1, T)	
M, A	● ***Humidity Stations:*** students moved through a variety of topics related to humidity. (W, H, E1, T)	
T, M, A	● ***Seasons Gizmo:*** students explore how latitude and tilt of Earth's axis influences seasons, specifically: amount of energy, length of day hours, and angle of sunlight. (W,	

T, M, A	H, E1, R, T, O) ● ***Greenhouse Effect PhET Simulation:*** students work through the greenhouse effect and how it is/has impacted the temperature on our planet. The simulation focuses on greenhouse gasses (quantity) and temperature from the last ice age to present day. (H, E1, T) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 10: Earth's Systems - Climate and Climate Change

Phenomena: Data showing penguin populations and their rapid decline in recent years

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HE-ESS2-2
Earth's Systems
Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems

HS-ESS2-4
Earth's Systems
Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate

HS-ESS3-1
Earth and Human Activity
Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity

HS-ESS3-5
Earth and Human Activity
Analyze geoscience data and the results from global climate models to make an evidence based forecast of the current rate of global or regional climate

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.B: Earth and Solar System
Cyclical changes in the shape of Earth;s orbit around the sun, together with changes in the tilt of the planet's axis of rotation, both occurring over hundreds of thousands of years, have altered the intensity and distribution of sunlight falling on the earth. These phenomena cause a cycle of ice ages and other gradual changes.

ESS2.A Earth Materials and Systems
Earth' systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original change.

ESS2.D: Weather and Climate
The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, ocean and land systems, and

ESSENTIAL QUESTIONS

- How do humans depend on Earth's resources?
- How do humans change the planet?
- How do people model and predict the effects of human activities on Earth's climate?

<table>
<tr><td rowspan="3">change and associated future impacts to Earth systems</td><td>the energy’s re-radiation into space.

ESS3.B: Natural Hazards
Natural hazards and other geologic events have shaped the course of human history; [they] have significantly altered the sizes of

ESS3-D: Global Climate Change
Though the magnitude of human impacts are greater than they have ever been, so too are human abilities to model, predict, and manage current and future impacts.</td><td></td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…
that climate is the long term average of weather for an area
climate change is a natural process
climate is based on the temperature and precipitation patterns/quantity for an area
climates typically change slowly, but observing the change is currently happening faster than natural climate change
the components that influence climate and climate change
climate change can impact human societies and biodiversity and how they are affected by this change
impact in changes of energy into and out of a climate system
the different feedbacks in Earth Systems and their impact on global or regional climate change
different technologies, or choices, to help slow the climate change phenomenon
VOCABULARY: feedback loops, climate vs. weather, climate change, biodiversity, climatographs,</td><td>Students will be skilled at…
Analyzing data at different locations to determine their climates.
Predicting the impact of changing temperature and precipitation to climates in a region.
investigating the impact of climate change geology, ocean and biology of a region
investigating the changes in temperature, carbon dioxide and solar energy over hundreds of thousands of years.
Discovering different feedback loops and their impact on climate and climate change
Modeling the components that impact climate and climate change
Drawing conclusion about the impact humans have had on climate change
Justifying the need for change to mitigate our impact on climate for future generations</td></tr>
</table>

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	Rubric to assess for: **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components **CER Writing -** accuracy of claim, appropriateness of evidence, and reasoning that is thorough and connects to content accurately.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How changes in the flow of energy into and out of Earth (climate change) have caused feedback loops that are causing significant impacts to environments and species. **Goal/Challenge:** Determine why a penguin population has been decreasing over the past two decades. **Role for student:** Each student will specialize in a specific scientific study collecting data about their topic. **Audience:** Climate Change Conference **Situation:** You are part of a group of scientists who have collected a variety of data and are analyzing why the population of penguins has been on a rapid decline. You will combine your different data sets to present your claim at a Climate Change Conference. **Products generated by student:** 1) A poster board including all of the data sets, descriptions of the data, and graphs when appropriate 2) A CER explaining why the penguin population is experiencing this rapid decline. **Standards/Criteria for judging success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit Quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts	
T, M, A	● ***Comparing Climates Gizmo:*** students will complete the simulation on climates to explore the patterns in temperature and precipitation for different latitudes and distances from the ocean. (W, H, E1)	
M, A	● ***Air Masses Activity:*** Determine the air masses that will most impact different locations. (W, E1, T)	
M, A	● ***Factors Affecting Climate Map Analysis:*** Identify which factors of climate will be impacting different locations around the globe. (W, E1, T, O)	

T, M, A T, M, A	• ***Interpreting Climographs Activity:*** Explain how the factors of climate will be impacting different locations around the globe. Compare and contrast types of climate and the factors that cause their differences. (R, E2, T, O) • ***Feedback Loops Activity:*** Explain the concept of feedback loops and how they are connected to topics we have covered this semester such as albedo and climate change. (R, E2, T, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Integrated Science Honors

June 2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Honors Integrated Science

9th Grade

The Integrated Science is a year course broken into two semesters that involves the study of major earth science concepts with an emphasis on the environment. Areas of study include astronomy, cycling of matter, tectonic process and earth history, atmospheric pollution, climate and resource management. Science process skills and inquiry are stressed throughout. Students are encouraged to consider the real-world application of earth science concepts. Study skills and organizational ability are stressed by means of reading assignments, homework and lab reports. At the honors level, this course is more rigorous, and moves at a faster pace, and additional homework may be required.

Vision of a Graduate

Throughout the Integrated Science course students will connect with the characteristics identified in New Milford's Vision of a Graduate. Students will enhance their problem solving skills by applying critical thinking skills while developing positive relationships with their peers.

Critical Thinking: Students will make logical connections between the knowledge they have and information they have gathered. Students will then be able to connect their knowledge together in order to solve a problem. Students will use their prior knowledge to determine if the results they have reached are logical answers to their questions or lab results.

Problem Solving: Students will work on understanding the questions that are posed to them and identifying the information within the questions and use their prior knowledge to help them find solutions. Students then will be able to predict the correct outcomes for future problems that they will face in society after graduating.

Positive Relationships: Students will develop positive relationships with their peers by performing laboratory experiments, group work, and delivering productive criticism or encouragement while working in small groups. Students will build relationships by working on long term projects over the course.

Integrated Science will provide students a chance to learn about a range of topics across Earth and Space Science. Integrated Science is student centered and focuses on providing hands-on learning activities that reinforce NGSS science skills to meet 21st century learning.

Pacing Guide

Include a list of the units and the approximate number of days/weeks it will take to teach the unit.

UNITS	Number of Blocks
SEMESTER ONE	
Unit 1: Stars - Energy	7
Unit 2: Stars - Nucleosynthesis	7
Unit 3: Universe Formation	8
Unit 4: Solar System Formation	9
Unit 5: Earth's Formation and Change	8
FINAL EXAM	
SEMESTER TWO	
Unit 6: Earth Systems: Weathering and Erosion	9
Unit 7: Earth Systems: Water Resources and Pollution	8
Unit 8: Earth Systems: Carbon (Cycle)	5
Unit 9: Earth Systems: Energy and Humidity (Weather)	10
Unit 10: Earth Systems: Climate and Climate Change	7
FINAL EXAM	

Key for National and State Standards

HS- ESS: Next Generation Science Standards: Earth and Space Sciences

SEP: Next Generation Science: Science and Engineering Practices

CCC: Next Generation Science: Cross Cutting Concepts

RST: Common Core REading and Literacy in Science 6-12

WHST: Common Core Writing Standards for Science and Technology

5-E Model

E1- Engage

E2- Explore

E3- Explain

E4- Extended

E5- Evaluate

SEMESTER ONE

Unit 1: Stars and Energy

Phenomena: All electromagnetic radiation starts as Gamma Rays

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-1
Earth's Place in the Universe
Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematical and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.A: The Universe and its Stars

- The star called the sun is changing and will burn out over a lifespan of approximately 10 billion years

PS3.D: Energy in Chemical Processes and Everyday Life

- Nuclear fusion processes in the center of the sun release the energy that ultimately reaches the earth as radiation

ESSENTIAL QUESTIONS

- What types of energy are at work in the universe around us?
- Which processes are involved in the creation, movement and transformation of matter and energy in stars?

Acquisition

Students will know…

- The structure of the sun (CCC: Structure and Function)
- The role of nuclear fusion in the sun's life cycle
- The process that allows nuclear fusion (proton-proton fusion) to release energy (CCC: Energy and Matter)

Students will be skilled at…

- Developing a model showing the release of energy from nuclear fusion
- Developing a model of the sun's layers
- Identifying an element based on its unique spectral pattern
- investigating the energy production and changes

	• the changes that happen to photons as it goes through the process of random walk. (CCC: Cause and Effect) • The types of radiation that reach Earth from the sun • elements have unique spectral patterns. • Hydrogen is the fuel for nuclear fusion • Helium is the product of nuclear fusion • the relationships between energy, escape time and wavelength (CCC: Patterns) • the amount energy produced during nuclear fusion • ***VOCABULARY:*** Nuclear Fusion (proton-proton fusion), spectra, electromagnetic radiation (classifications), random walk, photon	as it moves through the layers of a star • Predicting the amount of energy a photon has based on the number of collisions and/or time it takes to reach the surface of a star. • Modeling and describing the electromagnetic spectrum. • using equations to calculate the energy produced during nuclear fusion

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Graphing -** inclusion of title, axes labels, proper scaling, and accuracy of data points **Claim Evidence Reasoning (CER) Writing -** accuracy of claim, appropriate selection and use of evidence, and reasoning that is thorough and connects to content accurately. ** Honors version includes more model components and additional analysis and higher order thinking questions	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The processes that generate radiation (energy) in stars and the impact of the photon's path on the type of energy it will be upon escaping from the star's surface. **Goal/Challenge:** Create a model showing the path a photon might take on its way out of the sun. **Role for student:** Astronomer at JJ McCarthy Observatory (JJMO) **Audience:** Visitors to JJMO **Situation:** You have been asked to create a presentation for the observatory in light of the recent solar eclipse to explain how the sun is producing light/energy and why we get more of certain wavelengths of light than others.

		Products generated by student: 1) A model showing the potential path of a photon including labels for the starting and ending wavelength, energy level, and type of radiation of the photon 2) A graph of class data 3) Claim Evidence Reasoning paragraph (CER) explaining why the majority of the energy received from the sun is in the form of visible light. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
M, A	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…* ***Teacher prepares notes and leads class discussion***- to introduce unit, provide content, provide opportunity for formative assessments, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension

	Students complete the following activities - to reinforce concepts. ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	
M, A	● ***Electromagnetic Spectrum Foldable:*** students construct the electromagnetic spectrum using random wavelengths and answer questions related to energy, frequency, wavelength and classification of the wave. (H, E1, T)	
T, M	● ***Spectroscopy Activity:*** students construct and deconstruct spectral patterns using multiple elements. (H, E1, T)	
T, M	● ***Spectra of Light PhET (Honors only):*** students work through how elements create different spectra of light. They will investigate how the amount of energy of electrons are specific to each spectral line and the energy of the spectral line determines its color. (H, E1, R, T)	
T, M, A	● ***Random Walk Activity (Honors Version):*** students will collect and analyze the path of a photon from its creation in the core of a star to exiting the radiative zone and identify the relationship between residence time, energy, and wavelength changes that photon goes through. **HONORS: includes higher order thinking questions to extend learning. (H, E1, R, E2, T, O)	
M, A	● ***Nuclear Fusion Activity (Honors Version):*** students will model the process of nuclear fusion within the core of a star and explain how energy is produced. **HONORS: has an emphasis on mathematical computations. (W, E1, E2, T, O)	
M, A	● ***Sun-Layer Activity (Honors Version):*** Students will construct a cut-out model of the different layers of a star. **HONORS: requires detailed descriptions. (H, E1, T)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Stars and Nucleosynthesis

Phenomena: "We are made of star stuff" - Carl Sagan

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-3
Earth's Place in the Universe
Communicate scientific ideas about the way stars, over their life cycle, produce elements

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.A: The Universe and Its Stars

- Other than the hydrogen and helium formed at the time of the Big Bang, nuclear fusion within stars produces all atomic nuclei lighter than and including iron, and the process releases electromagnetic energy. Heavier elements are produced when certain massive stars achieve a supernova stage and explode.
- The study of stars' light spectra and brightness is used to identify compositional elements of stars, their movements, and their distances from Earth.

ESSENTIAL QUESTIONS

- What types of energy are at work in the universe around us?
- Which processes are involved in the creation, movement and transformation of matter and energy in stars?

Acquisition

Students will know…

- the life cycle of a star based on its mass (CCC: Stability and Change, Cause and Effect)
- elements are produced at the different stages of star life (CCC: Stability and Change)
- hydrogen is the fuel for Proton-Proton fusion, which produces helium (alpha particle)
- helium is fuel for larger elements (up to

Students will be skilled at…

- Producing spectra diagrams of different elements
- Identifying elements in a star based on its spectral pattern
- Identifying the stage of life based on the elements it is producing
- Sequencing stages of a star based on its mass
- Modeling stages of a star and nucleosynthesis of

	carbon) ● the conditions necessary for different nuclear fusion reactions (CCC: Stability and Change) ● the imbalance between gravity and outward pressure causes a star to progress to the next stage and enter a new nucleosynthesis process. (CCC: Cause and Effect) ● the instability of a nucleus (electromagnetic repulsion vs. strong force) will cause a change that creates a new element. (CCC: Stability and Change) ● ***VOCABULARY:*** nucleosynthesis, stages of a star's life, main sequence, nuclear fusion, parts of a nucleus, elements, pressure, gravity, equilibrium	elements on its mass ● Drawing conclusion about nucleosynthesis and the changes a nucleus goes through ● Discovering the cause and effects of nucleosynthesis through nuclear fusion. ● Explaining the reasons for a star to go through various stages in their life.

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. ** Honors version includes detailed research about a specific star that they were assigned and explanations about why the star changes to a new stage	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The various types of stars, their developmental stages, and the reasoning behind the observed differences in the life cycles of stars of different masses. **Goal/Challenge:** Create a children's book detailing the life cycle of a star and how/why its life cycle would be different if it were a star of a different mass, including a description of nuclear fusion and the elements produced in different stages of star life. **Role for student:** Astronomer at JJMO **Audience:** a third grade student **Situation:** You are a famous astronomer and have been asked to write a

		children's book explaining why not all stars in the night sky look the same **Products generated by student:** 1) A Research detailing information about their assigned star, such as: star mass, surface temperature, distance from the Sun, etc. 2) A fiction or nonfiction children's book including pictures/illustrations, telling the story of the life cycle of their assigned star **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets

Stage 3: Learning Plan

Code	***Pre-Assessment*** ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
M, A	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…* ***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension

	expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	
M, A	● ***Star Life Cycle Stations (Honors Version)***: Construct a timeline of developmental stages to compare/contrast the life cycles of stars of varying masses. ** HONORS: will explain why the changes are happening and extend the concepts to other fusion reactions.(W, E1, R, E2, T, O) ○ Station 1 - Stages that all stars go through ○ Station 2 - Low Mass Star stages ○ Station 3 - High Mass Star stages	
M, A	● ***HR Diagram Gizmo:*** Analyze a variety of stars based on temperature and luminosity to identify trends in the HR diagram and describe how those trends identify stars of different masses and at different stages of their lives (W, E1, E2, T, O)	
T, M, A	● ***Build-An-Atom PhET (Honors Version):*** students will go through the steps of proton-proton fusion describing the causes of a nucleus to be stable or unstable, and the required changes to make it stable. **HONORS: will explain why the changes are happening and extend the concepts to other fusion reactions. (W, E1, R, E2, T, O)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 3: Universe Formation

Phenomena: The Big Bang Theory ▶ The Beginning of Everything -- The Big Bang

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-2
Earth's Place in the Universe
Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.

RST 9-10.7
Integration of Knowledge and Ideas
Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or description.

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematical and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

HS-ESS1.A: The Universe and its Stars

- The study of stars' light spectra and brightness is used to identify compositional elements of stars, their motion, and their distances from Earth.
- The Big Bang Theory is supported by observations of distant galaxies receding from our own, of the measured composition of stars and non-stellar gasses, and the maps of spectra of primordial radiation (cosmic microwave background) that still fills the universe.
- All hydrogen in the universe was formed during the Big Bang

ESSENTIAL QUESTIONS

- What is the future of the universe?
- What types of energy are at work in the universe around us?
- Which processes are involved in the creation, movement and transformation of matter and energy in stars?
- How has technology aided us in our study of the universe?

Acquisition

Students will know…

- Spectra of light can change due to a relative shifting of distance between a light source and

Students will be skilled at…

- Evaluating Hubble's Redshift data to support Big Bang

	Earth. ● Almost all galaxies are moving away from each other ● The universe started as mostly Hydrogen and a small amount of Helium ● The three primary pieces of evidence that support the Big Bang Theory ● since the start of the Big Bang, the initial energy wavelength has changed to a longer wavelength. ● galaxies are moving away at different rates based on distance from Earth ● Hubble's redshift is used to calculate the rate of expansion based on distance from Earth ● ***VOCABULARY:*** Cosmic Background Radiation, Hubble's Redshift, doppler effect (redshift/blueshift), composition, singularity	● Citing evidence to support Big Bang ● Modeling the stages of Big Bang ● Predicting if a light source is close or far from Earth based on the spectral shift. ● Evaluating the wavelength of energy as the universe expands ● Calculating slope to estimate Hubble's redshift constant ● Modeling Hubble's redshift ● Graphing Hubble's redshift ● Illustrating cosmic microwave background radiation

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	Rubric to assess for: **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. **Graphing -** inclusion of title, axes labels, proper scaling, and accuracy of data points ** Honors version should include more data from assignments during the unit and more detail is expected in their final report	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The evidence of redshift of light from galaxies, cosmic microwave background radiation, and the composition of matter in the universe as evidence of the Big Bang and the continued expansion of the universe. **Goal/Challenge:** Create a magazine article for the general public to explain the evidence that scientists use to support the Big Bang Theory. **Role for student:** Astronomer and author **Audience:** Readers of Astronomy magazine

		Situation: You are an author for Astronomy magazine and your current assignment is to write an article about "Why We Believe the Big Bang Theory". **Products generated by student:** A report in the style of a magazine article that explains the three primary pieces of evidence that support the Big Bang Theory, using the activities completed throughout the unit as their sources of evidence, including written explanations, pictures/illustrations, data tables, and graphs. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit test ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan	
Code	***Pre-Assessment*** ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)

	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Shifting Spectra / Hubble's Law Activity (Honors Version):*** Analyze given spectra and explain the impact of the Doppler Effect on them. Create spectra of moving objects based on the Doppler Effect. ** HONORS: emphasis on mathematical interpretation. (W, E1, T, O)	
T, M, A	● ***Expansion of the Universe Balloon Lab (Honors Version):*** Graph and analyze data related to the expansion of the universe using a balloon as a model, with a focus on expansion's impact on wavelengths of light and distances between galaxies. ** HONORS: emphasis on mathematical interpretation. (H, E1, R, T)	
M, A	● ***Big Bang Theory Evidence Analysis and Model (Honors Version):*** Analyze all three pieces of evidence for the Big Bang Theory, explaining how they relate to each other and to the concepts that we have studied earlier in the year. ** HONORS: Students will develop a 3 stage model of the Big Bang and incorporate concepts in the correct stage. (H, E1, R, E2, T)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 4: Solar System Formation

Phenomena: Pictures showing the orbital paths of planets in our solar system

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-4
Earth's Place in the Universe
Use mathematical or computational representations to predict the motion of orbiting objects in the solar system

Transfer

Students will be able to independently use their learning to…

- SEP 3: Plan and Carry Out Investigations
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematics and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…
ESS1.B: Earth and the Solar System

- Kepler's laws describe common features of the motion of orbiting objects, including their elliptical paths around the sun. Orbits may change due to the gravitational effects from, or collisions with, other objects in the solar system.

ESSENTIAL QUESTIONS

- What is Earth's place in the solar system?
- Why is the power of gravity so important to the solar system?
- How has technology aided us in our study of the universe?

Acquisition

Students will know…

- Kepler's three laws of planetary motion (CCC: Patterns, Scale, Proportion and Quantity)
- How the gravity between two objects is impacted by distance between them and their mass. (CCC: Cause and Effect)
- The five basic stages of solar system formation(CCC: Stability and Change)
- How the stages of solar system formation were influenced by gravity and Kepler's Laws

Students will be skilled at…

- Using Kepler's 1st law to calculate different eccentricities of planets
- Evaluating different orbits
- Predicting if a planet is satisfying Kepler's 2nd Law
- Predicting how the distances of a planet (aphelion/perihelion) affects the gravity and speed of a planet at that point in the orbit.
- Illustrating different eccentricities of planets around a star

	(CCC: Systems and System Models) ● the locations of aphelion and perihelion on an elliptical orbit ● how to write and use scientific notation ● the equation to calculate planetary velocity ● ***VOCABULARY:*** aphelion, major axis, perihelion, ellipse, Kepler's 3 laws, gravity, focal distance	● Measuring focal distance and major axis in an elliptical orbit ● Calculating the gravitational force between stars and planets ● Calculating planetary orbital velocity at different points in their orbit ● Justifying why a circle has an eccentricity of 0 and a flat line has eccentricity of 1

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. ** Honors version includes three planets instead of two, with authentic data for distances and mass (example: CP planet mass would be '2', Honors planet mass would be 0.614×10^{24} kg)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How Kepler's Laws of planetary motion and Universal Gravitation allow scientists to evaluate the properties of planets that orbit other stars. **Goal/Challenge:** Create a model of a newly discovered star system, predicting the orbital paths of two planets based on all three of Kepler's laws and the law of universal gravitation. **Role for student:** NASA planetary scientist **Audience:** International Planetary Science Committee (IPSC) **Situation:** You have been asked to create a model of a newly discovered star system to present at an upcoming conference for the IPSC **Products generated by student:** 1) A poster showing the expected orbit of the three planets 2) A report explaining the process that they used to figure out the orbits using each of Kepler's laws and gravity, with a focus on the mathematical calculations and concepts that they have used throughout the unit. **Standards/Criteria for judging success:** Student self-grade, peer grade, and

		teacher grade based on the same rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Solar System Formation Flowchart:*** Model and describe the five major stages of solar system development (W, E1, E2, T, O)	

T, M, A	● ***Kepler's First Law Activity (Honors Version):*** Model Kepler's first law of motion, calculate eccentricity of model orbits, and determine how changes to eccentricity affect different points on an orbit. ** HONORS: emphasis on mathematical calculations. (E1, R, O)	
T, M, A	● ***Gravity and Orbits PhET Simulation (Honors Version):*** Develop an understanding of the factors that affect the stability of planets around a star by manipulating their masses and the distances between them. ** HONORS: emphasis on mathematical calculations. (E1, R, O)	
T, M, A	● ***Kepler's Second Law Activity (Honors Version):*** Use evidence to support Kepler's second law of motion that planets cover equal area during orbits in equal amounts of time. ** HONORS: emphasis on mathematical calculations and interpretation. (E1, R, O)	
T, M, A	● ***Kepler's Third Law Activity (Honors Version):*** Determine the mathematical relationship between orbital period and a planet's distance from the sun, and use it to identify a trend in the orbital periods of planets in our solar system. ** HONORS: emphasis on mathematical calculations and interpretation. (E1, R, E2, O)	
	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 5: Earth's Formation and Change

Phenomena: Pangaea vs. present time

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS1-5
Earth's Place in the Universe
Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks

HS-ESS2-1
Earth's Systems
Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features
- Focus on **internal** processes

HS-ESS2-3
Earth's Systems
Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection

Transfer

Students will be able to independently use their learning to…
- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematical and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.C: The History of Planet Earth
- Continental rocks, which can be older than 4 billion years, are generally much older than the rocks of the ocean floor, which are less than 200 million years old.
- Although active geologic processes such as plate tectonics and erosion have destroyed or altered most of the very early rock record on Earth, other objects in the solar system, such as lunar rocks, asteroids, and meteorites have changed little over billions of years. Studying these objects can provide information about Earth's formation and early history.

ESS2.B: Plate Tectonics and Large-scale Systems Interactions
- Plate tectonics is the unifying theory that explains the past and current movements of the rocks at Earth's surface and [provides a

ESSENTIAL QUESTIONS
- How does the position of Earth in the solar system affect the conditions on our planet?
- What methods, objects, and features do scientists use to uncover the formation of the earth and other solar system objects?

	framework for understanding its geologic history.	
	Acquisition	
	Students will know… ● The theory of plate tectonics (CCC: Patterns) ● Alfred Wegener's evidence to support the theory of plate tectonics (● The theory of seafloor spreading (CCC: Patterns, Scale/Proportion and Quantity) ● The evidence used to support seafloor spreading ● how convection of the magma is the cause of plate tectonics (CCC: Cause and Effect) ● The crustal materials of different ages are arranged on earth's surface in a pattern that can be attributed to plate tectonics. ● There is formation of new rocks from magma rising where plates are moving apart (and hotspots). ● the difference between absolute and relative dating ● the relationship between parent and daughter isotopes ● the length of half life affects the rate of decay ● ***VOCABULARY:*** Alfred Wegener, Continental Drift, Sea-floor Spreading, Plate Tectonics, convection	*Students will be skilled at…* ● Explaining the different pieces of evidence from Wegener ● Evaluating the difference between Wegener evidence and Sea-floor spreading evidence ● Measuring rates of sea-floor spreading in the Atlantic and Pacific Oceans ● Describing features created by to Plate Tectonics ● Illustrating magma convection ● Modeling plate tectonics ● Citing evidence to support Continental Drift and Plate Tectonics ● Discovering the cause for convection ● Determining comparative ages of surfaces using relative dating techniques ● identifying the number of half lives that have passed using a graph of parent and daughter isotope ratios ● Calculate the number of half lives that have passed given numbers of parent and daughter isotopes ● Calculate age of an object using the half life equation and two of the three variables

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	Rubric to assess for: **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Written response -** accuracy of content, neatness of format, effective presentation of materials, and inclusion of all required components ** Honors version includes more model components and additional analysis and higher order thinking questions, and more detail is expected in their descriptions	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The cycling of matter inside the Earth's mantle and its impact on the motion of continental and oceanic crust, causing seafloor spreading and continental drift. **Goal/Challenge:** Create a model showing the convection currents inside of Earth's mantle and detailing their impact on seafloor spreading and continental drift **Role for student:** Planetary geologist **Audience:** Geological Society of America (GSA) **Situation:** You are a member of the GSA and have been asked to create a presentation on mantle convection for an upcoming conference **Products generated by student:** A model showing mantle convection and detailing, with both pictures and descriptions, the impact of convection on the processes of seafloor spreading and continental drift. **Standards/Criteria for judging success:** Student self-grade, peer grade, and teacher grade based on the same rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quiz and end of unit Test ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	
M, A	● ***Wegener Evidence Inquiry:*** Analyze fossil evidence and geologic features to recreate Pangea (W, H, R)	
T, M, A	● ***Plate Motion and Seafloor Spreading Activity (Honors Version):*** Calculate the rate of seafloor spreading in the Atlantic and Pacific oceans using the mid-ocean ridge and hot spots. Then, compare and contrast the relative motions of the plates through geologic time. ** HONORS: emphasis on measurements and mathematical calculations, with an increased number of extension questions to encourage higher order thinking (E1, R, T, O)	
M, A	● ***Mantle Convection Model:*** Modeling activity to show the convection currents in Earth's mantle. (W, E1, R, E2, T, O)	
T, M, A	● ***Half Life Gizmo (Honors Only):*** students will complete the simulation on half life to practice reading and interpreting half life graphs with different lengths of half life, and comparing the numbers of parent and daughter isotopes after different numbers of half lives. (H, E1, R, E2, T)	
T, M, A	● ***Relative and Absolute Dating Stations (Honors Version):*** Explore the concepts of relative and absolute dating, how we use them to find the age of Earth, and how they	

	give evidence for continental drift and seafloor spreading. ** HONORS: emphasis on mathematical calculations, interpretations, and graphing. (W, H, E1, R, E2, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

SEMESTER TWO

Unit 6: Weathering and Erosion

Phenomena: Pictures of headstones and statues that have been chemically and mechanically weathered

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS2-1
Earth's Systems
Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features

- Focus on **surface** processes

HS-ESS2-5
Earth's Systems
Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes

Transfer

Students will be able to independently use their learning to…

- SEP 3: Plan and Carry Out Investigations
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematical and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS2.A: Earth Materials and Systems

- Earth' systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes.

ESS2.C: The Roles of Water in Earth's Surface Processes

- The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planter's dynamics. These properties include water's exceptional capacity to absorb, store and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks.

ESSENTIAL QUESTIONS

- How do the properties and movements of water shape Earth's surface and affect its systems?
- How do Earth's systems interact?

	Acquisition	
	Students will know… ● weathering and erosion wear down Earth's surface over time ● the difference between mechanical and chemical weathering (CCC: Cause and Effect) ● the specific mechanical process of abrasion and frost wedging ● the specific chemical weathering of oxidation and hydrolysis/dissolving ● temporal/spatial scales of the different weathering processes (CCC: Scale, Proportion and Quantity) ● temporal/spatial scales of erosional processes (CCC: Scal, Proportion and Quantity) ● stream transportation and deposition of rock material through the different stages of a river (CCC: Patterns, System and System Models) ● the relationship between river velocity and particle carrying size. ● relationship between river slope and velocity of the water (CCC: Patterns) ● the relationship between surface area, volume and rates of weathering. (CCC: Patterns) ● ***VOCABULARY:*** mechanical weathering, chemical weathering, river stages, deposition, erosion	*Students will be skilled at…* ● Conducting labs to determine the effects of chemical weathering ● Conducting labs to determine the effects of mechanical weathering ● Illustrating different weathering processes ● Modeling a river systems stages, particle carry capacity and erosional/depositional features. ● Evaluating stream velocity and particle size graphs ● Citing evidence from a variety of graphs to support weathering and erosional claims ● Distinguishing weathering processes and the attributes they create ● Calculate surface area and volume indexes ● Identifying patterns in data ● Analyzing and drawing conclusions from data

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	<u>Rubric to assess for:</u> **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. **Graphing -** inclusion of title, axes labels, proper scaling, and accuracy of data points **CER Writing -** accuracy of claim, appropriate selection and use of evidence, and reasoning that is thorough and connects to content accurately. ** Honors version includes additional analysis and higher order thinking questions and more detail is expected in their final report	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The processes of chemical and mechanical weathering, what causes each, and the similarities and differences by which they weather different types of rocks (surface materials). **Goal/Challenge:** To determine which type of rock will be most resistant to chemical and mechanical weathering. **Role for student:** Geologist **Audience:** CT Stone Masons' Guild **Situation:** You have been hired by the CT Stone Masons' Guild to investigate the best material for them to use when carving headstones. They would like you to investigate what the best rock will be the most resistant to both chemical and mechanical weathering. **Products generated by student:** 1) A report outlining the results of their experiments, including data tables and graphs from their lab 2) A CER paragraph explaining which rock type would make the best material for a headstone based on its resistance to the types of chemical and mechanical weathering that were tested. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quiz and end of unit Test ● Formative assessments ● Verbal questioning / class discussions ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R)	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
	Teacher circulates and monitors progress while students complete the following activities individually or in small groups to reinforce concepts	
	Students complete the following activities - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	
T, M, A	● ***Weathering Gizmo (Honors Version):*** students will complete the simulation on weathering of a variety of rocks and conditions to enhance and reinforce the concepts. ** HONORS: students are asked to collect numerical data of weathering of different rocks in different climates and analyze it in a Claim Evidence Reasoning format (W, H, E1, R, E2, T)	
T, M, A	● ***Weather and Climate Graph Activity:*** Utilize a graph showing how the temperature and precipitation impact the type of weathering that will be dominant in an area. Then, analyze the type of weathering that is dominant in New Milford based and make predictions about how that would change with different annual temperature and precipitation. (H, E1, T, O)	
T, M, A	● ***Surface Area Indexes (Honors Only):*** students will calculate and analyze the mathematical relationship between surface area and weathering rates. (W, E1, E2, T, O)	
T, M, A	● ***River Erosion Gizmo (Honors Version):*** students will complete the simulation on river	

M, A	erosion to identify the variables that influence water velocity and particles carried, as well as the requirements for cutbanks and point bar development. ** HONORS: emphasis on mathematical interpretation and analyzing numerical data (W, H, E1) ● ***Erosion and Deposition Model:*** Modeling activity to show how erosion and deposition vary at different points along a river. (W, E1, R, E2, T, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 7: Water Resources and Pollution

Phenomena: Flooding impacts on societies

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HS-ESS3-1
Earth and Human Activity
Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity

HS-ESS3-4
Earth and Human ACtivity
Evaluate or refine a technological solution that reduces impacts of human activities on natural resources.

Transfer

Students will be able to independently use their learning to…

- SEP 1: Ask Questions and Define Problems
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS3.A: Natural REsources
Resources availability has guided the development of human society

ESS3.B Natural Hazards
Natural hazards and other geologic events have shaped the source of human history; [they] have significantly altered the sizes of human populations and have driven human migration.

ETS1B: Developing Possible Solution
When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.

ESSENTIAL QUESTIONS

- How do humans depend on Earth's resources?
- How do humans change the planet?

Acquisition

Students will know…

- the variety of ways water is used by society
- different types of pollution is transported with

Students will be skilled at…

- Evaluating technologies and solutions to reduce water pollution

	water ● Water transmission (permeability) through the ground is determined by the grounds porosity (size, shape and sorting of particles) and connectedness ● that human surface modification and development has affected runoff and infiltration in an area by affecting the properties of the surface ● Runoff of water is impacted by slope, vegetation, surface material and duration of rainfall ● the difference between point source and nonpoint source pollution ● the different types/classifications of pollution ● the causes of flooding, both natural and humanity induced ● the variety of impacts of flooding, including pollution, quality of water resources and physical/structural damage. ● design technologies/strategies (i.e. buffer systems) that reduce runoff and pollution from entering the environment ● ***VOCABULARY:*** permeability, porosity, infiltration, pollution, runoff, slope, flooding, buffer systems	● Evaluating the impact of changing surfaces and runoff/infiltration ● Predicting permeability rates of material using different diagrams with different porosity characteristics ● Classifying different pollutants by source and type ● Predict the impact of flooding when changing surfaces from natural to human developed ● Describing how to reduce water use by society ● Calculating percent change

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	Rubric to assess for: **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. ** Honors version includes additional analysis and higher order thinking questions and more detail is expected in their final report	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How expected natural hazards such as annual flooding should influence the way that towns and cities are constructed, and how the development patterns of towns/cities can influence natural events such as the amount of annual flooding an area experiences. Additionally, technologies can be put in place such as riparian buffers to mitigate the impact that towns and river systems have on each other in terms of pollution and flooding. **Goal/Challenge:** Design the layout of a town with a specific focus and including specific requirements (example: the town with an agricultural focus will have a significant number of required farms) in a way that will minimally impact the watershed and river system. **Role for student:** City planner **Audience:** Town council **Situation:** You have been hired to plan a new town in a way that will minimally impact the watershed that you are building on. The town council has supplied you with a list of exactly what is to be included in the town plan. **Products generated by student:** 1) A poster showing your suggested layout for the town 2) A report detailing your explanations for why you have chosen to put each area where it is on your map, the impacts that you expect your layout to have on the watershed, and some suggested laws to help minimize pollution from different possible source locations. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Formative assessments ● Verbal questioning / class discussions ● Lab analysis and reflection ● Warm-ups and exit tickets

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	
T, M, A	● ***Society's Impact on Watersheds Inquiry (Honors Version):*** Analyze the ways that differences in landscape influence water's ability to infiltrate the ground. Then, analyze how a watershed has changed over 100 years and how those human impacts will change the amounts of runoff vs. infiltration in the watershed. Calculate changes in surface coverage and amounts of runoff. ** HONORS: emphasis on mathematical computation and calculating percent change, and increased higher order thinking questions (W, E1, E2, T)	
T, M, A	● ***Porosity and Permeability Lab (Honors Version):*** Compare the porosity and permeability of three types of substrate to determine the best material for an aquifer. **HONORS: increased higher order thinking questions and emphasis on mathematical interpretation and graphing. Students must write a CER paragraph detailing which material would make the best well for a town. (W, H, E1, R, E2, T, O)	

M, A	● ***Aquifers and Groundwater Activity:*** Use a model to visualize parts of an aquifer and how the aquifer will change during flood or drought conditions. (W, E1, R, T, O)	
M, A	● ***Pollution Problem Investigation:*** Plot and analyze groundwater data to determine the source of pollution. Explain impacts and possible remediation strategies. (W, H, E1, E2, T, O)	
T, M, A	● ***Buffers Activity:*** Identify the function of riparian buffers and the different ways that they help a watershed. Create models of buffers to serve different purposes and analyze why different types of buffers might be helpful. Explain which buffer may have been useful in the Pollution Problem Investigation. (W, E1, R, E2, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 8: Earth's Systems - Carbon

Phenomena: Humans' impact on the carbon cycle

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HE-ESS2-2
Earth's Systems
Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems

HS-ESS2-6
Earth's Systems
Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere

Transfer

Students will be able to independently use their learning to…

- SEP 1: Ask Questions and Define Problems
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS2.A: Earth MAterials and Systems

- Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes.

ESS2.D: Weather and Climate

- Gradual atmospheric changes were due to plants and other organisms that capture carbon dioxide and released oxygen
- Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate.

ESSENTIAL QUESTIONS

- How do humans depend on Earth's resources?
- How do humans change the planet?
- How are Earth's resources being exploited for human use?

Acquisition

Students will know…

- the different spheres of the Earth System
- the processes of carbon flux between spheres
- the different carbon molecular forms and the spheres they reside

Students will be skilled at…

- Measuring changes of carbon flux between spheres
- Identifying the cause of changes as carbon moves between spheres

	• how humans have impacted the carbon cycle • personal daily choices and decisions impact the carbon cycle • whether a feedback effect is positive or negative (CCC: Cause and Effect) • the changes in one system (or sphere) can change a different system (or sphere) (CCC: Cause and Effect, Stability and Change, Systems and System Models) • the difference between an open and closed system (CCC: Energy and Matter) • the main locations (residence) and forms carbon is stored within it • Carbon moves between Atmosphere and the ocean through diffusion • An increase in CO_2 in the atmosphere causes an increase in diffusion • ***VOCABULARY:*** open/closed system, the four spheres, carbon and forms of carbon, photosynthesis, respiration, diffusion, combustion, carbon footprint	• Predicting how changing one sphere will cause a change in a different sphere • Modeling the carbon cycle • Concluding the impact of humans on the carbon cycle • Justifying choices we make on a daily basis related to the carbon cycle • Critiquing other people's lifestyle choices related to the carbon cycle • Investigating the effects of carbon dioxide on sea life • Investigating the effects of carbon dioxide on ocean chemistry

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence

A, M, T	<u>Rubric to assess for:</u> **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. ** Honors version includes additional analysis and higher order thinking questions and more detail is expected in their final report	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* The way that human activities impact their carbon footprint and therefore the carbon cycle. **Goal/Challenge:** Compare and contrast the carbon footprints of two families, then compare it to their own family. **Role for student:** Environmental Scientist **Audience:** Themselves **Situation:** You are an environmental scientist and have decided to compare the carbon footprints of different families to analyze how different activities might have more or less impact on their carbon footprint. **Products generated by student:** 1) A page of calculations for the two families that they are assigned detailing their carbon use based on a set of annual activities 2) Answers to questions comparing and contrasting the two families' carbon usage based on these activities 3) A self-reflection of their own family comparing and contrasting their expected carbon use to their assigned families. **Standards/Criteria for judging success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit Quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets

Stage 3: Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Carbon Cycle Game:*** Model the path of carbon through Earth's spheres by rolling dice and recording the randomized path you follow. (H, E1)	
T, M, A	● ***Carbon Cycle Model:*** Add all of the possible paths from the carbon cycle game to a map of the carbon cycle to give a full representation of the ways that carbon can move between each of Earth's spheres. (W, H, E1, T)	
T, M, A	● ***Carbon Cycle Analysis:*** Calculate the amount of carbon moving among Earth's spheres with and without human activity to illustrate how human activities have altered the carbon balance on Earth. (E1, R, E2, T, O)	
T, M, A	● ***Gizmo Case Study: Ocean Carbon Equilibrium (Honors Only):*** Students will complete the Gizmo Case Study to collect and analyze data on the forms of carbon most prevalent in the ocean, how they are used by various species for processes such as shell formation, how the carbon changes form, how the changes in carbon in the ocean because of human activity has changed the acidity of ocean water, and how these changes can be reversed. (W, H, E1, R, E2, T, O) Resources:	

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Unit 9: Earth's Systems - Weather

Phenomena: Latitude's impact on climate

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HE-ESS2-2
Earth's Systems
Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems

HS-ESS2-4
Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate

Transfer

Students will be able to independently use their learning to…

- SEP 3: Plan and Carry Out Investigations
- SEP 4: Analyze and Interpret Data
- SEP 5: Use Mathematics and Computational Thinking
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.B: Earth and Solar System
Cyclical changes in the shape of Earth;s orbit around the sun, together with changes in the tilt of the planet's axis of rotation, both occurring over hundreds of thousands of years, have altered the intensity and distribution of sunlight falling on the earth. These phenomena cause a cycle of ice ages and other gradual changes.

ESS2.A Earth Materials and Systems
Earth' systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original change.

ESS2.D: Weather and Climate
The foundation for Earth;s global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution

ESSENTIAL QUESTIONS

- How do different parts of Earth's climate systems impact one another?
- What factors regulate weather and climate?

	among the atmosphere, ocean and land systems, and the energy's re-radiation into space.	
	Acquisition	
	Students will know… ● the angle of insolation occurs because of the curving surface of a sphere ● the angle changes with latitude (CCC: Patterns) ● energy reaching the surface changes due to the angle of insolation (CCC: Energy and Matter) ● the daily temperature pattern is caused by the change in angle of insolation of the sun's movement across the sky (CCC: Cause and Effect) ● the seasonal temperature patterns are caused by a changing angle of insolation due to the 23.5^0 tilt (CCC: CAuse and Effect) ● albedo is reflected energy back to space ● different surfaces will absorb different amounts of energy. (CCC: Patterns, Structure and Function) ● energy absorbed is transferred to the air as infrared through conduction ● the greenhouse effect traps some infrared to keep the lower atmosphere warm, while some escapes to space. (CCC: Cause and Effect) ● air temperature impacts capacity which impact relative humidity (CCC: Patterns, Cause and Effect) ● 100% relative humidity is called dew point, which is when condensation can occur ● the different feedbacks of Earth on global or regional temperature ● energy absorbed is based on how much energy the surface receives (angle of insolation) and how much is reflected (albedo).	*Students will be skilled at…* ● Modeling energy flow through Earth systems ● Investigating the impact of surface color (albedo) and energy absorption/temperature ● Discovering the impact in the change of capacity and relative humidity ● Investigating the effect tilt and latitude has on seasons. ● Drawing conclusions about light angle and energy absorption ● Drawing conclusions about how city development has impact temperature of an area ● Predicting the impact of energy at different latitudes due to different tilt angles. ● Illustrating the impact of planetary tilt with angle of insolation, length of day, and energy reaching the surface ● Deriving the amount of energy absorbed by a surface using location (latitude) and surface type (albedo).

	• ***VOCABULARY:*** angle of insolation, albedo, capacity, dew point, relative humidity, latitude, seasons, tilt, insolation, infrared radiation, condensation/evaporation	

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	<u>Rubric to assess for:</u> **CER Writing -** accuracy of claim, appropriate selection and use of evidence, and reasoning that is thorough and connects to content accurately. **Graphing -** inclusion of title, axes labels, proper scaling, and accuracy of data points **Modeling -** effectiveness and neatness of the presentation, accuracy and validity of the content, and inclusion of all required components ** Honors version includes additional analysis and higher order thinking questions and more detail is expected in their final report	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How the color and texture of a surface impacts the albedo of that surface and therefore the temperature of the air above it. **Goal/Challenge:** Measure the surface temperatures of multiple surfaces and the air temperature just above them to determine which surfaces have the highest and lowest albedo. **Role for student:** Environmental Scientist **Audience:** New Milford Department of Parks and Recreation **Situation:** The New Milford Parks and Rec department has asked you which surface material they should use the most in a new park to help keep the temperatures down in the summertime. **Products generated by student:** A CER explaining which of the surfaces had the highest albedo and why based on the surface's texture and color, including data, graphs, and diagrams from their lab for support. **Standards/Criteria for judging success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit Test ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Lab analysis and reflection ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	● ***Angle of Insolation stations:*** students will move through a variety of topics about angle of insolation and albedo. (W, H, E1, T)	
M, A	● ***Humidity Stations:*** students moved through a variety of topics related to humidity. (W, H, E1, T)	

T, M, A T, M, A	• ***Seasons Gizmo (Honors Version):*** students explore how latitude and tilt of Earth's axis influences seasons, specifically: amount of energy, length of day hours, and angle of sunlight. ** HONORS: emphasis on higher order thinking questions (W, H, E1, R, T, O) • ***Greenhouse Effect PhET Simulation (Honors Version):*** students work through the greenhouse effect and how it is/has impacted the temperature on our planet. The simulation focuses on greenhouse gasses (quantity) and temperature from the last ice age to present day. ** HONORS: emphasis on mathematical analysis and data collection, with more higher order thinking questions (H, E1, R, E2, T) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 10: Earth's Systems - Climate and Climate Change

Phenomena: Data showing penguin populations and their rapid decline in recent years

Stage 1: Desired Results

ESTABLISHED GOALS
Include any national/state/or school goals (Power standards).

HE-ESS2-2
Earth's Systems
Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems

HS-ESS2-4
Earth's Systems
Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate

HS-ESS3-1
Earth and Human Activity
Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity

HS-ESS3-5
Earth and Human Activity
Analyze geoscience data and the results from global climate models to make an evidence based forecast of the current rate of global or regional climate

Transfer

Students will be able to independently use their learning to…

- SEP 2: Analyze and Develop Models
- SEP 4: Analyze and Interpret Data
- SEP 6: Construct Explanations
- SEP 7: Engage in Argument from Evidence
- SEP 8: Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

ESS1.B: Earth and Solar System
Cyclical changes in the shape of Earth;s orbit around the sun, together with changes in the tilt of the planet's axis of rotation, both occurring over hundreds of thousands of years, have altered the intensity and distribution of sunlight falling on the earth. These phenomena cause a cycle of ice ages and other gradual changes.

ESS2.A Earth Materials and Systems
Earth' systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original change.

ESS2.D: Weather and Climate
The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, ocean and land systems, and

ESSENTIAL QUESTIONS

- How do humans depend on Earth's resources?
- How do humans change the planet?
- How do people model and predict the effects of human activities on Earth's climate?

<table>
<tr><td rowspan="4">change and associated future impacts to Earth systems</td><td>the energy’s re-radiation into space.

ESS3.B: Natural Hazards
Natural hazards and other geologic events have shaped the course of human history; [they] have significantly altered the sizes of

ESS3-D: Global Climate Change
Though the magnitude of human impacts are greater than they have ever been, so too are human abilities to model, predict, and manage current and future impacts.</td><td></td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…
that climate is the long term average of weather for an area
climate change is a natural process
climate is based on the temperature and precipitation patterns/quantity for an area
climates typically change slowly, but observing the change is currently happening faster than natural climate change
the components that influence climate and climate change
climate change can impact human societies and biodiversity and how they are affected by this change
impact in changes of energy into and out of a climate system
the different feedbacks in Earth Systems and their impact on global or regional climate change
different technologies, or choices, to help slow the climate change phenomenon
VOCABULARY:
feedback loops, climate vs. weather, climate</td><td>Students will be skilled at…
Analyzing data at different locations to determine their climates.
Predicting the impact of changing temperature and precipitation to climates in a region.
Investigating the impact of climate change geology, ocean and biology of a region
Investigating the changes in temperature, carbon dioxide and solar energy over hundreds of thousands of years.
Discovering different feedback loops and their impact on climate and climate change
Modeling the components that impact climate and climate change
Drawing conclusion about the impact humans have had on climate change
Justifying the need for change to mitigate our impact on climate for future generations
Correlating latitude with seasonal temperature differences
Graphing based on various data sets</td></tr>
</table>

	change, biodiversity, climatographs,	

Stage 2: Evidence

Code	Evaluative Criteria	Assessment Evidence
A, M, T	Rubric to assess for: **Written response -** accuracy of content, neatness of format, effective presentation of materials, appropriate selection and use of data to support answers when applicable, and inclusion of all required components. **Graphing -** inclusion of title, axes labels, proper scaling, and accuracy of data points **CER Writing -** accuracy of claim, appropriate selection and use of evidence, and reasoning that is thorough and connects to content accurately. ** Honors version includes additional analysis and higher order thinking questions and more detail is expected in their final report, and students are required to make their own graph with the provided data instead of being given a finished graph	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* How changes in the flow of energy into and out of Earth (climate change) have caused feedback loops that are causing significant impacts to environments and species. **Goal/Challenge:** Determine why a penguin population has been decreasing over the past two decades. **Role for student:** Each student will specialize in a specific scientific study collecting data about their topic. **Audience:** Climate Change Conference **Situation:** You are part of a group of scientists who have collected a variety of data and are analyzing why the population of penguins has been on a rapid decline. You will combine your different data sets to present your claim at a Climate Change Conference. **Products generated by student:** 1) A poster board including all of the data sets, descriptions of the data, and graphs when appropriate 2) A CER explaining why the penguin population is experiencing this rapid decline. **Standards/Criteria for judging success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● End of unit Quiz ● Formative assessments ● Verbal questioning / class discussions ● Modeling activity ● Warm-ups and exit tickets ● Article readings/summaries

Stage 3: Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Format pre-assessment to match the post assessment (optional)	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Warm ups / Exit Tickets ● Notes completion ● Data Analysis questions ● Written Responses to Activity questions ● Verbal Questioning for Comprehension
M, A	***Teacher prepares notes and leads class discussions*** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (W, H, R) ***Teacher circulates and monitors progress*** while students complete the following activities individually or in small groups to reinforce concepts ***Students complete the following activities*** - to reinforce concepts ** Honors students are expected to problem solve through activities and extend their understanding through various formats in a more self guided and independent manner. Students should initiate teacher support when needed.	
T, M, A	● ***Comparing Climates Gizmo:*** students will complete the simulation on climates to explore the patterns in temperature and precipitation for different latitudes and distances from the ocean. (W, H, E1)	
M, A	● ***Air Masses Activity:*** Determine the air masses that will most impact different locations. (W, E1, T)	

M, A	● ***Factors Affecting Climate Map Analysis (Honors Version):*** Identify which factors of climate will be impacting different locations around the globe. ** HONORS: more data points and an emphasis on higher order thinking questions. (W, E1, T, O)	
T, M, A	● ***Interpreting Climographs Activity (Honors Version):*** Explain how the factors of climate will be impacting different locations around the globe. Compare and contrast types of climate and the factors that cause their differences. **HONORS: more data to analyze and an emphasis on higher order thinking questions. Graphing the relationship between latitude and seasonal temperature differences. (R, E2, T, O)	
T, M, A	● ***Feedback Loops Activity:*** Explain the concept of feedback loops and how they are connected to topics we have covered this semester such as albedo and climate change. (R, E2, T, O) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Grade 7 Accelerated Mathematics

Spring/ 2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Grade 7 Accelerated

In this unique accelerated course, students focus on critical areas that build upon the grade 6 accelerated course work and extend their learning further into grade 7 and 8 content that builds on the topics of: geometry, linear relationships and systems of equations, functions, Pythagorean Theorem, proportional reasoning and statistical samples, as well as apply their understanding of linear relationships to context involving data with variability.

The successful completion of this course allows students to develop critical foundational knowledge to continue their work in 8th grade with an Algebra I path following the high school model and as advised from the CT Core Algebra I curriculum. It is important to note that this is a very fast paced course, compacted to allow students to build concepts with meaning and for transfer, while keeping the integrity of the prerequisite content needed for a successful completion of a future Algebra course. The course entry is evidence based on a criteria utilizing multiple data points, performance and educator feedback.

As a review, prior work in the 6th grade accelerated course focused on major and additional topics threaded from grade six and seven. The priority, major, topics from grade six standards students focused in:

- Understanding that ratios are a multiplicative comparison of two quantities, and use them to solve problems
- Completing their work in division by dividing whole numbers and decimals, as well as dividing fractions by fractions
- Developing an understanding of negative numbers and extend the notion of number to the system of rational numbers
- Working with algebraic expressions and solve one variable equations, including one step inequalities
- Developing statistical reasoning skills by building an understanding of statistical questions and data distributions

As students accelerated through the course, students has an opportunity to also gain knowledge on grade seven priority

standards and explored to:

- Recognize, represent and solve a variety of proportional relationship problems
- Solve rational numbers problems involving the four operations
- Evaluate algebraic expressions and solve equations and inequalities involving the four operations

For this course, students will begin their work by building on the prior knowledge of writing and solving equations, as well as surface area, to solve higher order thinking problems involving area, surface area, volume and angle relationships. In addition, students use their prior knowledge about two dimensional figures to identify shapes formed when a plane slices three dimensional figures. As the learning progresses towards eighth grade content, students add to the 7th grade geometry standards by focusing on rigid transformations, congruence and investigate angle relationships. Later in the year, students wrap up geometry by developing an understanding of the Pythagorean Theorem and its application to solve problems.

Next students will use what they learned in 6th and 7th grade about rates to understand slope as the rate of change of a line, as well as connect previous understandings about proportional relationships to linear equations. Systems of two linear equations in two variables are introduced, and methods for finding solutions are introduced. This work develops at a consecutive unit where students will explore to understand functions, linear and nonlinear, as well as use functions to describe quantitative relationships. The last of the expressions and equations standards for grade 8, leads students in unit seven where students learn and apply the properties of integers, exponents, square and cube roots, as well as scientific notation.

Last, students continue statistical work by expanding what they have learned in grade 6 about understanding of percents, statistical questions and data distribution. From the 7th grade standards, students explore how reasoning about proportionally helps them understand applications of percentages such as interest, percentage change and percent error.

As they move further in unit 6, students learn that statistics can be used to gain information about a population by examining a sample of the population. Students draw inferences about a population and draw informal inferences about two populations. In the last two units, grade 8 standards with focus in statistics and probability, allows students to concentrate in constructing and interpreting scatter plots for bivariate measurement data to investigate patterns of associations among two quantities.

By the end of the course, student will have an opportunity to explore and develop grade seventh and eighth standards by covering the following priority topics:

- Constructing, describing and solving problems about geometric figures and the relationships between them
- Drawing inferences about populations based on samples
- Working with radical and integer exponents
- Making connections between proportional relationships, lines, and linear equations; solve one variable linear equations
- Understanding the relationships between solution(s) to a system of equations, the point(s) of intersection and real world context for the equations
- Exploring the concept of a function and the use of functions to model, evaluate and investigate patterns of association between two quantities
- Developing an understanding of congruence and similarity
- Understanding the Pythagorean and use to solve problems

Pacing Guide

Unit Title	# of Weeks
Unit 1: Geometry: Solids, Triangles, and Angles	4
Unit 2: Geometric: Figures Rigid Transformations and Congruence	2
Unit 3: Geometric: Figures Transformations, Similarity, and Angles Relationships	3
Unit 4: Linear Relationships: Slope, Lines and Systems of Linear Equations	4
Unit 5: Functions: Linear and Nonlinear Relationships	3
Unit 6: Proportional Reasoning: Percents and Statistical Samples	3
Unit 7: Integer Exponents: Properties and Scientific Notation	3
Unit 8: Real Numbers: Rational Numbers and Irrational Numbers / Pythagorean Theorem	4
Unit 9: Probability: Theoretical Probability, Experimental Probability and Compound Events	4
Unit 10: Probability: Theoretical Probability, Experimental Probability and Compound Events	3

UNIT 1 - GEOMETRY: Solids, Triangles, and Angles

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.7.G.B.6
Solve real-world and mathematical problems involving area, volume, and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

CCSS.MATH.CONTENT.7.G.A.3
Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

CCSS.MATH.CONTENT.7.G.B.5
Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

CCSS.MATH.CONTENT.7.G.A.2
Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Transfer

Students will be able to independently use their learning to model real world problems correctly and solve them with precision.

Meaning

UNDERSTANDINGS

Students will understand that…

- Knowledge about writing and solving equations can be utilized to solve problems involving area, surface area, volume and angle relationships
- Surface area and volume of rectangular prisms can help to find the area and volume of any prism and any figure composed of prisms
- Knowledge of two dimensional shape can help identify the shape formed the slicing of a three dimensional figure
- There is a set of factual measure relationships between supplementary and adjacent angles,complementary and adjacent angles, as well as vertical angles
- Angles need to add up to 180° to make a triangle
- The sum of two side lengths of a triangle is always greater than the third side

ESSENTIAL QUESTIONS

Students will keep considering…

1. How do geometric models describe spatial relationships?
2. Why are angles an important building block?
3. What are the criteria for 3 side lengths to form a triangle?

Acquisition

Students will know…

- base in 3D figures
- cylinder
- decompose and compose geometrical figures

Students will be skilled at…

- Solving various real world and mathematical problems involving geometry concepts like: area, volume, and surface area of 2 - 3

	• dimension • face • parallel (II) • perpendicular (⊥) • plane section • prism • pyramid • rectangular prism • right prism • right rectangular prism • right triangular prism • surface area • volume	dimensional objects • Communicating orally and in writing solutions, including justifications for those solutions • Describing two dimensional shapes resulting from slicing/ plane sections of three dimensional figures • Articulating the definitions of supplementary, complementary, vertical and adjacent angles • Solving multi-step problems by applying knowledge of angle relationships • Drawing various geometric shapes using a variety of tools • Select appropriate tools to draw triangles in a given situation, as well as determining whether the given information about triangles can create one, more than one, or no triangles

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Sand Under the Swing Set **Goal:** Use a real life scenario to choose appropriate models, strategies to plan for and to solve a real world task in the community for a playground renovation. **Role:** Students will apply their learnings about volume and unit rates to find the amount of sand needed. **Audience:** Classmates and the community **Products:** The purpose of this task is for students to solve a contextual problem where there are multiple entry points to this geometry based concept. The student can choose to solve the problem using a scale factor or a unit rate, but must first analyze the context of the problem to understand the situation and choose their approach. This task provides opportunities for students to reason about their computations to see if they make sense. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the measures into more complex numbers. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Geometry: Solids, Triangles, and Anges **Prompt**: Why is it important to understand angle relationship and and side lengths to draw and construct geometric figures? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, A	● Teachers will link students' prior knowledge of past learning about composite shapes, area, perimeter and volume by providing a variety of multistep, real world problems involving two and three dimensional shapes. Understanding what students know is critical and foundational to the new learning.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, A	● Students will investigate using a given area and given lengths to solve problems involving unknown lengths of two dimensional composite figures. Teachers will guide students as needed to solve problems involving unknown lengths of right prisms when given surface areas and given lengths.	
T, A	● Teachers will guide, develop lessons and provide opportunities for students to generalize for volume that V=Bh and utilize the conjectures to solve problems.	
T, A	● Students continue to solve real world mathematical problems involving volumes of composite three dimensional objects made up of the right prism.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T, A	● Teacher will provide opportunities to investigate and understand that intersections of a plane and a three dimensional figure maybe parallel, perpendicular, or neither to the base(s) of the figure, as well as that a plane section may or may not be the same shape as one of the faces of the dimensional figure.	
T, A	● Teacher will continue to provide opportunities to students where they can investigate models of right rectangular prisms, cubes, and right rectangular pyramids that can be sliced such as those made of styrofoam. Students can record their findings by using	

	tables. Teacher can challenge by asking and allowing students to explore: Why might the plane sections that result from different planes slicing a three dimensional figure have different shapes?	
T,M,A	● Teacher will assess prior knowledge of what students recall from prior learning in relationship to measuring, identifying and drawing acute, obtuse, and right angles. This is a critical foundation for new learning in this unit. Teacher will gather observational data and develop necessary experiences to meet the needs of the students.	
T, A	● Teacher will provide students the opportunity to explore supplementary and vertical angles, as well as write equations to find unknown angle measures using properties of supplementary and vertical angles. Important to remember is the development of vocabulary.	
T,A	● Teacher will provide students the opportunity to explore complementary and adjacent angles, as well as write equations to find unknown angle measures using properties of complementary and adjacent angles. Important to remember is the development of vocabulary.	
T, A	● Students, with teacher assistance and/ or independently, will write equations to find unknown angles in more complex figures by combining supplementary, complementary, vertical and adjacent angles.	
T,M,A	● Teacher will assign multi step problems where students apply what they know about types of angles to find solutions.	
T, A	● Teacher will develop and provide opportunities for students *to use tools* in exploring and understanding cases where triangles can or cannot be formed. It is important for students to be engaged in opportunities where they can draw geometric shapes free hand and/or provide graph paper and isometric graph paper. Use of tools is important as students later investigate rigid transformations in the next unit.	
T,A	● Teacher will develop opportunities and direct teaching by modeling how to use rulers and protractors, as well as allow	

	students to use tools to create geometrical shapes given measures.	
T, M, A	● Students explore and determine with teacher assistance whether they can form a unique triangle, more than one triangle or no triangle given characteristics.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task/Open Ended constructed response: Sand under the Swing Set.	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 2 - GEOMETRIC FIGURES: Rigid Transformations and Congruence

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.G.A.1

Verify experimentally the properties of rotations, reflections, and translations:
a. Lines are taken to lines, and line segments to line segments of the same length.
b. Angles are taken to angles of the same measure.
c. Parallel lines are taken to parallel lines

CCSS.MATH.CONTENT.8.G.A.3

Describe the effect of dilations, translations, rotations, and reflections on two dimensional figures using coordinates.

CCSS.MATH.CONTENT.8.G.A.2

Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

Transfer

Students will be able to use their learning about transformations and geometrical relationships accurately model with precision figures from a pre-image.

Meaning

UNDERSTANDINGS

Students will understand that…

- A rigid transformation is a function which retains the size and shape of a figure by taking the input points of the original and creating an equivalent image as an output or congruent image.
- Translation as a slide in the coordinate plane and connect translations to changes in the coordinates of the vertices.
- Reflection as a flip that produces a mirror image and explores patterns in the coordinates of corresponding vertices.
- Rotations as a turn around a fixed point and explore how the coordinates of the vertices change.
- Changing the order of a sequence of transformation may or may not affect the orientation or location of the image.
- When identifying, describing, and performing a transformation, one must use appropriate tools strategically and attend to precision.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How is the coordinate system used to analyze transformations?
2. How can you change a figure's position without changing its size and shape?
3. How is congruence related to transformations?

Acquisition

Students will know…

- Center of rotation
- Congruence

Students will be skilled at…

- Recognizing and distinguishing among translations, reflections, and rotations as rigid

	● Corresponding angles ● Corresponding sides ● Image ● Line of reflection ● Rigid transformation ● Rotation ● Sequence of transformations ● Transformation ● Translation	transformations. ● Perform translations, reflections, and rotations in the coordinate plane. ● Using a variety of tools to construct transformations. ● Perform sequences of translations, rotations, and reflections in the coordinate plane. ● Describing sequence of translations, rotations and reflections that maps a figure into an image. ● Describing a sequence of transformations to prove that two figures are congruent. ● Using math vocabulary and precise language to describe the effects of rigid transformations on a figure.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(s): Aaron's Design **Goal:** Use a real life scenario to choose appropriate models, strategies to plan for and to solve a real world task involving the design for greeting cards . **Role:** Students will apply their learnings about congruence in relationship to transformations in order to reflect, rotate and translate shapes accurately in the coordinate grid. **Audience:** Classmates **Products:** The purpose of this task is for students to solve a contextual problem.. This task provides opportunities for students to reason about their transformations to see if they make sense, as well as use the tools needed accurately. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the measures into more complex numbers. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Rigid transformation and Congruence Unit **Prompt**: Have students define the three major transformations. Give students one or more sets of figures in which a transformation is present. Writing Prompt: "Identify what composition of transformations mapped one figure onto another. Then, describe the details of the transformation using appropriate vocabulary." Also, provide a figure for the students to transform using a ruler and protractor. **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, M, A	● Teachers will link students' prior knowledge of past learning about graphing in the coordinate plane and properties of angles, lines, line segments and parallel lines. Understanding what students know is critical and foundational to the new learning, thus teacher can pre-assess and/ or use prerequisite i-Ready diagnostic data to make decisions about further learning.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, A	● Teacher will develop engaging learning experiences by providing explorative and direct opportunities to students in order to learn about rotations, reflections and translations on the coordinate plane. Students must explore through hands-on activities and materials such as utilizing shapes cut from paper to model the transformations before using the coordinate grid. Wallpaper patterns provide effective models of rotations, translations and reflections.	
T, A	● Through a combination of activities and direct learning, teachers will facilitate students' discussions to isolate each transformation and describe what they notice about the new figure compared to the original. Teachers will continue to facilitate and help students notice that lines are taken to lines, angles to angles of the same measure, including parallel to parallel lines.	
T, A	● Students continue to build confidence through hands-on opportunities and utilize the correct mathematical notation of A and A' (A' read as A prime)as the labels for the transformation and the original figure. It is important in this unit for students to connect rigid transformations to congruence.	
T, A	● Over the course of a few days, teacher will develop lessons and activities during which students will deepen their understanding	

	of rigid transformations and their understanding of congruence (same shape and same size.) Teacher will facilitate and engage learners in multiple opportunities to identify: ○ Translations as a slide in the coordinate plane and connect translations to the changes/ patterns in the coordinates of the vertices. Develop anchor charts as a reference for learning conclusions drawn. ○ Reflections as a flip that produces a mirror image and explores patterns in the coordinates of corresponding vertices. Develop anchor charts as a reference for learning and conclusions drawn. ○ Rotations as a turn around a fixed point and explore how the coordinates of the vertices change. Develop anchor charts as a reference for learning and conclusions drawn.	
T, A	● Teacher will develop learning experiences where students discover and perform a sequence of transformations. Teacher will facilitate and support students to use the correct vocabulary in describing the sequence and prove that the two figures are congruent. Note: performing a sequence can pose challenges for some students with spatial sense. Moving objects and hands on opportunities such as pieces on a game board can support learning.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T T, A	● Performance Task: Task/Open Ended constructed response: Aaron's Design. ● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 3 - GEOMETRIC FIGURES: Transformations, Similarity and Angle Relationships

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.G.A.4

Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

CCSS.MATH.CONTENT.8.G.A.3

Describe the effect of dilations, translations, rotations, and reflections on two dimensional figures using coordinates.

CCSS.MATH.CONTENT.8.G.A.5

Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.

Transfer

Students will be able to use their learning about transformations and geometrical relationships accurately model with precision figures from a pre-image.

Meaning

UNDERSTANDINGS

Students will understand that…

- Dilation is a transformation that produces an image which is similar to the original figure.
- Two figures are similar if they have corresponding angles and corresponding sides that are proportional.
- Two figures are similar if one can be mapped onto the other by one or more transformations, and corresponding vertices lie on the same ray through the center of dilation.
- There is a relationship between the angles created from two parallel lines and a transversal.
- Interior angles of a triangle have a sum of 180° (note per standards this is done informally through productive discussion and tasks).
- There exists a relationship between interior and exterior angles; every exterior angle is supplementary to its adjacent interior angle and the measure of an exterior angle equals the sum of the two nonadjacent interior angles.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How can you describe angles formed by parallel lines and transversals?
2. How can you describe the relationships among the angles of a triangle?
3. How can you find the sum of the interior angle measures and the sum of the exterior angle measures of a polygon?
4. How can you use angles to tell whether triangles are similar?

Acquisition

	Students will know… ● Alternate exterior angles ● Alternate interior angles ● Center of dilation ● Corresponding angles ● Dilation ● Exterior angles ● Linear pairs ● Same side exterior angles ● Same side interior angles ● Similar ● Transversal	*Students will be skilled at…* ● Performing and describing dilations as a transformation. ● Performing and describing transformations that show two figures are similar. ● Identifying pairs of angles that are formed when two lines are cut by a transversal. ● Identify angle relationships and use them to find angle measurements produced by two parallel lines and their transversal. ● Finding angle measurements by using the interior and exterior angle relationships of a triangle. ● Using corresponding angles of triangles to prove similarity. ● Analyzing geometric figures and prove/disprove conjectures.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Missing Angle Measure **Goal:** Apply the learning about angle relationships to solve finding an angle measurement. **Role:** Students will apply their learnings about all angle relationships and use critical thinking to find angle measurement given the conditions. **Audience:** Classmates **Products:** The purpose of this task is for students to see the hidden structure of the auxiliary line, and make use of that structure by drawing the line. This way, students will be able to solve this problem by applying knowledge of angle relationships learned in this unit. They can also use the structure of parallel, perpendicular, angles and triangles from earlier experiences to assist them in efficiently solving this multi-step geometric task. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the situation into a more complex one. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Transformations, Similarity and Angle Relationships **Prompt**: Why are corresponding angles congruent? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, A	● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to proportional relationships.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, A	● Teacher(s) will engage students in tasks to develop an understanding that a dilation is a transformation that makes a scale copy of a figure. Students will solve problems and discuss findings such that a dilation image is similar to the original figure.	
T, A	● Students will further engage into opportunities to understand that two figures are similar if one can be mapped onto the another by one or more transformations. Teacher will facilitate students into understanding that similar figures have congruent corresponding angles and proportional corresponding side lengths.	
T, A	● Teacher(s) will develop engaging activities where students discover and conclude that corresponding vertices of a dilated image and its original figure lie on the same ray through the center of a dilation.	
T, A	● Teacher will provide hands-on activities for students to perform dilations in the coordinate plane with the center of dilation at the origin. Teacher will facilitate discussions and lead students to conclude that when the center of dilation is the origin, the coordinates of corresponding vertices are proportional.	
T, A	● Students are given multiple opportunities in groups and independently to use tools correctly in performing a sequence of transformations.	
T, A	● Teacher(s) will engage students in focusing on an informal development of understanding angle relationships in triangles and parallel lines. Through problem solving opportunities, students	

	informally discover that the interior angles of a triangle have a sum of 180 degrees.	
T, A	● Teacher(s) will provide activities and opportunities for students to identify the relationship between interior and exterior angles of a triangle. Students discuss and identify that every exterior angle is supplementary to its adjacent interior angle. In addition, students understand the measure of an interior angle is equivalent to the sum of the remote interior angle.	
T, A	● As the unit progresses, the teacher(s) will provide learning tasks where students build on understanding from transformations. During this time, students construct parallel lines and a transversal to examine the relationships between the created angles.	
T, A	● Last, teacher(s) will provide opportunities for students to notice through exploration and conjecture that there are an infinite number of triangles that can be created which have the same exact measurements, and those triangles are therefore similar to each other and not necessarily congruent.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task: Task/Open Ended constructed response: Missing Angle Measure	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 4 - LINEAR RELATIONSHIPS: Slope, Lines and Systems of Linear Equations

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.EE.B.5

Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.

CCSS.MATH.CONTENT.8.EE.B.6

Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

CCSS.MATH.CONTENT.8.EE.C.7

Solve linear equations in one variable.

a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).

b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the

Transfer

Students will be able to independently use their learning to solve real world problems correctly and give explanations that are precise using appropriate vocabulary.

Meaning

UNDERSTANDINGS

Students will understand that…

- A proportional relationship is linear.
- Slope is the same between two distinct points on a line.
- Understand that when the equation of a line is given in slope-intercept form y=mx + b, m is the slope and b is the y-intercept.
- Understand that slope can be positive, negative, 0, or undefined.
- Understand that a system of linear equations is two or more related equations that are solved together in order to find a common solution.
- A solution set is the set of ordered pairs that makes all equations in the system true.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How can we represent proportional relationships graphically? What does the slope of a graph represent in a proportional relationship?
2. How can we use geometry to understand the consistency of slope? Why does the slope remain constant between any two points on a line?
3. How can we solve equations to find unknown values? What strategies can we use to maintain equality in equations?
4. How can we solve systems of equations with multiple variables? What do the solutions to a system of equations represent geometrically?

Acquisition

Students will know…

- coefficient
- congruent
- constant of proportionality
- distributive property
- expression
- like terms
- linear equation(s)
- proportional relationships

Students will be skilled at…

- Defining slope and showing that the slope of a line is the same between any two points on the line.
- Finding the slope of a line.
- Deriving the linear equations y = mx and y = mx + b.
- Graphing linear equations in any form.
- Representing and solving one variable linear

distributive property and collecting like terms. **CCSS.MATH.CONTENT.8.EE.C.8** Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of	● rate of change ● scale factor ● similar ● slope ● slope intercept form ● system of linear equations ● term(s) ● unit rate ● variable ● *y* - intercept	equations with the variable on both sides of the equation. ● Determining whether one variable linear equations have one solution, infinite, or no solutions. ● Writing equations that have exactly one solution, infinite, or no solution. ● Using graphs and tables to identify the solutions to systems of two linear equations in two variables. ● Determining whether a system of two linear equations has one, infinite many or no solution by graphing and analyzing equations. ● Estimating the solution of a system of linear equations by graphing. ● Using substitution and elimination to solve systems of linear equations. ● Identifying efficient ways to solve a system of linear equations.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Comparing Speeds in Graphs and Equations **Goal:** Students will be reasoning about graphs, slopes and rates. **Role:** Students will apply their learning to reason about graphs, slopes and rates without having a scaled graph nor an equation. **Audience:** Classmates **Products:** Students will reason and apply their knowledge about proportional relationships and graphing to identify and select the best equation for the line that describes the distance traveled by car B after x seconds and be able to explain their reasoning. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the situation into a more complex one. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Slope, Linear Equations and Systems **Prompt**: What is a solution? How can you make assumptions or predictions about the number of solutions at multiple points throughout the process of solving linear equations? **Skill Check**: Daily Warm-ups and/or Exit Tickets Assessing understandings of key concepts, including graphing proportional relationships, solving linear equations, and analyzing systems of equations. **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction Note: Throughout these standards, instruction should be scaffolded, providing opportunities for students to engage in active learning, collaborative problem-solving, and reflection. Formative assessment should be integrated to monitor student progress and adjust instruction accordingly. The curriculum should also incorporate opportunities for students to make connections between algebraic concepts and their applications in various contexts.	Progress Monitoring ● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, A	● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to proportional relationships.	
T, M	● Teacher engages students with tasks and scaffolds in order for students to learn to graph proportional relationships represented in various forms such as tables, equations and graphs.	
T, M, A	● Students will use what they know about rates to understand slope as the rate of change of a line. Teacher will continue to facilitate students' understanding that the slope of the line representing the relationship is the constant rate of change, or unit rate, between the variables.	
T, M, A	● Teacher will provide multiple opportunities for students to articulate observations and generalizations about slope as a measure of steepness and direction using precise terminology. For example: Teacher will develop and provide opportunities for exploring and learning through real-world examples such as speed-time graphs, constant rates of change, and direct variation scenarios.	
T, M	● Teacher will develop learning opportunities for students to	

	explore linear relationships and make sense of the similarities and differences between those that are proportional and those that are not. As students compare graphs of proportional relationships and graphs of linear non proportional relationship, students begin to discuss and understand the y-intercept as another main feature of the graph of a linear relationship and its characteristics.	
M	● Teacher will continue to develop activities to help students understand the concept of similar triangles and their application to slope. Through tasks and activities, students will recognize that the slope between any two points on a line remains constant. Teacher should focus instruction on facilitating students discussions in understanding that: ○ Any linear relationship can be modeled by the equation y = mx + b, where m is the slope and b is the intercept ○ The graph of any proportional relationship has a y-intercept of 0, so the relationship can be modeled by y = mx + 0 or y = mx. The slope is equal to the unit rate ○ The graph of any non proportional relationship does not pass through the origin and therefore has a nonzero y-intercept b. The slope is a constant rate of change but it does not represent a unit rate	
T, A	● For the next portion of the unit students will focus on expanding their prior knowledge of solving linear equations in one variable from grade 6 and 7 into solving more complex equations that may have the variable on both sides of the equal sign, as well as may require using the distributive property to expand or factor expressions. Teacher will assess and address any misconceptions needed for the next portion of this unit.	
T, M, A	● Teacher will develop tasks and facilitate discussions were students use one variable linear equations with rational number coefficients to solve real world and mathematical problems	
T, M, A	● Students will continue to build accuracy and fluency in solving linear equations with one variable on both sides and teacher will increase the difficulty of the word problems where students need	

	to apply the distributive property and collecting like terms.	
T, M, A	● Teachers will further challenge students to solve linear equations and reason to determine that linear equations can have a solution, no solution and infinitely many solutions.	
T, A	● Last in this unit, the key learnings involve solving systems of linear equations using multiple methods, as well as understanding the concept of intersection points. It is crucial that teacher develops tasks and opportunities for students to include instructional strategies such as graphing, substitution, and elimination to solve systems of equations. Emphasis is on interpreting the solutions in the context of the problem. Thus, using prior knowledge on solving equations, students begin by graphing two lines to visualize pairs of x and y values of context problems to make two different equations true.	
T, A	● Teacher will continue to develop tasks and context problems, as well as facilitate discussion for students to find solutions of systems of equations by substituting from one equation into the other. As students continue to make use of structure, they will recognize that some systems are easier to solve with substitution while others are easier to solve by elimination. It is important to understand that the method derives to the same solution.	
T, M , A	● Teacher will provide opportunities for students to explore that just as with linear equations on one variable, systems of linear equations in two variables can have one, zero or infinitely many solutions. Give special attention to the interpretation by referring to the context of the problems.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task: Comparing Speeds in Graphs and Equations	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 5 - FUNCTIONS: Linear and Nonlinear Relationship

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.F.A.1

Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Note: Function notation is not required in Grade 8.)

CCSS.MATH.CONTENT.8.F.A.2

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

CCSS.MATH.CONTENT.8.F.A.3

Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.

CCSS.MATH.CONTENT.8.F.B.4

Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial

Transfer

Students will be able to independently use their learning about functions to model, evaluate and investigate patterns of association between two quantities.

Meaning

UNDERSTANDINGS

Students will understand that…

- A function is a rule that assigns to each input exactly one output.
- A relationship is not a function when there is more than one y-value associated with any x-value.
- Tables, graphs, equations and verbal descriptions can be used to model, evaluate and compare characteristics of linear functions.
- A function can qualitatively be described based on its graph, even when no scale values are shown.
- Terms like increasing, decreasing, constant rate, and varying rate relate to graphs of functions.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How would you interpret the features (e.g. rate of change, initial value, increasing/decreasing) of a function, in a real world context?
2. How would you determine, depict, and describe “patterns of association” between two quantities, in bivariate data?

Acquisition

Students will know…

- factor of a number
- function
- initial value
- input
- linear function
- nonlinear function
- output

Students will be skilled at…

- Identifying whether a relationship is a function from a verbal description, tables of values, graphs or equation.
- Classifying a function as linear or nonlinear.
- Interpreting the equation *y = mx + b* as defining a linear function whose graph is a non vertical straight line.

value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. **CCSS.MATH.CONTENT.8.F.B.5** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally. **CCSS.MATH.CONTENT.8.EE.B.5** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	• prime number • proportional relationship • quadrant • qualitative description • rate • rate of change • slope • slope -intercept form • supplementary angles • Y-intercept	• Writing an equation for a linear function from graphs, from two points, or from verbal description. • Identifying and interpreting the rate of change and initial value of a linear function from a verbal description, equation, graph, or table. • Comparing rates of change and initial values of linear functions represented in different ways. • Comparing inputs and outputs of linear functions represented in different ways. • Solving problems that require comparing linear functions represented in different ways. • Describing a function qualitatively based on its graph and sketch graphs to match a qualitative description of a function. • Writing and solving linear equations to solve real world problems. • Comparing two functions using graphs, tables, or equations. • Calculating rate of change or slope.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Baseball Jerseys **Goal:** Students will select and apply mathematical content from across grades with focus on using functions to model relationships between quantities. **Role:** Students will problem solve to find the best price for buying printed jerseys for the baseball team. **Audience:** Classmates **Products:** Students will reason and apply their knowledge about constructing a function to model a linear relationship between two quantities and writing equations accurately. Students will make decisions to find the best price and how the equations efficiently help identify that decision for large quantities. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the situation into a more complex one. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** End of unit assessment for functions, linear and nonlinear relationships. **Prompt**: How can linear relationships be modeled and used in real-life situations? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, A	● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to proportional relationships and linear equations. Students should carry from prior learning and deep understanding of concepts such as: rate of change and know how to calculate it, know how to write linear equations in slope-intercept form, and understand slope as a measure of steepness and direction of a line.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, M, A	● This unit begins by teacher facilitating and creating the conditions for students to understand functions as rules that take each input to exactly one output and identify relationships that are not functions. Teacher will: ○ Provide graphs of relationships, some of which are functions and some not. Each graph should have a context so that students can reason whether or not the graph makes sense. ○ Model use of the vocabulary terms function, input and output. ○ Present students with tables of relationships, some of which are functions and some are not. Encourage students to reason whether the example(s) are functions and justify their conclusions. Note: Do not limit examples to linear relationships. ○ Compare graphs of functions and non functional relationships with their graphs. Discuss what students notice.	
T, M, A	● Next in the learning, teacher will facilitate and create the	

T, M, A	conditions for students to understand that linear functions have a constant rate of change while non linear functions do not. Teacher will: ○ Present various opportunities of two linear functions using the same representation (algebraically, graphically, in a table, or by a verbal description). Teachers should engage students in meaningful discourse opportunities to explain which has the greater slope (rate of change) , always aiming to use vocabulary accurately. ○ Present two functions each represented in a different form and challenge students determine which has a greater slope by working in groups. Students might need time to work in groups to change the representation of the functions. Facilitate the discussion with questions such as: ■ How did you determine which slope is greater? ■ Why did you select to represent the function in a different form? ● Next in the learning, teacher will facilitate and create the conditions for students to recognize that the graphs of linear functions form straight lines while the graphs of nonlinear do not. Teacher will: ○ Present students with examples of functions that are linear and nonlinear for them to graph. Facilitate class discussions and work in small groups about the similarities and differences of graphs. ○ Provide multiple opportunities for students to look for and make use of structure in identifying y = mx + b as the general form of an equation for a straight line. This can be done by presenting a series of linear equations and asking students to find the similarities and differences among the equations and their graphs. * Note: It is important to be precise with wording. A function refers to the relationships between quantities, not to a particular	

	representation. A graph is one way to represent that relationship. Also, because slope describes a line, only the graph of a linear function is said to have a slope, not the function itself. When discussing with learners a linear function, it often makes more sense to talk about the rate of change for the relationship instead of the slope of its graph.	
T, M, A	● Next in the learning, teacher will facilitate and create the conditions for students to write linear equations from a graph, from two points and from a verbal description. Teacher will: ○ Facilitate and develop opportunities for students to write equations to model linear functions. In order for students to write a linear equation, students must determine the rate of change (slope) and initial value y-intercept and then substitute for m and b in y = mx +b. ○ Facilitate the various scenarios and have ample opportunities to distinguish the various approaches needed to be taken when writing a linear equation from a graph, versus two points and versus a verbal description.	
T, M, A	● Last, teacher will facilitate and develop the learning tasks for students to compare different representations of functions and analyze functional relationships qualitatively. Teacher will: ○ Develop opportunities and tasks where students compare increasing linear functions represented by lines in the same coordinate plane and learn that steeper lines represent greater rates of change. ○ Develop tasks and facilitate productive discussions and practice opportunities for students to compare increasing and decreasing functions by focusing on the absolute values of the rates of change. ○ Develop tasks and facilitate productive discussions and practice opportunities for students to read a graph of a function from left to right and describe how the quantities change in relation to one another.	
T, M, A	● Assess students' knowledge and application and review	

T T, A	misconceptions. ● Performance Task: Baseball Jerseys ● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 6 - PROPORTIONAL REASONING: Percents and Statistical Samples

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.7.RP.A.3

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

CCSS.MATH.CONTENT.7.SP.A.1

Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

CCSS.MATH.CONTENT.7.SP.A.2

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

Transfer

Students will be able to independently use their learning to draw inferences about populations based on samples.

Meaning

UNDERSTANDINGS

Students will understand that…

- Proportions are used to solve basic percent problems and applications of percent.
- Knowing applications of percent such as discount, sales tax, and markup can help one to be an informed consumer and make good purchasing decisions.
- Random samples and surveys are used to understand an entire group's preferences and to estimate and predict.
- Knowing what is known about data distributions and measures of center and variability, it can be used to compare two populations.

ESSENTIAL QUESTIONS

Students will keep considering…

1. What real world problems can be solved using percent of change?
2. What are the similarities and differences between procedures for percent of increase and decrease?
3. How do you conduct a random sample?
4. How do you know if a random sample is representative of a population?
5. Why might you conduct more than one random sample of the same population?

Acquisition

Students will know…

- box plot
- commission
- estimate
- gratuity
- interquartile range
- markdown
- markup
- mean
- mean absolute deviation

Students will be skilled at…

- Exploring use of vocabulary words in this standard by finding examples in the real world and explaining how they are used in each situation.
- Solving problems involving proportions using cross-multiplication.
- Solving problems involving: single percent, multiple percents, markup and markdowns, gratuities, tax, commission, simple interest, percent change (increase and decrease) and

CCSS.MATH.CONTENT.7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable. **CCSS.MATH.CONTENT.7.SP.B.4** Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.	● measure of center ● measure of variability ● median ● percent change ● percent decrease ● percent error ● percent increase ● population ● random sample ● range ● sample data ● simple interest ● tax ● variability	percent error. ● Critiquing examples of random sampling as statistical tools using precise mathematical vocabulary: random sampling , population, and valid generalizations. ● Designing random sampling to collect the data given statistical questions and defending the samplings as random. ● Drawing valid inferences and generalizations from random samplings of populations and justifying their inferences and generalizations as valid using appropriate vocabulary. ● Explaining the variability in multiple random samples and gauge how far off an estimate may be. ● Comparing two data sets of variability by comparing graphs. ● Calculating and using a multiple of a measure to describe the difference between two populations.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): College Athletes **Goal:** Students will select and apply mathematical knowledge about drawing valid informal comparative inferences about two populations using measures of center. **Role:** Students will problem solve to conjecture about the differences in the two groups of populations. **Audience:** Classmates **Products:** In this task, students are able to conjecture about the differences in the two groups from a strictly visual perspective and then support their comparisons with appropriate measures of center and variability. This will reinforce that much can be gleaned simply from visual comparison of appropriate graphs, particularly those of similar scale. Students are also encouraged to consider how certain measurements and observation values from one group compare in the context of the other group. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the situation into a more complex one. As a possible extension, students can investigate if these distributions are in fact similar to the distributions of heights of women's field hockey and women's basketball players. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Proportional Reasoning: Percents and Statistical Samples **Prompt**: How can we use measures of center and variability to make informed decisions about real-world situations? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan	
Code	***Pre-Assessment***
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions

T, M, A	Summary of Key Learning Events and Instruction ● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to prior learning involving the following: solving percent problems that involve finding a whole part, a part, or a percent; applying proportional reasoning to find unknown quantities; understand a statistical question as one that anticipates variability in answers; describing a data set by its center, spread and overall shape.	Progress Monitoring ● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, M, A	● This unit begins by teacher facilitating and creating the conditions for students to solve real world problems involving both single and multiple percents. Students learn about applications such as commissions, gratuities, markups, markdowns, simple interest and tax. In addition, students apply their knowledge of percentages to find percent change and percent error. Teacher will: ○ Focus time on vocabulary for this standards and provide opportunities such as: paper foldables, word walls, graphic organizers, etc. ○ Provide opportunities for students to use bar models and equations to make sense of problems involving markdowns and problems involving markups. ○ Facilitate students to make conjectures and determine algorithms such as the use of cross multiplication to solve problems involving proportional relationships. Note: teacher can move from numbers that lend themselves to mental math to more complex ones. ○ Utilize single steps and multistep problems using a variety of context such as: finding online sales, in print and TV ads. ○ Develop opportunities for students to find percent change by comparing the new amount to the original amount in context/ real world problems. In addition, teacher will provide opportunities to use formulas to compare amounts and find percent error by comparing the amount	

T, M, A	of error to the correct amount. ● Next in this unit, teacher will facilitate and create the conditions for students to understand and reason about random sampling. Students understand that proportional reasoning skills can be used to draw conclusions about populations based on random sampling. To do so, teacher will: ○ Facilitate discussions about statistics as an introduction. For example, ask questions like: “What is statistics?” “Why do we study it?” “How is it useful?” ○ Facilitate discussions about sampling and model vocabulary such as: sampling, population, and valid generalization. In addition, teacher will facilitate the definition of “random sampling” and help students derive its importance. ○ Will provide students with opportunities to critique examples of random sampling as statistical tools using precise mathematical vocabulary: random sampling, population and valid generalizations. ○ Will provide students with opportunities to design random samplings to collect the data given statistical question(s). ○ Teacher will develop opportunities for students to use random samples, such as ones developed in class, to draw inferences and valid generalizations. In addition, teacher must redirect students to use the math vocabulary when explaining the sampling process and their generalization. ○ From the multiple collected samples, teacher will guide and discuss why someone would want to use this technique to refine the inferences and why the samples need to be the same size. ○ Provide multiple opportunities for students to practice collecting random samples after making estimates/ predictions for a given situation such as estimating the mean word length in a book. Note: scale and evaluate	

	how far off estimates are.	
T, M, A	● Last in the unit, teacher will facilitate and create the conditions for students to draw inferences about two populations using measures of center (mean, median) and measures of variability. Students will do so by using plots to visualize the overlap of graphing and by working with measures of center and measures of variability. Teacher will: ○ Create tasks and opportunities to build further the understanding of graphs, mean, median, mean absolute deviation and interquartile range which was first covered in grade 6. ○ Develop opportunities to wonder, notice and infer about two data sets presented on dot plots. Teacher guides the students to do so visually by looking at plots of both data sets on the same axis and numerically by expressing the difference in the centers as a multiple of variability. The greater the multiple, the less the data sets overlap and the more the difference there is between the populations.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task: College Athletes	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 7 - INTEGER EXPONENTS: Properties and Scientific Notation

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.EE.A.1

Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 × 3^−5 = 3^−3 = ⅓^3 = 1/27.

CCSS.MATH.CONTENT.8.EE.A.3

Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 10^8 and the population of the world as 7 × 10^9, and determine that the world population is more than 20 times larger.

CCSS.MATH.CONTENT.8.EE.A.4

Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Transfer

Students will be able to independently use their learning of the properties of integer exponents to perform operations with numbers written in scientific notation.

Meaning

UNDERSTANDINGS

Students will understand that…

- Laws of exponents can be used to find powers of monomials.
- Scientific notation can be used to write large and small numbers.
- Mathematical expressions can be compared using real number properties.

ESSENTIAL QUESTIONS

Students will keep considering…

1. Why is it helpful to write numbers in different ways?
2. How can you determine when numbers are irrational and approximate them using rational numbers?

Acquisition

Students will know…

- absolute value
- base of a power
- evaluate
- exponent
- Integers
- power
- power of 10
- reciprocal
- round

Students will be skilled at…

- Generating equivalent expressions in simplest form for products and quotients of numbers with integer exponents having the same bases.
- Applying the properties of integers exponents simplify and rewrite numerical expressions with zero and negative integer exponents.
- Writing numbers expressed as a single digit times an integer power of 10 in standard form, and vice versa.
- Writing estimates for quantities using single digit times as integer power of 10.
- Comparing quantities expressed as a single digit times an integer power of 10.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Ants versus humans **Goal:** Students will select and apply what they know about scientific notations and properties of integers exponents to solve problems. **Role:** Students will problem solve using real life context. **Audience:** Classmates **Products:** In this task, students are able to apply what they know about scientific notations and properties of integers exponents to solve involving large and small values expressed both in scientific notation and in decimal notation (standard form). In addition, students need to convert units of mass. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the situation into a more complex one. At start, students determine the unit of measure that would be most accurate and appropriate to compare the total mass presented in the problem. Upon determining the appropriate unit of measure, students use scientific notation to find the approximate total mass of all ants and all humans. This process emphasizes precision that is required in this context. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Integer exponents: properties and scientific notation **Prompt**: How do we understand and manipulate expressions involving integer exponents, including scientific notation, and how do these representations relate to real-world quantities? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, A	● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to prior learning involving the following: knowledge of place value and powers of 10, rounding numbers, writing and evaluating expressions with whole-number exponents, and accurate in operations with rational numbers.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, M, A	● This unit begins by teacher facilitating and creating tasks that allow for students to explore operations with powers and discover patterns that help with the understanding and application of the properties of exponents. Teacher will iIntroduce the laws of integers exponents one at a time by utilizing conceptual approaches as opposed to simply memorizing rules which will allow students to: ○ Develop an understanding of products of powers with the same base. Students explore patterns and derive conjectures and rules. ○ Develop an understanding of quotients of powers with the same base. Students explore patterns and derive conjectures and rules. ○ Develop an understanding to evaluate the power of a power. Students explore patterns and derive conjectures and rules. ○ Extend their ideas to evaluate expressions with positive and with negative bases. ○ Develop an understanding that with the power of a product, the exponents apply to each factor and with the power of a quotient it applies to both the dividend and	

	divisor. Use of vocabulary is important. ○ Develop an understanding by exploring patterns and deriving to conjectures when exponents are zero and negative for both positive and negative bases.	
T, M, A	● Next in the unit, the teacher will facilitate and create tasks that provide opportunities for students to explore very large or very small quantities and ways on how to express the numbers as a product of a number and a power of 10. In addition, tasks are provided in order for students to compare, choose correctly and use tools appropriately, as well as interpret problems with scientific notations. As a result teacher will: ○ Introduce examples of large and small numbers in context such as from population size or small masses from science databases to engage students in conversations about the need to use more efficient ways of representing and comparing such numbers. ○ Provide contextual problems or use student generated ones to write very large or very small numbers in scientific notation. Note: teacher will facilitate discussions as to why some numbers in scientific notation are estimates. ○ Pose problems and tasks in context for students to: ■ Perform operations with numbers written in scientific notation ■ Choose the correct units of measurement when working with very large and very small numbers, as well as converting ■ Use tools such as calculators of various kind to discover and interpret the rules for scientific notation displayed	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task: College Athletes	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 8 - REAL NUMBERS: Rational Numbers and Irrational Numbers - Pythagorean Theorem

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.EE.A.2
Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.

CCSS.MATH.CONTENT.8.NS.A.1
Understand informally that every number has a decimal expansion; the rational numbers are those with decimal expansions that terminate in 0s or eventually repeat. Know that other numbers are called irrational.

CCSS.MATH.CONTENT.8.NS.A.2
Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π2). For example, by truncating the decimal expansion of √2 , show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.

CCSS.MATH.CONTENT.8.G.B.6
Explain a proof of the Pythagorean Theorem and its converse.

CCSS.MATH.CONTENT.8.G.B.7
Apply the Pythagorean Theorem to determine unknown side lengths in right

Transfer

Students will be able to independently use their learning about the Pythagorean Theorem to represent linear functions, determine relationships and solve problems.

Meaning

UNDERSTANDINGS

Students will understand that…

- squaring a number and taking the square root of a number are inverse operations.
- cubing a number or taking the cube root of a number are inverse operations.
- every rational number has a decimal expansion that repeats eventually.
- the difference between rational and irrational numbers.
- there is a relationship between the side lengths in a right triangle that are explained by the Pythagorean Theorem.
- the Pythagorean Theorem can be used to find the distance between two points in the coordinate plane.
- the there is a relationship between the volumes of cylinders, cones and spheres.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How can you determine when numbers are irrational and approximate them using rational numbers?
2. How can the Pythagorean Theorem be used to find distances on the coordinate grid?
3. How can we derive and apply the formulas for the volumes of cones, cylinders, and spheres, and what real-world situations do they model?

Acquisition

Students will know…

- cone
- converse of the Pythagorean theorem
- cube root of x
- hypotenuse of the Pythagorean theorem
- irrational numbers
- perfect cube

Students will be skilled at…

- Recognizing perfect squares and perfect cubes, as well as solving equations containing cube and square roots.
- Writing a repeating decimal as a fraction.
- Exploring to remember repeating patterns with ninths and common fractions like ¾.

triangles in real-world and mathematical problems in two and three dimensions. **CCSS.MATH.CONTENT.8.G.B.8** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. **CCSS.MATH.CONTENT.8.G.C.9** Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	• perfect square • real number • sphere • square root of x	• Distinguishing between rational and irrational numbers and approximating the values. • Comparing and ordering rational and irrational numbers, as well as utilizing the open number line to correctly place them. • Explaining both geometric and algebraic proofs of the Pythagorean Theorem. • Utilizing the Pythagorean Theorem to solve real world problems and to find distance between two points in the coordinate plane. • Using derived conjecture and formula to find volume of cylinders, cones and spheres. • Applying the Pythagorean theorem in finding dimensions of a cone. • Strategizing and manipulating formulas to find radius and height of cylinder, cones and sphere when volume is given.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Points from Directions **Goal:** Students will select and apply what they know about the coordinate system and the Pythagorean Theorem to solve problems. **Role:** Students will problem solve using real life context. **Audience:** Classmates **Products:** In this task, students are able to apply what they have learned about coordinate systems, triangle knowledge, and Pythagorean theorem to translate given information to visuals and solve problems. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For more advanced students, have them think of the most efficient way to solve the problem and change the situation into a more complex one. For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization, and especially vocabulary visuals.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Rational Numbers, irrational numbers, and the Pythagorean Theorem. **Prompt**: How does the Pythagorean Theorem extend to three-dimensional space and aid in the determination of geometric solid dimensions? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check ● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
T, A	Summary of Key Learning Events and Instruction ● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to prior learning involving the following: accuracy with long division, accuracy with finding squares and cubes of numbers, accurately move between fraction and decimal representation of numbers, recognize terminating and repeating decimals, and accurately volume of rectangular prisms.	Progress Monitoring ● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, M, A	● Students begin this unit by investigating and expanding their knowledge of the Real Number System to include irrational numbers. Teacher will develop opportunities and tasks for students to understand that an irrational number cannot be written as a terminating or repeating decimals. In addition teacher should engage students by: ○ posing questions and discussions that lead to the discovery of irrational numbers. ○ reasoning and developing a Venn diagram of the Real Number System. ○ posing questions that lead students to conclude the reasonable approximation of irrational numbers and how they are used to locate accurately on an open number line. ○ allowing students to compare the size of irrational numbers based on their location on the number line, as well as emphasize the reasoning of students to do so. ○ practicing approximating irrational numbers by providing instruction on how precise the approximation should be, such as for example “ 3 decimal places.”	

	○ facilitating and providing opportunities to explain in writing how to get more precise approximately for irrational numbers. For example, explaining how to approximate square roots of 7 to three decimal places.	
T, M, A	● Next in the unit, the teacher will develop tasks and facilitate students' learning in order for students to develop an understanding of the inverse relationship between squares and square roots, as well as between cubes and cube roots. In addition, students will be given opportunities to explore and use tables to find roots of perfect squares and perfect cubes. Lastly , students are given the opportunity to use perfect squares and cubes to approximate square and cube roots to the nearest whole number in order to improve their previous learning of approximating.	
T, M, A	● As a next move in the unit, teacher will facilitate students to convert a repeating decimal as a fraction by: ○ Multiplying both sides of the equation by the same power of 10. The power should correspond to the number of repeating decimals. ○ Subtract the original equation from the new equation. ○ Solve the equation to lead to the fraction.	
T, M, A	● Further in the unit, teacher will develop opportunities and the appropriate tasks for students to investigate the relationship of the side lengths in a right triangle, as well as its application to solve problems. Teacher will focus on students to: ○ Use correct vocabulary when writing and talking about the Pythagorean Theorem. ○ Model and prove the Pythagorean Theorem. ○ Reason that the converse of the pythagorean Theorem is true as part of a class discussion.	
T, M, A	● Next, teacher will provide the right opportunities and hands-on tasks to explore real world problems involving two or three dimensional situations applying the Pythagorean Theorem. Note: students must use models and/ or technology to solve,	

	communicate and reason the results.	
T, M, A	● Last in the unit, students will focus on exploring, knowing and applying volume formulas for cylinders, cones, and spheres. Teacher will facilitate tasks that promote students to: ○ participate in deriving the formulas by hands on investigation of physical models and using what is known about the volume of a right rectangular prism. ○ explain in writing their understanding and solve mathematical real world problems.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task: Points from Directions	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 9 - PROBABILITY: Theoretical Probability, Experimental Probability and Compound Events

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.7.SP.C.5

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

CCSS.MATH.CONTENT.7.SP.C.6

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.

CCSS.MATH.CONTENT.7.SP.C.7

Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is

Transfer

Students will be able to independently use their learning to reason and determine the likelihood of an event.

Meaning

UNDERSTANDINGS

Students will understand that…

- the probability of a chance event can be represented with a number between 0 and 1.
- the probability of 1 is certain and 0 is impossible.
- difference between experimental and theoretical probability, its usage and application of appropriate associated vocabulary.
- compound events are those where two or more events occur at the same time or with one event following another.
- fractional relationships of simple and compound events.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How can we as mathematicians use and apply patterns and structures to solve problems?
2. How can we as mathematicians determine an effective model to use to solve a problem?
3. How can probability be used to predict the future?

Acquisition

Students will know…

- at random
- compound event
- event
- experiment
- experimental probability
- favorable
- likelihood
- non-favorable
- outcome

Students will be skilled at…

- Representing the likelihood of an event on a number line.
- For a given situation, determining whether the probability of an event is closer to 0 or 1.
- Describing an event as *impossible*, *unlikely*, *equally likely*, *very likely*, or *certain*
- Using the results of an experiment to calculate the experimental probability of an event.
- Explaining the difference between experimental

selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies? **CCSS.MATH.CONTENT.7.SP.C.8** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?	• probability • sample space • theoretical probability • tree diagram • trial	and theoretical probability using appropriate vocabulary and examples. • Using the experimental probability of an outcome in an experiment to predict the outcome of a similar experiment. • Developing a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events. • Comparing theoretical probabilities to experimental probabilities. • Developing a non-uniform probability model and using the model to determine the probabilities of events. • Using strategies such as organized lists, tables and tree diagrams to list the possible outcomes for a compound event and determine the probability of a specific event occurring. • Designing simulations to generate frequencies for a compound event. • Selecting the appropriate tools for a simulation for a compound event and using the data it generates to approximate the probability of an event.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Valentine Marbles **Goal:** Students will select and apply what they know about probability of single and compound events to design a simulation to help them answer a real life problem scenario. **Role:** Students will problem solve using real life context. **Audience:** Classmates **Products:** In this task, students are able to apply what they have learned by selecting the appropriate tools for a simulation and use the data generated to approximate the probability of an event. Students will explain in writing their process to answer the questions and their derive to the conclusions. **Standards for Success:** scoring rubric including focus on explanation, process and accuracy of the solution **Differentiation:** For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization, and especially vocabulary visuals.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Probability: Theoretical probability, experimental probability and compound events **Prompt**: How are probabilities expressed? What vocabulary words can you use to describe your thoughts? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check ● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, A T, M, A	● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to prior learning involving the following: comparing and operating with fractions, renaming fractions, renaming decimals, renaming percents, application of proportional reasoning and ability to use data from random samples to make inferences about populations. These concepts are critical for this unit and nonnegotiables for this course. ● In this unit students explore and understand that probabilities are numbers from 0-1 and that they express the likelihood of an event occurring. Students learn to reason and to determine where a probability lies on the scale from 0 to 1 when expressed as a fraction. In addition, students conduct simple experiments and calculate probabilities to make predictions about future events. In order for students to develop deep meaning on these complex topics teacher should focus on correct usage of vocabulary and provide experience that: ○ Promote discussion about events relevant to the students' lives like: "How likely is it that lunch will be served today at 11 am?" ○ Present and have students use scales from 0-1 as well lists of events and their probabilities. Students categorize the likeliness and ask students to justify them. ○ Facilitate and develop opportunities for students to conduct simple probability experiments such as tossing dice, flipping coins where students calculate decimals/ percents to determine the likelihood of the event.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment

T, M, A	● Next in the unit students understand and begin to develop appropriate vocabulary to explain the difference between experimental and theoretical probability. Students collect data on chance events and approximate the relative frequency of an event given the probability. In order for students to develop deep meaning on these complex topics teacher should focus on correct usage of vocabulary and provide experience that: ○ Conduct a simple experiment with a large number of trials and facilitate discussions to: ■ determine theoretical probability ■ collect data individually and class merging ○ Simulate chance events and perform experiments multiple times to view at the long run relative frequencies. ○ Introduce students to the use of technology to collect data on chance events.	
T, M, A	● For the remainder of the unit, students develop a probability model, use it to find probability of events, compare them to the observed frequencies and discuss possible discrepancies, as well as find probabilities of compound events using organized lists, tree diagrams and simulation. In order for students to develop deep meaning on these complex topics teacher should focus on correct usage of vocabulary and provide experience that students can: ○ Set up probability experiments for students to find the approximate probabilities from observed outcomes. Facilitate asking purposeful questions like: Do the outcomes appear likely or otherwise? What coils cause discrepancies? What can be done to get different results? ○ Provide opportunities to work in groups and independently to explain their thinking aloud and/or in writing. Note: Vocabulary can be tricky, review frequently and often discuss to have students become more familiar.	
T, M, A	● Assess students' knowledge and application and review	

T T, A	misconceptions. ● Performance Task: Waiting Times ● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

UNIT 10 - STATISTICS: Two Variable Data and Fitting a Linear Model

Stage 1 Desired Results

ESTABLISHED GOALS

CCSS.MATH.CONTENT.8.SP.A.1
Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

CCSS.MATH.CONTENT.8.SP.A.2
Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

CCSS.MATH.CONTENT.8.SP.A.3
Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.

CCSS.MATH.CONTENT.8.SP.A.4
Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table.

Transfer

Students will be able to independently use their learning of linear models to solve problems in the context of bivariate data.

Meaning

UNDERSTANDINGS

Students will understand that…

- a straight line(s) are used to model relationships between two quantitative variables in the real world and can name some examples.
- a two way table is used to display and interpret bivariate data.
- there is a distinction between measurement data and categorical data.

ESSENTIAL QUESTIONS

Students will keep considering…

1. How can you use scatter plots to solve real-world problems?
2. How can you use two-way frequency tables to solve real-world problems?

Acquisition

Students will know…

- association
- balance point
- bivariate
- categorical data
- linear association
- line of fit
- negative association
- no association
- nonlinear association
- outlier
- positive association
- relative frequency
- two-way table

Students will be skilled at…

- Constructing scatter plots for sets of bivariate data.
- Interpreting scatter plots to determine the association between two quantities.
- Interpreting the meaning of an association between two quantities in context.
- Determining, informally, whether a line is a good fit for the data that show a linear association
- Informally determine a line of fit for data that show a linear association.
- Writing an equation of a linear model for data with a linear association.
- Interpreting the slope and y-intercept of a linear model in the context of the data.

Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?		• Using linear models to solve problems in the context of the data. • Constructing two-way tables of relative frequencies using row totals, column totals, or the overall total. • Interpreting two-way tables of relative frequencies. • Analyzing patterns of association in two-way tables of relative frequencies.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts. 3 - Explanation shows substantial understanding of mathematical concepts. 2 - Explanation shows some understanding of mathematical concepts. 1 - Explanation shows very limited understanding of mathematical concepts OR is not written. **Strategy/Procedures:** 4 - Uses an efficient and effective strategy to solve the problem(s). 3 - Uses an effective strategy to solve the problem(s). 2 - Sometimes uses an effective strategy to solve the problem(s), but does not do it consistently. 1 - Rarely uses an effective strategy to solve the problem(s). **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed. 3 - 75% of all problems are completed.	PERFORMANCE TASK(S): Music and Sports **Goal:** Students will select and apply what they know about collecting, constructing and interpreting tables that display categorical data on two different variables from the same subject. **Role:** Students will problem solve using real life context. **Audience:** Classmates **Products:** In this task, students are able to apply what they have learned by investigating if there is an association between whether a student plays a sport and whether the student plays a musical instrument. Students will gather, summarize and interpret findings. **Differentiation:** For extra support, consider students of language learners and students with accommodations by providing images, as well as a calculator, charts or graphic organizer to assist with the algorithms and organization, and especially vocabulary visuals.

	2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T, M, A T, M, A M, A T, M, A		OTHER EVIDENCE: **Common Unit Assessment:** Statistics: Two Variable Data and Finding a Linear Model **Prompt(s)**: How can you construct and interpret scatter plots? How can you use a trend line to make a prediction from a scatter plot?How can you construct and interpret two-way frequency tables? **Skill Check**: Daily Warm-ups and/or Exit Tickets **Homework:** Almost daily

STAGE 3

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	● Unit Pre-Assessment and/or i-Ready Diagnostic results and/or Beginning of Unit Self Check	
M	● Teacher monitors for prerequisite understanding(s) and misconception(s) though warm up questions	
	Summary of Key Learning Events and Instruction	Progress Monitoring
T, A	● Using pre-requisite data and formative assessment, teacher(s) will engage students in learning to clarify any misconceptions in regard to prior learning involving the following: ability to write an equation for a linear function, able to plot points in the coordinate plane, able to identify and interpret rate and change of initial value, understanding the significance of clusters and outliers in data displays. Note for this accelerated course, these are nonnegotiables.	● Warm ups ● Classwork ● IXL ● Homework ● Exit Tickets ● Embedded Assessments ● Unit Assessment
T, M, A	● In this unit, students build on what they know about one variable data displays by constructing and analyzing two variable data displays. In order for students to develop deep meaning on these complex topic teacher should focus on correct usage of vocabulary and provide hands on experiences and tasks experience(s) that students can do the following: ○ Model bivariate data in a scatter plot showing the different various types of associations. To build confidence, teacher should present tasks of inquiry and practice. ○ Students are facilitated to gain confidence in describing verbally and in writing different patterns of association when presented with scatter plots of bivariate data. ○ Model real world linear relationships on a graph construct straight lines to fit data presented and justify how the line fits.	
T, M, A	● Last in the unit, students organize and interpret two variable categorical data and describe possible association between the variables using relative frequencies. In order for students to	

	develop deep meaning on these complex topic teacher should focus on correct usage of vocabulary and provide hands on experiences and tasks experience(s) that students can do the following: ○ Solve real world problems using a linear equation to model bivariate measurement data. ○ Fit, interpret the slope and y-intercept for the context of the problem, as well as make predictions. ○ Collect categorical data on two variables from the same population and display them in tables accordingly. Students engage in tasks that encourage group work and independent think time to justify verbally and in writing the associations found using precise mathematical vocabulary.	
T, M, A	● Assess students' knowledge and application and review misconceptions.	
T	● Performance Task: Waiting Times	
T, A	● Assess knowledge and application though the unit CFA and review misconceptions as needed.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Nutrition and Wellness

June 2024

Do Not Distribute Not BOE Approved

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Nutrition and Wellness

Grades 10-12

A brief description of the course:

Upon successful completion of Health 1 in their freshman year, students have the option to select a Health elective course that aligns with their personal interests. One of the elective choices available is Nutrition and Wellness, a course that includes a holistic approach to wellness that recognizes that the foundation for optimal health begins with a health-promoting diet. Students will explore the impact of agricultural practices, the food industry, and the role of nutrition in supporting overall well-being across various aspects of life.

Connection to the Vision of a Graduate

The Nutrition and Wellness course allows students to recognize that food serves as more than just a way to satisfy hunger. It plays a significant role in our health, environment, culture, and social interactions.

An understanding of nutrition and wellness empowers individuals to make informed decisions about their dietary choices, promoting mindful consumption and personalized nutrition plans. This knowledge also allows for a deeper appreciation of how nutrition impacts overall well-being.

By fostering a positive relationship with food, individuals can enhance their self-awareness, creativity, critical thinking skills, and social connections in various areas of their life.

Pacing Guide

Unit 1: The Evolution of Food: 2 weeks

Unit 2: Why Nutrition Matters: 4 weeks

Unit 3: Nutrients: 5 weeks

Unit 4: Mindful Eating: 3 weeks

Unit 5: Building a Balanced Diet: 4 weeks

Unit 1: The Evolution of Food

Stage 1 Desired Results

ESTABLISHED GOALS

SEL: SOCIAL AWARENESS: The abilities to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, & contexts.

NHES 2: Analyze influences that affect health and well-being of self and others.

Transfer

Students will be able to independently use their learning to…

Recognize the significance of ancestral diets and traditional food practices.

Meaning

UNDERSTANDINGS

Students will understand that…

- Understanding the historical progression of nutrition and the food industry is crucial for students to comprehend the significance that food plays in an individual's overall health and well-being.
- Consuming an ancestral diet can promote gut health and aid in digestion. Limiting intake of processed carbohydrates has been shown to improve insulin sensitivity and overall metabolic function.
- Nutrition practices are recognized as an integral component of cultural heritage, representing a lineage of traditions handed down through generations.

ESSENTIAL QUESTIONS

- How has the evolution of food impacted individuals?
- What factors influence our food selection choices?
- How has the transition from traditional to processed food changed society?

	Acquisition	
	Students will know…	*Students will be skilled at…*
	The evolution of the food industry to better understand the changes in food production over time. The relationship between agricultural practices and nutrient density. The benefits of traditional dietary practices from our ancestors. How nutrition practices differ among various cultures.	Analyzing and outlining the process of change in the food industry over generations. Acknowledging the correlation between agricultural methodologies and the impact on human well-being. Exploring the effects of culturally-based diets on human health. Presenting insights on the influence of culturally based dietary practices on overall health and well-being.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Transfer, Meaning, Acquisition	**Impact**: Performing comprehensive research to gain a strong understanding of the topic. **Content**: Formulating well-defined and thorough conclusions with proper documentation. **Quality**: Creating a visually engaging and thoughtfully structured brochure. **Process**: Precisely recording data obtained through peer research.	PERFORMANCE TASK(S): **Goal**: Applying knowledge to analyze how diverse cultural dietary habits influence human health in research settings over generations. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: Students will conduct research on a particular cultural diet and its effects on overall health and wellness. **Product or Performance**: Product and presentation

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Engagement in classroom discussions and thorough examination of the material presented in the Google Slideshow. ● Attentive note-taking during Google Slideshow. ● Completion of the Evolution of Food Industry Timeline. ● Discussion points and reflections on the articles discussed in class.

Stage 3 – Learning Plan		
Code Transfer, Meaning	***Pre-Assessment*** Develop a nutritious meal plan for a single day in the provided graphic organizer.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M M M M A, T, M A, T, M A, T, M	● Teacher provides students with a graphic organizer and directs them to complete a pre-assessment activity by developing a nutritious meal plan for one day. ● Students are paired up to discuss and share their individual meal plans. ● Teacher leads a discussion by asking questions pertaining to the meal plans presented. ● Teacher prompts students to define the term "nutritious." ● Students share their responses on the whiteboard. ● Teacher will provide feedback and discuss the responses with the class. ● Teacher introduces unit topic, "Evolution of Food." ● Students are instructed to take notes from a presentation created by the teacher that outlines the evolution of the food industry, including shifts in agricultural practices over time and the impact on human health. ● Students collaboratively construct a timeline in small groups that identify key developments within the food industry. ● Students present their timelines in the classroom for their peers to take notes using guided note-taking worksheets.	● Teacher will evaluate the results of the pre-assessment. ● Teacher will actively engage students by posing questions during the Google Slideshow. ● Teacher will conduct observational monitoring during student group work. ● Teacher will provide individualized support as needed.

A, T, M	● Teacher presents a research project on the evolution of nutrition in different cultures throughout history. ● Students divide into pairs and engage in research regarding different cultures and their dietary habits. ● Students organize their findings and develop an informational brochure for presentation. <u>Resources:</u> Morell, Sally F. *Nourishing Diets: How Paleo, Ancestral and Traditional Peoples Really Ate*. Grand Central Publishing, 2018. Safaii-Waite, SeAnne, et al. *Food and Culture*. Cengage Learning, 2023. All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Why Nutrition Matters

Stage 1 Desired Results

ESTABLISHED GOALS

NHES 1: Use functional health information to support health and well-being of self and others.

NHES 2: Analyze influences that affect health and well-being of self and others.

NHES 3: Access valid and reliable resources to support health and well-being of self and others.

Transfer

Students will be able to independently use their learning to…

Explore the impact of dietary choices on health and wellness.

Meaning

UNDERSTANDINGS

Students will understand that…

- Nutrition plays a crucial role in influencing an individual's overall health and well-being.
- The rise in obesity rates is linked to the excessive consumption of processed foods.
- Extensive, well-conducted longitudinal studies have consistently verified that obesity plays a crucial role as a risk factor for and contributor to elevated rates of morbidity and mortality.
    - This is evident in cardiovascular disease and diabetes, as well as in cancer and various other acute and chronic conditions such as osteoarthritis, liver and kidney disease, sleep apnea, and depression.
- A thorough understanding of nutrition can positively impact one's ability to recognize nutritious foods and enhance their overall well-being.

ESSENTIAL QUESTIONS

Students will keep considering…

- What is the significance of understanding the prevailing chronic health conditions in the United States?
- What challenges do individuals face when trying to make healthy eating choices on a consistent basis?
- How can individuals cultivate intrinsic motivation to prioritize healthier dietary choices?

	● How to prioritize nutrient-dense, healthy foods for most meals, while occasionally allowing for indulgences or less healthy options in moderation.	
	Acquisition	
	Students will know… ● The impact of nutrition on various physiological systems within the body. ● The food a person consumes plays a direct role in shaping the structure and function of their brain, which in turn impacts mood and mental health. ● Diets high in refined sugar affect the brain, regulation of insulin, promote inflammation and oxidative stress. ● An imbalanced diet can increase the risk of developing various chronic conditions such as obesity, cardiovascular disease, hypertension, stroke, type 2 diabetes, metabolic syndrome, certain types of cancer, and potentially some neurological disorders. ● Research has demonstrated that consuming a balanced and nutrient dense diet can greatly reduce the likelihood of developing chronic illnesses and enhance overall well-being.	*Students will be skilled at…* ● Exploring the relationship between dietary habits and the prevalence of chronic diseases. ● Reading research-based articles to gain insight into the impacts of excessive consumption of refined sugar and processed foods. ● Developing a digital poster to inform individuals about the correlation between unhealthy dietary choices and the development of chronic diseases. ● Researching healthy dietary interventions for managing chronic conditions.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
Transfer, Meaning, Acquisition	**Impact**: Perform thorough research and demonstrate a strong understanding of the topic. **Content**: Developing accurate and comprehensive conclusions. **Quality**: Creating an aesthetically pleasing and strategically structured digital poster. **Process**: Precisely recording information obtained from collaborative research conducted with peers.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: Utilizing their understanding of the significance of nutrition on individual health and wellness. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: In small groups, students will conduct research on a particular chronic illness and its correlation with unhealthy dietary habits. **Product or Performance**: Product and presentation

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Engaging in thorough note-taking during teacher presentation. ● Participation in class discussions and in-depth analysis of assigned readings. ● Completion of comprehensive research for the digital poster planning document. ● In-depth understanding demonstrated through a quiz on chronic disease and unhealthy eating habits.

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
Transfer and Meaning	Know, Want-to-know, and Learned (KWL) charts and other graphic organizers focused on questions relating to lifestyle habits and chronic disease.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M	● Teacher introduces the unit topic, “Why Nutrition Matters.”	● Teacher asks thought provoking questions during lecture.
T, M	● Students complete the KWL chart. ● Teacher goes over student responses from KWL chart.	● Teacher circulates around the classroom as student engage in “Think-Pair-Share.”
A, T, M	● Teacher provides an overview of the latest trends in chronic diseases in the United States via Google Slideshow.	● Teacher monitors and guides students as they work.
A, T, M	● Students record detailed notes using a guided notes document during the teacher's presentation.	● Teacher assesses student progress.
M	● Teacher poses a question to the class regarding the contributing factors to chronic diseases.	● Teacher provides direct feedback on student work.
M	● Students engage in a collaborative thinking activity, “Think-Pair-Share” where they will work in pairs to discuss their responses before sharing them with the entire group.	
A, T, M	● Teacher distributes informational handouts on lifestyle choices to illustrate the distinction between beneficial and detrimental habits.	
A, T, M	● Students review and contemplate the information provided in the handouts, and then engage in a collaborative discussion as a whole group.	
A, T, M	● Teacher assigns students into pairs for the upcoming research poster project.	
A, T, M	● Teacher provides a comprehensive explanation of the research poster project, including detailed instructions and a sample poster to demonstrate expectations to students.	

A, T, M A, T, M A, T, M A, T, M A, T, M	● Students select a specific chronic disease to research with their assigned partner. ● Students actively participate in research by utilizing credible sources to gather information on the subject of chronic disease. ● Students exhibit their finalized digital posters throughout the classroom. ● Students engage in a structured information-gathering activity, known as a gallery walk, to gather information from their peers' research. ● Teacher prepares an assessment focused on the impacts of unhealthy lifestyle choices and their correlation to chronic illnesses. ● Students complete the assessment to evaluate their understanding of the material covered. <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. Pi, Xavier. "The Medical Risks of Obesity - PMC." *NCBI*, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2879283/. Accessed 19 June 2024. Selhub, Eva. "Nutritional psychiatry: Your brain on food." *Harvard Health*, 18 September 2022, https://www.health.harvard.edu/blog/nutritional-psychiatry-your-brain-on-food-201511168626. "What causes obesity & overweight? | NICHD - Eunice Kennedy Shriver National Institute of Child Health and Human Development." *National Institute of Child Health and Human Development*, 28 July 2021, https://www.nichd.nih.gov/health/topics/obesity/conditioninfo/cause.	

Unit 3: Nutrients

Stage 1 Desired Results

ESTABLISHED GOALS

NHES 1: Use functional health information to support health and well-being of self and others.

NHES 2: Analyze influences that affect health and well-being of self and others.

NHES 3: Access valid and reliable resources to support health and well-being of self and others.

NHES 4: Use interpersonal communication skills to support health and well-being of self and others.

Transfer

Students will be able to independently use their learning to…

Make informed and healthy choices when selecting nutrient-rich foods to enhance their overall health and well-being.

Meaning

UNDERSTANDINGS

Students will understand that…

- Nutrients assist in maintaining energy levels, support physical health, and help regulate metabolic processes within the body.
- Having a strong understanding of nutrition enables an individual to effectively manage their health and well-being.
- Eating nutrient-rich diets can help decrease the likelihood of developing various chronic illnesses.

ESSENTIAL QUESTIONS

- How have the dietary habits of Americans changed over time?
- How can individuals enhance their understanding of nutrients?
- What is the significance of consuming nutrient-rich foods for overall health?
- What are the common barriers that prevent individuals from consistently consuming nutrient-rich foods in their diets?

	Acquisition	
	Students will know…	*Students will be skilled at…*
	● Nutrients are classified into macronutrients and micronutrients. ● Macronutrients are essential nutrients needed in significant quantities by the body, whereas micronutrients are required in smaller, more specific amounts. ● Macronutrients are essential for providing the body with energy and include protein, fats, and carbohydrates. ○ Protein plays a vital role in providing essential nutrients for the development and maintenance of muscle, connective tissue, hair, blood, enzymes, neurotransmitters, and other important bodily functions. ○ Consuming carbohydrates from whole plant foods is essential for overall health and cognitive function. ○ It is important to ensure that carbohydrates are sourced from foods that are rich in essential vitamins, minerals, fiber, and phytonutrients that support overall well-being. ○ Carbohydrates that are naturally high in fiber and low in sugar, are digested at a slower pace and contribute to stable blood sugar levels.	● Reading informational texts on the complexity of nutrients. ● Analyzing research articles regarding the nutritional content. ● Reviewing educational materials on essential nutrients. ● Reflecting on articles relating to nutritional practices in the United States. ● Writing explanations on the significance of nutrients in promoting overall well-being

	○ Processed carbohydrates are foods that have undergone extensive refining, resulting in the removal of natural nutrients and fiber. ■ Refined carbohydrates have been associated with an elevated risk of chronic diseases. ○ Fats are essential components of the body's structure and function. ○ Fats can be categorized into saturated, monounsaturated, polyunsaturated, and trans fats. ○ Omega-3 fatty acids are essential polyunsaturated fats that play vital roles in various physiological functions within the human body. ○ Monounsaturated fats have been shown to have numerous health benefits: ■ improving blood cholesterol levels, reducing inflammation, stabilizing heart rhythms, and serving other important roles in the body.	

	○ Research has shown that saturated fat is not directly associated with heart disease when consumed without refined carbohydrates and sugar, and when accompanied by omega-3 fatty acids. ○ Not all types of saturated fats have identical effects on the body. ○ Healthy sources such as coconut oil have been shown to increase levels of "good" HDL cholesterol while decreasing levels of "bad" LDL cholesterol. ○ Saturated fats found in foods like extra virgin coconut butter can fuel mitochondria, offer anti-inflammatory properties and potentially improve cholesterol levels. ○ Trans fats and inflammatory vegetable oils are known to contribute to inflammation, which is implicated in the development of many chronic diseases. ● Micronutrients, such as vitamins and minerals, are essential for supporting various bodily functions and promoting overall well-being. ● Water is a vital nutrient at all stages of life, making proper hydration crucial for maintaining good health. ● Water constitutes approximately 60% of an individual's body weight.	

	● Nutrient requirements are influenced by a variety of factors such as age, gender, physiological status, and activity level.	

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, M	**Impact**: Conduct research and demonstrate a deep understanding of the topic. **Content**: Develop detailed and accurate conclusions. **Quality**: Prepare a Google Slides presentation to share information with peers. **Process**: Precisely recording information obtained through peer presentations.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: Research information related to an assigned topic on a specific nutrient and effectively present findings to peers. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: Students will work together to conduct research on a particular nutrient in order to enhance their understanding of nutrients and their important contribution to overall health and well-being. **Product or Performance**: Product and Performance **Standards for Success**: Teacher produced rubric and graphic organizer for students to record notes.

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Active participation in class discussions and thoughtful analysis of assigned readings. ● Completion of thorough research projects. ● Detailed note-taking via guided notes during presentations to ensure a thorough understanding of information. ● Exhibiting comprehensive knowledge through a formal assessment of macronutrients and micronutrients.

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	Students will respond to true and false statements to evaluate their existing understanding of nutrients.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M	● Teacher introduces the topic, “Nutrients” to students. ● Teacher distributes pre-assessment for students to complete. ● Students respond to the true and false statements to measure their existing knowledge of nutrients.	● Teacher will offer feedback using a variety of formative assessment techniques, such as direct observation and personalized individual support.
M	● The teacher facilitates a review of student responses and provides feedback.	● Teacher will provide feedback on performance tasks.
A, M	● Teacher distributes vocabulary worksheets pertaining to the unit. ● Students are paired up to work on vocabulary activities.	
A, T, M	● Teacher delivers a presentation on Macronutrients and Micronutrients using Google Slides.	
A, M	● Students are instructed to take detailed notes using guided note templates.	
A, M	● After note-taking, the teacher reviews the guided notes with the students.	
A, T, M	● Teacher provides articles on recent nutrition research for students to read and reflect on, followed by completing an article summary assignment.	
M	● Teacher reviews the article summaries and leads a discussion with the students.	
A, T, M	● Students are given a collaborative project where they research a particular micronutrient or macronutrient and present their findings to the class.	
A, T, M	● Students document information during their classmates'	

A, T, M	presentations. ● Teacher develops a detailed formal assessment to evaluate students' understanding of nutrients. <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. Lawrence, Glen D. “Dietary Fats and Health: Dietary Recommendations in the Context of Scientific Evidence.” *Science Direct*, vol. 4, no. 3, 2013, pp. 294-302, https://www.sciencedirect.com/science/article/pii/S2161831322011164. “Saturated fat consumption may not be the main cause of increased blood lipid levels.” *PubMed*, 6 December 2013, https://pubmed.ncbi.nlm.nih.gov/24365276/. Temple, Norman J. “Fat, Sugar, Whole Grains and Heart Disease: 50 Years of Confusion.” *NCBI*, 4 January 2018, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5793267/. “The Evidence for Saturated Fat and for Sugar Related to Coronary Heart Disease.” *PubMed*, https://pubmed.ncbi.nlm.nih.gov/26586275/. Vasquez, Alex. *Textbook of Clinical Nutrition and Functional Medicine, Vol. 1: Essential Knowledge for Safe Action and Effective Treatment*. International College of Human Nutrition and Functional Medicine, 2016.	

Unit 4: Mindful Eating

Stage 1 Desired Results

ESTABLISHED GOALS

NHES 1: Use functional health information to support health and well-being of self and others.

NHES 2: Analyze influences that affect health and well-being of self and others.

NHES 3: Access valid and reliable resources to support health and well-being of self and others.

SEL: Social-Awareness: The abilities to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, & contexts.

SEL: Self-Management: The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.

SEL: Responsible Decision-Making: The abilities to make caring and constructive

Transfer

Students will be able to independently use their learning to…

Enhance understanding of mindful eating which is a practice that assists individuals in forming a stronger bond with food, leading to the establishment of sustainable, healthy habits.

Meaning

UNDERSTANDINGS

Students will understand that…

- Practicing mindfulness while consuming food is a traditional technique that holds significant value in addressing and overcoming common dietary struggles in our current society of abundant food options.
- This practice goes beyond the simplistic recommendation of "consuming fewer calories and increasing physical activity.
- Engaging in mindful eating involves attentively acknowledging and respecting your body's cues related to food consumption.

ESSENTIAL QUESTIONS

Students will keep considering…

- How can practicing mindful eating contribute to fostering healthier eating habits, ultimately benefiting both physical and mental well-being?
- How can mindful eating influence an individual's daily functioning?
- How can mindful eating reduce stress?

choices about personal behavior and social interactions across diverse situations.	***Acquisition***	
	Students will know… ● Methods and practices that promote a sustainable and well-balanced diet. ● Factors influencing eating behaviors from a biopsychosocial perspective. ● Six key decision points within the Mindful Eating Cycle that help individuals determine when, what, how, and how much to consume. ● Mindful eating techniques establish control over eating habits and decrease impulsive snacking, by substituting unconscious behaviors with deliberate, thoughtful choices. ● According to research, engaging in mindful eating has been linked to potential improvements in depression, anxiety, eating disorders, and other mental health conditions.	*Students will be skilled at…* ● Identifying and proactively managing triggers for unconscious and emotional eating. ● Discussing the various factors that can affect an individual's body image, as well as the repercussions of a negative body image on their health-related behaviors. ● Evaluating the credibility and accuracy of health and nutrition resources found online. ● Creating a plan for choosing meals that considers nutritional data, individual preferences, wellness factors, and the variety of options available. ● Utilizing mindful eating techniques to enhance the enjoyment and fulfillment derived from meals. ● Recognizing the elements of comprehensive well-being, encompassing physical, intellectual, emotional, and mental wellness, and provide specific self-care practices.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
	Impact: Students carefully monitor and document their food and beverage consumption over a period of three consecutive days to engage in mindful eating practices. **Content**: The tracking activity is designed to raise awareness of hunger levels, mood, and eating habits. **Quality**: Accurately filling in the food tracker to increase self-awareness regarding eating habits. **Process**: After students have finished tracking their food and beverage intake for three days, students will respond to inquiries aimed at prompting reflection on their charts.	PERFORMANCE TASK(S): **Goal**: To enhance knowledge of dietary habits, students are encouraged to track their food and beverage intake for a three-day period using a mindful eating chart, and then reflect upon their choices. **Role for student**: Student **Audience for student work**: Teacher **Situation**: Emphasize to students that calorie counting is not necessary for this exercise. The purpose of tracking their intake is to heighten awareness of hunger levels, mood, and eating habits, as well as to educate them on meeting the daily recommendations for each food group. **Product or Performance**: Product **Standards for Success**: Teacher produced rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Record information from the Google Slideshow presentation regarding Mindful Eating practices. ● Engaging in responses to questions and readings during class. ● Activities and worksheets on portion sizes and hunger scale. ● Participate in note-taking during guest speaker presentations. ● Writing reflections following guest speaker presentations.

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	Know, Want-to-know, and Learned (KWL) charts and other graphic organizers consisting of open-ended questions	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M	● Teacher introduces unit topic, “Mindful Eating.”	● Teacher will provide feedback through various formative assessment methods, including direct observation and personalized one-on-one assistance.
M	● Students complete the pre-assessment, KWL Chart to assess their previous knowledge on mindful eating.	
M	● Teacher asks the following questions to students: ○ Could you provide the definition of satiety? ○ What factors contribute to feelings of hunger? ○ What factors contribute to feelings of fullness? ○ Is satiety primarily driven by physiological factors, or could there also be a psychological component to consider?	● Teacher will also provide feedback on their performance tasks.
M	● Teacher asks students about their experiences with extreme hunger or fullness, and encourage them to consider their current level of hunger.	
M	● Teacher prompts students to reflect on their feelings, hydration levels, and cravings.	
M	● Teacher presents the hunger scale for students to privately assess their own hunger levels.	
T, M	● Once students have determined their place on the hunger scale, it is important to guide them in understanding the reasons behind their hunger, determining if they need to eat, and deciding on appropriate food choices.	
T, M	● To facilitate this process, students should be encouraged to consider the following questions: ○ When did I last eat? ○ When will I eat next?	

T, M	● It is recommended that students aim to maintain a status between 4 and 6 on the hunger scale (green). While being at a 3 or 7 (pale orange) is acceptable, it is crucial to pay close attention to prevent reaching the extremes of intense hunger (1 and 2) or feeling overly full (8-10).	
A, T, M	● Teacher introduces concept of mindful eating to students. ○ They should be made aware that our bodies send signals when hungry or full, but being mindful and attentive is essential in recognizing and interpreting these signals.	
A, T, M	● Teacher notes that this principle applies to infants and young children. Babies, for example, are adept at expressing their need for food through crying when hungry, showcasing awareness of their bodily needs.	
A, T, M	● Teacher presents information on how mindful eating improves an individual's relationship with food.	
A, T, M	● Students record notes on guided notes packet. ● Teacher distributes Mindful Eating Placemat to each student and leads a group discussion on the suggested tips. ○ Which recommendations do you believe would be the most challenging to incorporate into your routine? ○ Which suggestions do you feel would be the easiest to incorporate? ○ Which guidelines do you consider the most beneficial for enhancing mindfulness during meals? ○ In what ways can practicing mindful eating positively impact our attitudes towards food, overall well-being, and self-image?	
A, T, M	● The teacher invites a healthcare professional who specializes in integrative and functional nutrition to speak to the students.	

A, T, M A, T, M A,M T, M	● The students participate in attentive listening during the presentation and actively participate by answering questions then write a reflection based on the professional's presentation. ● Teacher introduces Mindful Eating Food Tracker assignment to students. ● Students complete the Food Tracker Chart (produced by teacher) to record their food and beverage intake for 3 days while recording their hunger scale. ● Students will then reflect after engaging in this activity to raise awareness of hunger levels, mood, and eating patterns. It will also offer a valuable learning opportunity in meeting the daily recommendations for each of the five food groups to achieve balance in meals. <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. Clark, Rashel. "Mastering Mindful Eating (Grades 9-12)." *National Agriculture in the Classroom*, https://agclassroom.org/matrix/lesson/820/. Fletcher, Megrette. *The Core Concepts of Mindful Eating: Professional Edition*. Megrette.com, 2017.	

Unit 5: Building a Balanced Diet

Stage 1 Desired Results

ESTABLISHED GOALS

NHES 1: Use functional health information to support health and well-being of self and others.

NHES 2: Analyze influences that affect health and well-being of self and others.

NHES 3: Access valid and reliable resources to support health and well-being of self and others.

SEL: Social-Awareness: The abilities to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, & contexts.

SEL: Self-Management: The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.

SEL: Responsible Decision-Making: The abilities to make caring and constructive choices about personal behavior

Transfer

Students will be able to independently use their learning to…

Develop a balanced meal plan that includes nutrient-rich foods to promote feelings of fullness, satisfaction, and optimal nutrition that supports overall well-being.

Meaning

UNDERSTANDINGS

Students will understand that…

- Meal planning can provide several benefits, including:
  - Promoting portion control
  - Supporting a nutritious diet
  - Contributing to cost savings
  - Minimizing food waste
- Preparing a balanced meal promotes self-sufficiency and empowers individuals to prioritize their well-being.
- There are several resources available to assist individuals in learning nutritious recipes and effectively managing their time for meal planning.

ESSENTIAL QUESTIONS

Students will keep considering…

- How does an individual establish health goals when developing a dietary plan?
- How can I cultivate an internal drive to prioritize nutritious eating habits?
- How can I overcome obstacles that impede my progress towards achieving my health goals?
- How can I enhance my expertise and proficiency in meal planning?

and social interactions across diverse situations.	***Acquisition***	
	Students will know… ● Examples of nutrient dense foods from the following macronutrients: ○ protein (high quality) ○ healthy fats ○ whole food carbohydrates ● Ways to obtain essential micronutrients through a balanced diet. ● How to meet optimal hydration needs, taking into account individual factors such as activity level and climate. ● How to utilize credible sources to inform and support the process of making informed and health-conscious decisions. ● Strategies for developing a nutritionally balanced diet based on the knowledge gained.	*Students will be skilled at…* ● Showcasing a deep understanding of nutrition to enhance holistic well-being. ● Examine the distinction between nutrient-rich foods and foods with low nutritional value. ● Designing a well balanced meal plan that incorporates a variety of nutrients.

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, T, M	**Impact**: Utilize acquired knowledge and skills to prepare a day's worth of nutritious meals. **Content**: Developing nutritionally balanced meals by including a diverse range of nutrients for one day. **Quality**: Designing a visually appealing and well-organized digital poster to showcase their meals. **Process**: Assessment of whether each group successfully met the established criteria through thoughtful reflection.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal**: Develop a balanced and healthy daily meal plan on a digital template. **Role for student**: Student/peer educator **Audience for student work**: Peers **Situation**: Pairs of students will collaborate to develop a menu of nutritious meals that adhere to the criteria specified in the assignment. **Product or Performance**: Product and presentation **Standards for Success**: Teacher produced rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Engaging in class discussions and providing insightful analysis of assigned readings. ● Reflecting on examples crafted by industry professionals in the field of nutrition. ● Critical examination of articles and thoughtful reflection on the material presented. ● Formative assessment created by teacher.

Stage 3 – Learning Plan		
Code	***Pre-Assessment***	
M	Students will participate in a True/False exercise to evaluate their existing knowledge of constructing nutritious meals for a single day.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
M	● The teacher will distribute a True/False worksheet to assess students' understanding of creating a balanced meal plan for a day.	● Teacher will provide feedback utilizing various formative assessment methods, including direct observation and personalized one-on-one assistance.
M	● Participants will first complete the True/False worksheet individually, following which they will participate in a Pair-Share activity to discuss and compare their answers with a peer.	● The teacher will provide feedback on formal assessments.
M	● Teacher will review the True/False worksheet thoroughly with students.	
A, T, M	● Teacher provides information on how to develop a sustainable well-balanced diet.	
M	● Teacher will distribute case studies that pertain to individuals and their unique nutritional requirements.	
A, T, M	● Teacher will review nutritional guidelines provided by nutrition experts and deliver the information to students.	
	● Students will collaborate in small groups to analyze and discuss case studies, then share their findings with the rest of the group.	
A, T, M	● Teacher will distribute handouts on the following: ○ Meal Building ○ Whole Food Diet ○ Grocery Store Guides ○ Food Freedom	
A, T, M	● Students are to utilize the provided handouts as a helpful reference for their meal assignment.	
A, T, M	● Teacher organizes students into pairs and provides instructions for the assignment, which involves creating a balanced meal plan for a day.	

A, T, M T, M A	● Students design meal plans utilizing digital templates and then showcase their completed meals to their peers. ● Students will respond to reflection questions provided by the teacher. ● Teacher will assess students' understanding by administering a quiz covering all aspects of creating nutritionally balanced meals. <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval. "BUNDLES + EBOOKS — HANDOUTS — Functional Health Research + Resources — Made Whole Nutrition." *Made Whole Nutrition*, https://madewholenutrition.com/handouts/bundles-and-ebook. "Healthy Eating Plate – The Nutrition Source." *The Nutrition Source*, https://nutritionsource.hsph.harvard.edu/healthy-eating-plate/. Vasquez, Alex. *Textbook of Clinical Nutrition and Functional Medicine, Vol. 1: Essential Knowledge for Safe Action and Effective Treatment*. International College of Human Nutrition and Functional Medicine, 2016.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Physical Education: Bootcamp

June 2024

Do Not Distribute Not BOE Approved

New Milford Board of Education

Mrs. Wendy Faulenbach, Chairperson

Mrs. Leslie Sarich, Vice Chairperson

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Mr. Eric Hansell

Mrs. Sarah Herring

Mr. Brian McCauley

Superintendent of Schools

Dr. Janet Parlato

Assistant Superintendent

Ms. Holly Hollander

Authors of Course Guide

Mason Flynn

New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Physical Education: Bootcamp

Grades 10-12

In the Physical Education: Bootcamp course, a one semester course, students will engage in rigorous physical training to prepare for the demanding physical exams required for careers in firefighting, law enforcement, and the military. This course will focus on building strength, endurance, and agility through a variety of exercises and drills tailored to the specific requirements of these professions. Students will develop the physical fitness and mental toughness needed to succeed in these challenging fields.

The Physical Education Bootcamp course is intricately aligned with the school's "Vision of a Graduate" as it emphasizes the development of essential skills and qualities vital for success in a dynamic world. Through rigorous physical training tailored for careers in firefighting, law enforcement, and the military, students not only enhance their strength, endurance, and agility but also cultivate critical thinking, problem-solving abilities, positive relationships, and self-management skills. This course fosters a growth mindset, promoting social awareness and encouraging creativity, thus preparing students holistically to excel in challenging professional fields requiring both physical prowess and cognitive sharpness.

Pacing Guide

Firefighting Preparation:	6 Weeks
Law Enforcement Preparation:	6 Weeks
Military Preparation:	6 Weeks
Final Exam Preparation:	2 Weeks

Unit 1: Firefighting Preparation

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates competency in one or more specialized skills in health-related fitness activities. (S1.H3.L1)

Demonstrates the ability to employ effective self-management skills to analyze barriers and modify physical activity patterns appropriately, as needed. (S4.H1.L1)

Demonstrates the ability to develop and maintain a fitness portfolio (e.g., assessment scores, goals for improvement, plan of activities for improvement, log of activities being done to reach goals, timeline for improvement). (S3.H11.L2)

Transfer

Students will be able to independently use their learning to…

Ask questions and define problems
Obtain, evaluate and and communicate information
Develop and maintain a portfolio
Analyze situations
Problem solve
Manage projects

Meaning

UNDERSTANDINGS

Students will understand that…

- The PST CPAT (Public Safety Testing, Candidate Physical Ability Test) is a standardized physical test designed to assess the physical abilities of candidates aspiring to become firefighters
- Safety is a top priority during the PST CPAT
- Successful completion of the PST CPAT is a significant milestone on the path to becoming a firefighter
- The test consists of eight critical tasks that simulate the physical demands of real-life firefighting scenarios

ESSENTIAL QUESTIONS

- What are the potential challenges you might face during the PST CPAT test?
- What are some effective ways to train for the PST CPAT test?
- How important is teamwork and communication in the PST CPAT test scenarios?

Acquisition

Students will know…

- VO2 Max
- The testing format of the PST CPAT
- The purpose of the PST CPAT

Students will be skilled at…

- Practicing proper lifting techniques
- maintaining a fitness portfolio tracking the progress towards the PST CPAT

	• Breathing techniques during exercise • The alignment between the PST CPAT and firefighting situations • Applicable PPE • Common firefighting tools used like Self Contained Breathing Apparatus' • Baseline fitness standards for the testing battery • Body Composition • Hydration, Nutrition and Rest recommendations for firefighters • Application process for firefighting	• Self monitoring and evaluating personal skills and areas of improvement towards physical preparedness • Engaging in activity that improves agility and coordination • Simulating Test Conditions in Training • Training for the Stair Climb Event • Preparing for the Hose Drag Event • Practicing for the Ladder Raise and Extension Event • Enhancing skills applicable to the Forcible Entry Skills portion of the PST CPAT • Mastering the Search Event Techniques • Practicing the Rescue Drag Event

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	**Impact** - Complete portfolio of a 6 week training program related to the PST CPAT **Content** - Personal goals and action steps taken to improve specific areas are justified **Quality** - Portfolio is complete and legible **Process** - Reflection is focused and directly related to the results of the PST CPAT test	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Maintaining a fitness portfolio tracking the progress towards the PST CPAT **Role:** Students will take on the role of an aspiring firefighter **Audience:** The teacher **Situation:** A civilian is preparing themselves for entering the career of firefighting **Product and/or Performance:** Students will take a mock pretest of the PST CPAT. Students will reflect on their score, create personal goals and then participate in a physical preparedness program. Students will record participation and results in the program. Students will then take the same mock test as a conclusion to the portfolio and reflect on progress they have made. **Standard:** Students' success will be assessed by setting, monitoring and reflecting on SMART (specific, measurable, attainable, relevant and time oriented) goals related to progress on the PST CPAT assessment through a fitness portfolio.

T M, T T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Participating in and engaging in various skills based activities ● Small and large group discussions ● Extension activities outside of class time ● Peer Evaluation

Stage 3 – Learning Plan

Code		
	Pre-Assessment The teacher will lead a brainstorming session on what physical factors firefighters need to be well equipped in	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M	*The teacher will invite guest speakers, such as current or retired firefighters, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Class discussion
A, M, T	*The teacher will model constructing a fitness portfolio for the PST CPAT.* *Students will create and maintain their own fitness portfolio.*	Providing specific feedback to individual responses
A, M, T	*The teacher will explain and facilitate a mock test of the PST CPAT.* *Students will participate in the test, then record and reflect on their scores.*	
A, T	*The teacher will organize and lead drills that relate to the stair climb event.* *Students will participate in these drills and record their efforts.*	Teacher Observation
A, M, T	*The teacher will instruct on and demonstrate proper breathing techniques during exercise.* *Students will practice and reflect on the proper breathing techniques during exercise.*	Conferencing
A, T	*The teacher will organize and lead drills that relate to the hose drag event.* *Students will participate in these drills and record their efforts.*	Traditional quizzes and tests
A	*The teacher will provide information on VO2 Max and how to calculate it.* *Students will practice calculating their own VO2 Max.*	
A, T	*The teacher will organize and lead drills that relate to the equipment carry event.* *Students will participate in these drills and record their efforts.*	

A, T	*The teacher will organize and lead drills that relate to the ladder raise and extension event.* *Students will participate in these drills and record their efforts.*	
A, M, T	*The teacher will design a laboratory simulation of the search event of the exam.* *Students will participate in and reflect on the activity.*	
A, T	*The teacher will organize and lead drills that relate to the rescue event.* *Students will participate in these drills and record their efforts.*	
A, T	*The teacher will organize and lead drills that relate to the ceiling breach and pull event.* *Students will participate in these drills and record their efforts.*	
A, M, T	*The teacher will present information on different PPE and tools used in the field of firefighting.* *Students will analyze real world scenarios and discuss what PPE and tools are needed.*	
A, M, T	*The teacher will demonstrate various movements that can transfer to the PST CPAT test.* *Students will practice these movements and record their efforts.*	
A, M	*The teacher will provide resources for proper nutrition, hydration and rest for firefighters and aspiring firefighters.* *Students will analyze given scenarios and give corrective feedback.* Resources: Connecticut Firefighter Physical Fitness Preparation Guide All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Law Enforcement Preparation

Stage 1 Desired Results

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates competency in one or more specialized skills in health-related fitness activities. (S1.H3.L1)

Demonstrates the ability to employ effective self-management skills to analyze barriers and modify physical activity patterns appropriately, as needed. (S4.H1.L1)

Demonstrates the ability to develop and maintain a fitness portfolio (e.g., assessment scores, goals for improvement, plan of activities for improvement, log of activities being done to reach goals, timeline for improvement). (S3.H11.L2)

Transfer

Students will be able to independently use their learning to…

Ask questions and define problems
Obtain, evaluate and and communicate information
Develop and maintain a portfolio
Analyze situations
Problem solve
Manage projects

Meaning

UNDERSTANDINGS

Students will understand that…

- The fitness test is designed to ensure that recruits are physically fit to handle the demands of police work
- Recruits are encouraged to maintain a healthy lifestyle outside of training to sustain their physical fitness levels
- The skills assessed in the fitness test are trainable
- Male and female test scores are assessed differently

ESSENTIAL QUESTIONS

- What are the potential challenges you might face during the Connecticut State Police Fitness Test?
- How does the physical fitness test for the Connecticut State Police reflect the demands of the job itself?
- What are some effective ways to train for the Connecticut State Police Fitness Test?

Acquisition

Students will know…

- The testing battery sequence of the Connecticut State Police Fitness Test
- The purpose of the Connecticut State Police Fitness Test

Students will be skilled at…

- Practicing proper running technique
- Maintaining a fitness portfolio tracking the progress towards the Connecticut State Police Fitness Test

	● The alignment between the Connecticut State Police Fitness Test and law enforcement situations ● Types of emergencies that police officers might need to respond to ● Standards of fitness tests upon entrance and exit of the Police Academy ● Application process for the State Police Academy ● Methods to improve scores in the different testing categories ● CHIP (Complete Health and Injury Prevention) Program and their affiliation to the State Police ● CHIP Test Score Standards	● Self monitoring and evaluating personal skills and areas of improvement towards physical preparedness ● Engaging in activity that improves agility and coordination ● Simulating Test Conditions in Training ● Practicing the 1.5 Mile Run test ● Practicing the 300 meter run test ● Practicing for the one minute pushup test ● Practicing for the one minute situp test ● Engaging in activities that will improve cardiovascular fitness ● Practicing activities that improve cardiovascular fitness ● Engaging in activities that will improve muscular strength ● Engaging in activities that will improve muscular endurance ● Participating in activities that will improve flexibility

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	**Impact** - Complete portfolio of a 6 week training program related to the Connecticut State Police Fitness Test **Content** - Personal goals and action steps taken to improve specific areas are justified **Quality** - Portfolio is complete and legible **Process** - Reflection is focused and directly related to the results of the Connecticut State Police Fitness test	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Maintaining a fitness portfolio tracking the progress towards the Connecticut State Police Fitness Test **Role:** Students will take on the role of an aspiring law enforcement officer **Audience:** The teacher **Situation:** A civilian is preparing themselves for entering the career of law enforcement **Product and/or Performance:** Students will take a mock pretest of the Connecticut State Police Fitness Test. Students will reflect on their score, create personal goals and then participate in a physical preparedness program. Students will record participation and results in the program. Students will then take the same mock test as a conclusion to the portfolio and reflect on progress they have made. **Standard:** Students' success will be assessed by setting, monitoring and reflecting on SMART (specific, measurable, attainable, relevant and time oriented) goals related to progress on the Connecticut State Police Fitness Test through a fitness portfolio.

T M, T T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Participating in and engaging in various skills based activities ● Small and large group discussions ● Extension activities outside of class time ● Peer Evaluation

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** The teacher will lead a brainstorming session on what physical factors firefighters need to be well equipped in	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M	*The teacher will invite guest speakers, such as current or retired police officers, to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Class discussion
A, M, T	*The teacher will model constructing a fitness portfolio for the Connecticut State Police Fitness Test.* *Students will create and maintain their own fitness portfolio.*	Providing specific feedback to individual responses
A, M, T	*The teacher will explain and facilitate a mock test of the Connecticut State Police Fitness Test.* *Students will participate in the test, then record and reflect on their scores.*	Teacher Observation
A, T	*The teacher will organize and lead drills that relate to progress of the 1.5 Mile run event.* *Students will participate in these drills and record their efforts.*	Conferencing
A, T	*The teacher will organize and lead drills that relate to the progress of the 1 Minute Pushup Test.* *Students will participate in these drills and record their efforts.*	Traditional quizzes and tests
A, T	*The teacher will organize and lead drills that relate to the 300 meter run event.* *Students will participate in these drills and record their efforts.*	
A, T	*The teacher will organize and lead drills that relate to the 1 Minute Situp Test.* *Students will participate in these drills and record their efforts.*	
A, M, T	*The teacher will demonstrate proper running technique.*	

	Students will practice the technique and provide feedback to other students.	
A, T	*The teacher will demonstrate and explain different techniques to improve flexibility.* *Students will practice these techniques and record their progress.*	
A, M, T	*The teacher will present information on the application process of the State Police Academy.* *Students will complete a mock application and review what areas of improvement they have.*	
A, T	*The teacher will demonstrate various movements that can transfer to the Connecticut State Police Fitness Test.* *Students will practice these movements and record their efforts.*	
A, M, T	*The teacher will facilitate a discussion on different emergencies that police officers need to be prepared for.* *Students will evaluate the real world scenarios and discuss how they need to be physically prepared for them.* <u>Resources:</u> Connecticut State Police Fitness Battery All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

ESTABLISHED GOALS

Health Education and Physical Education Connecticut State Standards

Demonstrates competency in one or more specialized skills in health-related fitness activities. (S1.H3.L1)

Demonstrates the ability to employ effective self-management skills to analyze barriers and modify physical activity patterns appropriately, as needed. (S4.H1.L1)

Demonstrates the ability to develop and maintain a fitness portfolio (e.g., assessment scores, goals for improvement, plan of activities for improvement, log of activities being done to reach goals, timeline for improvement). (S3.H11.L2)

Transfer

Students will be able to independently use their learning to…

Ask questions and define problems
Obtain, evaluate and and communicate information
Develop and maintain a portfolio
Analyze situations
Problem solve
Manage projects

Meaning

UNDERSTANDINGS

Students will understand that…

- Each branch of military has its' own physical fitness test
- Physical fitness is crucial in the military as it enhances performance, reduces injury risk, and promotes overall health and well-being
- Military fitness tests are designed to assess the physical abilities of individuals who aspire to join the military
- Setting realistic goals and tracking progress can help individuals improve their performance on military fitness tests

ESSENTIAL QUESTIONS

- How do military fitness tests contribute to overall readiness for active duty?
- What are some effective ways to train for Military Fitness Testing?
- Why are the standards set at what they are for military fitness testing?
- How important are each category of fitness when serving in the military?

Acquisition

Students will know…

- The testing format of the Army Fitness Test
- The testing format of the Air Force Fitness Test
- The testing format of the Navy Fitness Test
- The testing format of the Coast Guard Fitness Test

Students will be skilled at…

- Training for the 2-mile run component of the fitness test
- Practicing form for the standing long jump
- Participating in different drills to improve speed

	● The testing format of the Marines Fitness Test ● Fitness standards for each branch's testing battery ● The purpose of the fitness testing for each branch ● Proper and acceptable form when performing different fitness tests ● Different requirements based on age and gender ● Army's Holistic Health and Fitness System ● Sleep recommendations per the Army for overall health ● Situations and related tasks that someone in the military needs to be prepared for ● Application process for the military	and agility ● Incorporating and reflecting on rest and recovery into the training regimen ● Practicing proper lifting techniques ● Embracing a positive mindset towards fitness and overall well-being ● Demonstrating determination and resilience in the face of challenges ● Maintaining a fitness portfolio tracking the progress towards a military based fitness test ● Self monitoring and evaluating personal skills and areas of improvement towards physical preparedness ● Developing strength through weight training and bodyweight exercises ● Setting realistic fitness goals and tracking progress.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A, M, T	**Impact** - Complete portfolio of a 6 week training program related to the selected military fitness test **Content** - Personal goals and action steps taken to improve specific areas are justified **Quality** - Portfolio is complete and legible **Process** - Reflection is focused and directly related to the results of the military fitness test	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal:** Maintaining a fitness portfolio tracking the progress towards a selected Military Fitness Test **Role:** Students will take on the role of an aspiring military recruit **Audience:** The teacher **Situation:** A civilian is preparing themselves for entering the career as a member of the military **Product and/or Performance:** Students will select a military fitness test (Army, Marines, Coast Guard, Air Force, or Navy) and complete a mock pretest of the selected exam. Students will reflect on their score, create personal goals and then participate in a physical preparedness program. Students will record participation and results in the program. Students will then take the same mock test as a conclusion to the portfolio and reflect on progress they have made. **Standard:** Students' success will be assessed by setting, monitoring and reflecting on SMART (specific, measurable, attainable, relevant and time oriented) goals related to progress on the selected military fitness assessment through a fitness portfolio.

T M, T T A, M, T		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Participating in and engaging in various skills based activities ● Small and large group discussions ● Extension activities outside of class time ● Peer Evaluation

Stage 3 – Learning Plan		
Code	***Pre-Assessment*** Students will compare and contrast the different physical demands of each military branch	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
A, M	*The teacher will invite guest speakers from different branches of the military to share their experiences and insights in the field.* *Students will interact with them and record valuable information and insight.*	Class discussion
A, M, T	*The teacher will model constructing a fitness portfolio for each military branch.* *Students will create and maintain their own fitness portfolio.*	Providing specific feedback to individual responses
A, M, T	*The teacher will explain and facilitate a mock test of the different military fitness tests.* *Students will participate in the test, then record and reflect on their scores.*	Teacher Observation
A, T	*The teacher will organize and lead drills that relate to the Army's Fitness Test.* *Students will participate in these drills and record their efforts.*	Conferencing
A, T	*The teacher will organize and lead drills that relate to the Navy's Fitness Test.* *Students will participate in these drills and record their efforts.*	Traditional quizzes and tests
A	*The teacher will demonstrate both accepted and unaccepted form for various exercises in military fitness tests.* *Students will practice proper form and give corrective feedback to peers.*	
A, T	*The teacher will organize and lead drills that relate to the Coast Guard's Fitness Test.* *Students will participate in these drills and record their efforts.*	
A, M, T	*The teacher will present information on the Army's* Holistic Health and	

	Fitness System. Students will assess case studies and give suggestions for improvement.	
A, T	*The teacher will organize and lead drills that relate to the Marines' Fitness Test.* *Students will participate in these drills and record their efforts.*	
A, T	*The teacher will organize and lead drills that relate to the Air Force's Fitness Test.* *Students will participate in these drills and record their efforts.*	
A, M, T	*The teacher will instruct on techniques to improve rest patterns and quality.* *Students will practice and reflect on the resting techniques.*	
A, T	*The teacher will demonstrate various movements that can transfer to military fitness testing.* *Students will practice these movements and record their efforts.*	
A, M, T	*The teacher will provide the description of each branch and the expectations for each military branch's fitness test.* *Students will compare and contrast the different branches.* Resources: Army Fitness Testing Requirements All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Physics College Prep

June/2024

Do Not Distribute Not BOE Approved

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Superintendent of Schools

Dr. Janet Parlato

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Ms. Holly Hollander

Authors of Course Guide

Danielle Ragonnet

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Physics College Prep

Grades 11-12

This course covers the topics of motion, forces, energy, sound, light, electricity, and magnetism. A significant portion of the work involves laboratory and project work. A good mathematical background is required, including an understanding of Algebra principles and some geometry and trigonometry.

Throughout the CP Physics course students will connect with the characteristics identified in New Milford's Vision of a Graduate. Students will enhance their problem solving skills by applying critical thinking skills while developing positive relationships with their peers.

Critical Thinking: Students will make logical connections between knowledge they have and information they have gathered and be able to connect them together in order to solve a problem. Students will use their prior knowledge to determine if the results they have reached are logical answers to their questions or lab results.

Problem Solving: Students will work on understanding the questions that are posed to them, identifying the information within the question and using their prior knowledge to help them find a solution. Students then will be able to predict the correct outcomes for problems involving kinematics, forces, and energy. Using the information gathered, students will be able to summarize their findings in order to make meaning from their learning and to apply that knowledge to novel situations outside the academic setting.

Positive Relationships: Students will develop positive relationships with their peers by performing laboratory experiments, group work, and delivering productive criticism or encouragement while working in small groups.

Pacing Guide

Include a list of the units and the approximate number of days/weeks it will take to teach the unit.

	Number of Weeks
Unit 1: Motion and Forces	10
Unit 2: Conservation of Energy and Momentum	10
Unit 3: Electricity and Magnetism	10
Unit 4: Waves, Light and Sound	10

Key for National and State Standards

HS-PS = Next Generation Science Standards: Physical Sciences

HS-ETS = Next Generation Science Standards: Engineering, Technology, and Applications of Science

RST = Common Core Reading Standards for Literacy in Science 6-12

WHST = Common Core Writing Standards for Science and Technology

5E Model (used in lieu of WHERETO)

E1 - Engage (H)
E2 - Explore (E_1,T)
E3 - Explain (W,T,O)
E4 - Extend (R,T)
E5 - Evaluate (E_2)

AMT Coding

A - Acquire
M - Meaning
T - Transfer

Unit 1: Motion and Forces - Stage 1: Desired Results

Phenomenon: Video of Shopping Carts Falling Out of the Back of a Moving Truck (https://www.youtube.com/watch?v=gHnbyzEDiF0)

ESTABLISHED GOALS

- **HS-PS2-1** - Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration
- **HS-PS2-4** - Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects
- **CCSS.ELA-LITERACY.RST11-12.3** - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing other technical tasks; analyze the specific results based on explanations in the text
- **CCSS.ELA-LITERACY.RST11-12.4** - Determine the meaning of symbols, key terms, and other domain-specific words

Transfer

Students will be able to independently use their learning to…

SEP-1 Ask Questions and Defining Problems
SEP-3 Plan and Carry Out Investigations
SEP-4 Analyze and Interpret Data
SEP-5 Use Mathematics and Computational Thinking

Meaning

UNDERSTANDINGS
Students will understand that…

PS2.A: Forces and Motion

- Newton's second law accurately predicts changes in the motion of macroscopic objects. (HS-PS2-1)

PS2.B: Types of Interactions

- Newton's law of universal gravitation and Coulomb's law provide the mathematical models to describe and predict the effects of gravitational and electrostatic forces between distant objects. (HS-PS2-4)

ESSENTIAL QUESTIONS
Students will keep considering…

- How can one explain and predict interactions between objects and within systems of objects?
- Why do objects keep moving and what causes objects' motions to change?

and phrases as they are used in a specific scientific or technical context related to grades 11-12 texts and topics	***Acquisition***	
	Students will know…	*Students will be skilled at…*
	● Objects will continue in a state of motion at constant velocity unless acted on by an external force. (CCC: Cause and Effect) ● The acceleration of an object can be predicted by using $a = \Sigma F/m$. ● Forces can either act as long-range (action-at-a-distance) forces or as contact forces. ● Forces always exist in equal and opposite pairs between two interacting objects. (CCC: Cause and Effect) ● Field models are useful for describing interactions that occur at a distance (gravitational, electrical, and magnetic).	● Interpreting motion plots for both vertical and horizontal motion of a projectile ● Determining the final state of a projectile's kinematic quantities if given the initial state ● Describing how the Newton (the unit) is defined ● Distinguishing between mass and force ● Calculating the weight of an object if given its mass (or mass if given weight) ● Determining the magnitude and direction of gravitational forces between two objects ● Determining the magnitude and direction of frictional forces ● Categorizing a force as a contact force or a field force acting at a distance ● Categorizing a force as a gravitational force, normal force, force of tension, drag force, force of friction ● Evaluating forces as acting within a system or on the system as a whole ● Drawing free body diagrams in order to determine the magnitude and direction of the net force acting on an object or system in order to apply Newton's 2nd law ● Applying Newton's 1st and 3rd laws to determine qualitative and quantitative answers to different physical configurations ● Evaluating a quantitative answer as being within or outside a reasonable expectation ● Drawing a Newton's 3rd law diagram showing all force pairs

Unit 1: Motion and Forces - Stage 2: Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric which outlines specific expectations for a comprehensive report on experimental findings	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *Kinematics, Newton's laws of motion and how they apply to objects in motion near the Earth's surface* **Goal:** To experimentally measure the acceleration due to gravity using various methods and to compare results to accepted values in order to determine the most accurate method to use **Role:** Test Engineer **Audience:** Supervisor **Situation:** Your supervisor has asked you to use various lab equipment to measure the acceleration due to gravity, a well-known constant, in order to evaluate the effectiveness of each method. **Product or Performance:** A comprehensive report detailing each method used which contains experimental procedures, graphical representations, data analysis, percent error calculations and a discussion of the most reliable equipment and method used **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative assessments ● Lab analysis and reflection on results ● Warm-ups and exit tickets ● Article readings/summaries ● Homework assignments / Practice Problems

Unit 1: Motion and Forces - Stage 3: Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● End of Unit Assessment
M,A	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	
T,A	**Students complete Walk-Jog-Run Graph (Lab)** - Graph and analyze data from students walking, jogging, and running down the hallway. (E1, E4, E5)	
T,M	**Students complete Graph Matching (Lab)** - Use a motion detector to duplicate graphs of motion. (E1, E2, E5)	
T,M,A	**Students complete Prove It! (Lab)** - Determine gravitational acceleration with a variety of labs. (E1, E5)	
T,M	**Students complete Shoot for Your Grade (Lab)** - Demonstrate mastery of projectile motion. (E1, E4, E5)	
A	**Students complete Inertia Smorgasbord (Act)** - Experiment with and explain inertia phenomena. (E1, E2, E4)	
M,A	**Students complete "μ" of your shoe (Lab)** - Analyze data and calculate the coefficient of friction. (E1, E4, E5)	
T,M,A	**Students utilize Problem Solving Protocol (GUESS)** - Use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving kinematics and forces (E4, E5)	
T,M,A	**Students summarize Kinematics and Forces Concepts** - Unit concepts are summarized in a format of the student's choosing (ie: outlines,	

	one-pagers, graphic organizers, etc.) (E2, E3, E4)	
M,A	**Students complete unit tests and occasional quizzes** - Summative Assessments. (E5) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Conservation of Energy and Momentum - Stage 1: Desired Results

Phenomenon: Amusement Park Rides - Roller Coaster and Bumper Cars (https://youtu.be/gSs7wwi28R8)

ESTABLISHED GOALS

- **HS-PS2-2 -** Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system
- **HS-PS2-3 -** Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision
- **HS-PS3-1 -** Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
- **HS-PS3-2 -** Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles

Transfer

Students will be able to independently use their learning to…

SEP-2 Develop and Use Model**s**
SEP-3 Plan and Carry Out Investigations
SEP-4 Analyze and Interpret Data
SEP-5 Use Mathematics and Computational Thinking
SEP-6 Construct Explanations and Design Solutions
SEP-8 Obtain, Evaluate, and Communicate Information

Meaning

UNDERSTANDINGS
Students will understand that…

PS2.A Forces and Motion

- Momentum is defined for a particular frame of reference; it is the mass times the velocity of the object. (HS-PS2-2)

- If a system interacts with objects outside itself, the total momentum of the system can change; however, any such change is balanced by changes in the momentum of objects outside the system. (HS-PS2-2),(HS-PS2-3)

PS3.A: Definitions of Energy

- Energy is a quantitative property of a system that depends on the motion and interactions of matter and radiation within that system. That there is a single quantity called energy is due to the fact that a system's total energy is conserved, even as, within the system, energy is continually transferred from one

ESSENTIAL QUESTIONS
Students will keep considering…

- How can one explain and predict interactions between objects and within systems of objects?
- Why do objects keep moving and what causes objects' motions to change?
- What is done to make collisions safer and why do these methods work?
- How are energy transformations and the conservation of energy related to real-world situations?
- How would modern life be different if certain physical quantities were not conserved?
- How can applied forces affect the energy of an object or system?
- How is energy used to improve the quality of our lives?

(objects) and energy associated with the relative position of particles (objects) ● **HS-ETS1-3 -** Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts ● **CCSS.ELA-LITERACY.RST11-12.3 -** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing other technical tasks; analyze the specific results based on explanations in the text ● **CCSS.ELA-LITERACY.RST11-12.4 -** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context related to grades 11-12 texts and topics	object to another and between its various possible forms. (HS-PS3-1),(HS-PS3-2) ● At the macroscopic scale, energy manifests itself in multiple ways, such as in motion, sound, light, and thermal energy. (HS-PS3-2) (HS-PS3-3) ● These relationships are better understood at the microscopic scale, at which all of the different manifestations of energy can be modeled as a combination of energy associated with the motion of particles and energy associated with the configuration (relative position of the particles). In some cases the relative position energy can be thought of as stored in fields (which mediate interactions between particles). This last concept includes radiation, a phenomenon in which energy stored in fields moves across space. (HS-PS3-2) **PS3.B: Conservation of Energy and Energy Transfer** ● Conservation of energy means that the total change of energy in any system is always equal to the total energy transferred into or out of the system. (HS-PS3-1) ● Energy cannot be created or destroyed, but it can be transported from one place to another and transferred between systems. (HS-PS3-1),(HS-PS3-4) ● Mathematical expressions, which quantify how the stored energy in a system depends on its configuration (e.g. relative positions of charged particles, compression of a spring) and how kinetic energy depends on mass and speed, allow the concept of conservation of energy to be used to predict and describe system behavior. (HS-PS3-1) ● The availability of energy limits what can occur in any system. (HS-PS3-1)	
	Acquisition	
	Students will know…	*Students will be skilled at…*

	● Momentum is defined for a particular frame of reference; it is the mass times the velocity of the object. (HS-PS2-2) ● Work is a transfer of energy between systems. (CCC: Systems and System Models) ● The total momentum and energy of a system is conserved. ● An unbalanced force on an object produces a change in its momentum. ● Energy is a quantitative property of a system that depends on the motion and interactions of matter within that system. (HS-PS3-2) (CCC: Matter and Energy) ● At the macroscopic scale, energy manifests itself in multiple ways, such as in motion, sound, light, and thermal energy. (HS-PS3-2) (HS-PS3-3) (CCC: Matter and Energy) ● In some cases the relative position energy can be thought of as stored in fields (which mediate interactions between particles). (HS-PS3-2) ● Energy cannot be created or destroyed, but it can be transported from one place to another and transferred between systems or converted to less useful forms (e.g thermal energy). (HS-PS3-4) (CCC: Energy and Matter) ● Kinetic energy of a system depends on mass and speed. ● The availability of energy limits what can occur in any system. (HS-PS3-1) ● Power is the rate at which energy is transformed.	● Calculating the amount of work performed in a process and indicating if it is positive or negative ● Determining the gravitational potential energy of an object based on its position in a gravitational field. ● Determining the kinetic energy of an object or system. ● Applying energy conservation in order to solve problems for various quantities (e.g. speed, height of object) ● Calculating the momentum of an object or system. ● Classifying collisions between objects or systems as perfectly inelastic or elastic. ● Determining if the kinetic energy of a system is conserved during a collision. ● Applying the impulse-momentum theorem in order to solve problems. ● Applying the work-energy theorem in order to solve problems. ● Evaluating collision scenarios and offer ways to decrease or increase impact force depending on each situation.

Unit 2: Conservation of Energy and Momentum - Stage 2: Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric which outlines specific expectations for a comprehensive report on an effective, practical design for container, detailed explanations of successes and failures and a reflection on the design process	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *The impulse-momentum theorem and how to efficiently reduce the impact forces experienced by objects through creative design solutions* **Goal:** To design and create a lightweight container to mail a single loose potato crisp which prevents breakage during transit **Role:** Packaging Engineer **Audience:** The head of research and development at a large food company **Situation:** Your boss has asked you to design a new packaging system that cuts costs while still maintaining the integrity of the product inside. **Product or Performance:** You have been asked to design a package that doesn't utilize traditional packing materials such that the package has the lowest possible weight, is small, but still meets minimum USPS requirements and maintains the integrity of the product inside. **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative assessments ● Lab analysis and reflection on results ● Warm-ups and exit tickets ● Article readings/summaries ● Homework assignments

Unit 2: Conservation of Energy and Momentum - Stage 3: Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● End of Unit Assessment
M,A	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity formative assessment, and address misconceptions (E3)	
T,M,A	**Students utilize Problem Solving Protocol (GUESS)** - Use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving energy and momentum (E4, E5)	
M,A	**Students complete Energy at the Skate Park (Lab)** - Use a pHet simulation to explore the concept of energy conservation. (E1, E2)	
M,A	**Students complete StairMaster (Lab)** - Calculate human work and power output (E1, E2, E4, E5)	
T,M,A	**Students complete Collisions and Conservation of Momentum (Lab)** - Use motion sensors and carts on tracks to model elastic and inelastic collisions (E1, E2, E4)	
T,M,A	**Students summarize Energy and Momentum Concepts** - Unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc.) (E2, E3, E4)	
M,A	**Students complete unit tests and occasional quizzes** - Summative Assessments. (E5)	
	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board	

	of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 3: Electricity and Magnetism - Stage 1: Desired Results

Phenomenon: Video of a Simple Electric Motor (https://www.youtube.com/shorts/C0tyP36IEbc)

ESTABLISHED GOALS

- **HS-PS2-5** - Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current
- **HS-PS2-4** - Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects
- **HS-PS3-3** - Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy
- **HS-PS3-5** - Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction

Transfer

Students will be able to independently use their learning to…

SEP-2 Develop and Use Models
SEP-3 Plan and Carry Out Investigations
SEP-4 Analyze and Interpret Data
SEP-5 Use Math and Computational Thinking

Meaning

UNDERSTANDINGS
Students will understand that…

PS2.B Types of Interactions
- Magnets or electric currents cause magnetic fields; electric charges or changing magnetic fields cause electric fields. (HS-PS2-5)
- Attraction and repulsion between electric charges at the atomic scale explain the structure, properties, and transformations of matter, as well as the contact forces between material objects. (HS-PS2-6), (secondary to HS-PS1-1),(secondary to HS-PS1-3)

PS3.A Definitions of Energy
- "Electrical energy" may mean energy stored in a battery or energy transmitted by electric currents. (secondary to HS-PS2-5)

PS3.C Relationship between Energy and Forces
- When two objects interacting through a field change relative position, the energy stored in the field is

ESSENTIAL QUESTIONS
Students will keep considering…

- How can one explain and predict interactions between objects and within systems of objects?
- Why do objects keep moving and what causes objects' motions to change?
- Why are some materials attracted to each other while others are not?
- What is energy and how is it transferred and conserved?
- How would modern life be different if certain physical quantities were not conserved?
- How can applied forces affect the energy of an object or system?
- How is energy used to improve the quality of our lives?

● **HS-ETS1-2** - Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering ● **HS-ETS1-3** - Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts ● **CCSS.ELA-LITERACY.RST11-12.3** - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing other technical tasks; analyze the specific results based on explanations in the text ● **CCSS.ELA-LITERACY.RST11-12.4** - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context related to grades 11-12 texts and topics	changed. (HS-PS3-5) **PS2.B Types of Interactions** ● Newton's law of universal gravitation and Coulomb's law provide the mathematical models to describe and predict the effects of gravitational and electrostatic forces between distant objects. (HS-PS2-4)	
	Acquisition	
	Students will know… ● Magnets or electric currents cause magnetic fields; electric charges or changing magnetic fields cause electric fields. (HS-PS2-5) ● Attraction and repulsion between electric charges at the atomic scale explain the structure, properties, and transformations of matter, as well as the contact forces between material objects. (HS-PS2-6), (secondary to HS-PS1-1),(secondary to HS-PS1-3) ● "Electrical energy" may mean energy stored in a battery or energy transmitted by electric currents. (secondary to HS-PS2-5) ● When two objects interacting through a field change relative position, the energy stored in the field is changed. (HS-PS3-5) (CCC: Cause and Effect) ● Newton's law of universal gravitation and Coulomb's law provide the mathematical models to describe and predict the effects of gravitational and electrostatic forces between distant objects. (HS-PS2-4) (CCC: Scale, Proportion, and Quantity)	*Students will be skilled at…* ● Comparing and contrasting electrostatic and gravitational forces ● Determining the magnitude and direction of electrostatic and gravitational forces between two objects. ● Explaining how charged particles are sources of electric fields and are subject to the forces of electric fields caused by other charges ● Applying Ohm's law in order to calculate the voltage drop, the current flow and the resistance of a component within a circuit. ● Predicting and explaining how the flow of electric current is affected and distributed through parallel and series circuits ● Predicting and explaining how voltage drops across each component in parallel and series circuits. ● Explaining why any resistive element dissipates energy by heating the resistor. ● Determining the equivalent resistance of series circuits and parallel circuits. ● Calculating the power in any resistive circuit element ● Explaining that moving charge is the source of all magnetic fields and moving charge may be subject to forces of existing magnetic fields. ● Explaining the conditions when changing magnetic fields can create electric current flow in conductors.

Unit 3: Electricity and Magnetism - Stage 2: Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric which outlines specific expectations for a comprehensive report on household energy usage, including a discussion about phantom energy and reflection on reducing energy consumption.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *Electricity and Magnetism and how they are linked to energy usage in a typical household.* **Goal:** To create a comprehensive report on the amount of electrical energy used by a typical person or household and to provide suggestions for reducing energy consumption **Role:** Energy Company Consultant **Audience:** Potential Clients (households, individuals, companies) **Situation:** You are a consultant for a company that analyzes the energy consumption of individuals, households and businesses and provides suggestions for reducing energy consumption in order to save clients money and help the environment. You have been asked to collect data and create a comprehensive report on the energy consumption of a particular individual which includes suggested practices to save energy. **Product or Performance:** Comprehensive report which includes data collection and analysis, a discussion on sources of phantom energy and a list of suggested actions that could be taken to reduce energy consumption. **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative assessments ● Lab analysis and reflection on results ● Warm-ups and exit tickets ● Article readings/summaries ● Homework assignments

Unit 3: Electricity and Magnetism - Stage 3: Learning Plan		
Code	***Pre-Assessment*** ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● End of Unit Assessment
M,A	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity formative assessment, and address misconceptions (E3)	
A	**Students complete Raging Planet: Lighting (Act)** - Explain and describe electrostatic phenomena and lightning. (E1)	
T,A	**Students complete Electrophorus (Lab)** - Explain methods of charging. (E2)	
A	**Students complete Greased Lightning pHet (Lab)** - Explain methods of charging and electron motion.(E1, E2, E3)	
T,M,A	**Students complete Sparky the Electrician (Lab)** - Create and analyze simple circuits. (E1, E2, E3)	
T,M,A	**Students create a Simple Motor (Lab)** - Design and create a series of simple electric motors and reflect on which design worked best. (E1, E2, E3, E4, E5)	
A	**Students complete 2-D and 3-D Magic Tank (Act)** - Sketch and describe magnetic fields. (E1, E4)	
M,A	**Students complete Magnet Mania (Lab)** - Explore various properties of magnetism. (E1, E2, E3)	
M,A	**Teacher leads students in Van der Graaff demonstrations** - Using the Van der Graaff generator to demonstrate various aspects of static electricity	

	(E1, E2, E4)	
T,M,A	**Students utilize Problem Solving Protocol (GUESS)** - Use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving electricity and magnetism (E4, E5)	
T,M,A	**Students summarize Electricity and Magnetism Concepts** - Unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc.) (E2, E3, E4)	
M,A	**Students complete unit tests and occasional quizzes** - Summative Assessments. (E5)	
	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 4: Waves, Light and Sound - Stage 1: Desired Results

Phenomenon: Video of Lightning Strike with Thunder Delay (https://www.youtube.com/shorts/aZ1_8xXFlJw)

ESTABLISHED GOALS

- **HS-PS4-1** - Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media
- **HS-PS4-3** - Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other
- **HS-PS4-4** - Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter
- **HS-ETS1-1** - Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions

Transfer

Students will be able to independently use their learning to…

SEP-3 Planning and Carrying Out Investigations
SEP-4 Analyzing and Interpreting Data
SEP-5 Using Mathematics and Computational Thinking
SEP-6 Constructing Explanations and Designing Solutions
SEP-7 Engaging in Argument from Evidence
SEP-8 Obtaining, Evaluating, and Communicating Information.

Meaning

UNDERSTANDINGS
Students will understand that…

PS4.A: Wave Properties
- The wavelength and frequency of a wave are related to one another by the speed of travel of the wave, which depends on the type of wave and the medium through which it is passing. (HS-PS4-1)
- Waves can add or cancel one another as they cross, depending on their relative phase (i.e., relative position of peaks and troughs of the waves), but they emerge unaffected by each other. (HS-PS4-3).

PS4.B Electromagnetic Radiation
Electromagnetic radiation (e.g., radio, microwaves, light) can be modeled as a wave of changing electric and magnetic fields or as particles called photons. The wave model is useful for explaining many features of electromagnetic radiation, and the particle model

ESSENTIAL QUESTIONS
Students will keep considering…

- How can one explain and predict interactions between objects and within systems of objects?
- Why do objects keep moving and what causes objects' motions to change?
- How are energy transformations and the conservation of energy related to real-world situations?
- How can applied forces affect the energy of an object or system?
- How are waves used to transfer energy and send and store information?
- How is energy used to improve the quality of our lives?
- How are waves used to study otherwise inaccessible objects?

that account for societal needs and wants ● **CCSS.ELA-LITERACY.RST11-12.2** Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. ● **CCSS.ELA-LITERACY.RST11-12.3** - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing other technical tasks; analyze the specific results based on explanations in the text ● **CCSS.ELA-LITERACY.RST11-12.4** - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context related to grades 11-12 texts and topics ● **CCSS.ELA-LITERACY.RST11-12.7** - Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a	explains other features. (HS-PS4-3) ● When light or longer wavelength electromagnetic radiation is absorbed in matter, it is generally converted into thermal energy (heat). Shorter wavelength electromagnetic radiation (ultraviolet, X-rays, gamma rays) can ionize atoms and cause damage to living cells. (HS-PS4-4)	
	Acquisition	
	Students will know… ● The wavelength and frequency of a wave are related to one another by the speed of the wave, which depends on the type of wave and the medium through which it is passing. (HS-PS4-1) (CCC: Cause and Effect) ● Waves can add or cancel one another as they cross, depending on their relative phase (i.e., relative position of peaks and troughs of the waves), but they emerge unaffected by each other. (HS-PS4-3) ● Electromagnetic radiation is a phenomenon in which energy stored in fields moves across space. (HS-PS3-2) ● Waves have characteristic behaviors such as interference, diffraction, refraction and polarization. ● Electromagnetic radiation (e.g., radio, microwaves, light) can be modeled as a wave of changing electric and magnetic fields or as particles called photons. (HS-PS4-3) (CCC: Systems and System Models) ● When longer wavelength electromagnetic radiation (e.g. light) is absorbed in matter, it is generally converted into thermal energy (heat). (HS-PS4-4) ● Shorter wavelength electromagnetic radiation (ultraviolet, X-rays, gamma rays) can ionize atoms and cause damage to living cells. (HS-PS4-4) ● Multiple technologies based on the understanding of waves and their interactions with matter are part of everyday experiences in the modern world (e.g., medical imaging, communications, scanners) and in scientific research. They are essential tools for	*Students will be skilled at…* ● Classifying waves as either transverse or longitudinal. ● Contrasting the type of particle vibrations that create a transverse wave with the type of particle vibrations that create a longitudinal wave ● Identifying the aspects of a wave within a graph: such as amplitude, wavelength and period ● Calculating wavelengths, frequencies and speeds of waves. ● Applying the principle of superposition to overlapping waves to determine points of constructive and destructive interference. ● Describing how the speed of sound changes when traveling through solids, liquids or gases. ● Predicting the angle of reflection of light ray when it reflects off a surface ● Predicting the direction a light ray will be bent as it passes from one medium to another ● Identifying the type of interaction between light and matter as reflection, refraction or diffraction if given examples. ● Identifying or giving examples when light needs to be modeled as a wave and when it needs to be modeled as a particle

problem ● **CCSS.ELA-LITERACY.R ST11-12.9** - Synthesize information from a range of sources into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible	producing, transmitting, and capturing signals and for storing and interpreting the information contained in them. (HS-PS4-5)	● Explaining and giving examples of how human society uses waves to communicate ● Explaining why digital wave signals are the dominant mode of communication ● Analyzing, synthesizing, and evaluating information from credible sources in order to form an evidence based opinion on a current real-world issue involving electromagnetic radiation.

Unit 4: Waves, Light and Sound - Stage 2: Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T, M, A	Rubric which outlines specific expectations for a comprehensive, informative, argumentative essay	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *The nature of electromagnetic radiation and how it can affect materials, including living tissue* **Goal:** Evaluate the validity and reliability of claims in published materials of the effects of electromagnetic radiation on materials (e.g. Effectiveness of Sunscreen, Are UV Nail Lamps Safe?). **Role:** You are a personal health advocate. **Audience:** Readers of a prominent personal health magazine **Situation:** The magazine editor would like to publish your argumentative article about the safety of one of the suggested current topics. **Product or Performance:** Write an argumentative essay in support of a position of one of the given issues using evidence from at least two opposing views. **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative assessments ● Lab analysis and reflection on results ● Warm-ups and exit tickets ● Article readings/summaries ● Homework assignments

Unit 4: Waves, Light and Sound - Stage 3: Learning Plan		
Code	***Pre-Assessment*** ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● End of Unit Assessment
M,A	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity formative assessment, and address misconceptions (E3)	
M,A	**Students complete Mach One: Speed of Sound (Lab)** - Calculate the speed of sound by using tubes of air and measured frequencies (E1, E4, E5)	
M,A	**Students complete Speed of Marshmallows (Lab)** - Calculate the speed of light, given the frequency of the microwave oven (specified on the device) and the measured wavelength (E1, E2, E3)	
M,A	**Teacher leads Students in Slinky Demonstrations** - Demonstrating the different types of waves, wave interference and standing waves (E1, E2, E4)	
T,M,A	**Students utilize Problem Solving Protocol (GUESS)** - Use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving waves, light and sound (E4, E5)	
T,M,A	**Students summarize Waves, Light and Sound Concepts** - Unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc.) (E2, E3, E4)	
M,A	**Students complete unit tests and occasional quizzes** - Summative Assessments. (E5)	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Advanced Placement Physics 1

June/2024

New Milford Board of Education

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Advanced Placement Physics 1

Grades 11-12

AP Physics 1 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics by developing models of physical phenomena through inquiry-based investigations. Students build their understanding of physical models as they explore and solve problems in content areas such as: kinematics, forces and translational dynamics, work, energy and power, linear momentum, torque and rotational dynamics, energy and momentum of rotating systems, oscillations and fluids. By confronting complex physical situations or scenarios, the course is designed to enable students to develop the ability to reason about physical phenomena using important science practices, such as explaining relationships, applying and justifying the use of mathematical routines, designing experiments, analyzing data, and making connections across multiple topics within the course.

Throughout the AP Physics 1 course students will connect with the characteristics identified in New Milford's Vision of a Graduate. Students will enhance their problem solving skills by applying critical thinking skills while developing positive relationships with their peers.

Critical Thinking: Students will make logical connections between knowledge they have and information they have gathered and be able to connect them together in order to solve a problem. Students will use their prior knowledge to determine if the results they have reached are logical answers to their questions or lab results.

Problem Solving: Students will work on understanding the questions that are posed to them, identifying the information within the question and using their prior knowledge to help them find a solution. Students then will be able to predict the correct outcomes for problems involving kinematics, forces, and energy. Using the information gathered, students will be able to summarize their findings in order to make meaning from their learning and to apply that knowledge to novel situations outside the academic setting.

Positive Relationships: Students will develop positive relationships with their peers by performing laboratory experiments, group work, and delivering productive criticism or encouragement while working in small groups.

Key for College Board Standards

Science Practices

1. **Creating Representations** - Create representations that depict physical phenomena.
    A. Create diagrams,tables, charts,or schematics to represent physical situations.
    B. Create quantitative graphs with appropriate scales and units, including plotting data.
    C. Create qualitative sketches of graphs that represent features of a model or the behavior of a physical system.
2. **Mathematical Routines** - Conduct analyses to derive, calculate, estimate, or predict.
    A. Derive a symbolic expression from known quantities by selecting and following a logical mathematical pathway.
    B. Calculate or estimate an unknown quantity with units from known quantities, by selecting and following a logical computational pathway.
    C. Compare physical quantities between two or more scenarios or at different times and locations in a single scenario.
    D. Predict new values or factors of change of physical quantities using functional dependence between variables.
3. **Scientific Questioning and Argumentation** - Describe experimental procedures, analyze data, and support claims.
    A. Create experimental procedures that are appropriate for a given scientific question.
    B. Apply an appropriate law, definition, theoretical relationship, or model to make a claim.
    C. Justify or support a claim using evidence from experimental data, physical representations, or physical principles or laws.

5E Model (used in lieu of WHERETO)

E1 - Engage (H)
E2 - Explore (E_1,T)
E3 - Explain (W,T,O)
E4 - Extend (R,T)
E5 - Evaluate (E_2)

AMT Coding

A - Acquire
M - Meaning
T - Transfer

Pacing Guide

Units	Number of Blocks
Unit 1 - Kinematics	6 - 8 blocks
Unit 2 - Force and Translational Dynamics	11 - 13 blocks
Unit 3 - Work, Energy and Power	11 - 13 blocks
Unit 4 - Linear Momentum	5 - 7 blocks
Unit 5 - Torque and Rotational Dynamics	7 - 10 blocks
Unit 6 - Energy and Momentum of Rotating Systems	4 - 7 blocks
Unit 7 - Oscillations	3 - 5 blocks
Unit 8 - Fluids	6 - 8 blocks

Unit 1: Kinematics

Stage 1 Desired Results

ESTABLISHED GOALS

1.1.A
Describe a scalar or vector quantity using magnitude and direction, as appropriate.

1.1.B
Describe a vector sum in one dimension.

1.2.A
Describe a change in an object's position.

1.2.B
Describe the average velocity and acceleration of an object.

1.3.A
Describe the position, velocity, and acceleration of an object using representations of that object's motion.

1.4.A
Describe the reference frame of a given observer.

1.4.B
Describe the motion of objects as measured by observers in different inertial

Transfer

Students will be able to independently use their learning for…

Creating Representations - Create representations that depict physical phenomena (1A, 1C)

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict.(2A, 2B)

Meaning

UNDERSTANDINGS

Students will understand that…

- The world is made up of objects that are in a constant state of motion.
- To understand the relationships between objects, one must first understand movement.
- Representations can be used to model and analyze scientific information as it relates to the motion of objects.

ESSENTIAL QUESTIONS

- How can the idea of frames of reference allow two people to tell the truth yet have conflicting reports?
- How can we estimate the height of a very tall building with only a small rock and a stopwatch?
- Why might it seem like you are moving backwards when a car passes you on the highway?
- Why is the general rule for stopping your car "when you double your speed, you must give yourself four times as much distance to stop"?

Acquisition

Students will know…

1.1.A.1

Students will be skilled at…

- Comparing and contrasting vector and scalar

reference frames. 1.5.A Describe the perpendicular components of a vector. 1.5.B Describe the motion of an object moving in two dimensions.	Scalars are quantities described by magnitude only; vectors are quantities described by both magnitude and direction. 1.1.A.2 Vectors can be visually modeled as arrows with appropriate direction and lengths proportional to their magnitude. 1.1.A.3 Distance and speed are examples of scalar quantities, while position, displacement, velocity, and acceleration are examples of vector quantities. 1.1.A.3.i Vectors are notated with an arrow above the symbol for that quantity. 1.1.A.3.ii Vector notation is not required for vector components along an axis. In one dimension, the sign of the component completely describes the direction of that component. 1.1.B.1 When determining a vector sum in a given one-dimensional coordinate system, opposite directions are denoted by opposite signs. 1.2.A.1 When using the object model, the size, shape, and internal configuration are ignored. The object may be treated as a single point with extensive properties such as mass and charge. 1.2.A.2 Displacement is the change in an object's position. 1.2.B.1 Averages of velocity and acceleration are calculated considering the initial and final states of an object over an interval of time. 1.2.B.2 Average velocity is the displacement of an object divided by the interval of time in which that displacement occurs. 1.2.B.3 Average acceleration is the change in velocity divided by the interval of time in which that change in velocity occurs. 1.2.B.4	quantities ● Identifying whether a quantity is a scalar or vector ● Calculating vector sums ● Applying kinematics equations to solve for displacement, position, velocity, acceleration and/or time ● Creating and interpreting graphs of motion in order to identify displacement, position, velocity, acceleration and/or time ● Determining appropriate reference frames when solving problems ● Resolving vectors into components and using trigonometric relationships to solve for unknowns ● Modeling projectile motion by separating vertical and horizontal components and solving for unknowns

	An object is accelerating if the magnitude and/or direction of the object's velocity are changing. 1.2.B.5 Calculating average velocity or average acceleration over a very small time-interval yields a value that is very close to the instantaneous velocity or instantaneous acceleration. 1.3.A.1 Motion can be represented by motion diagrams, figures, graphs, equations, and narrative descriptions. 1.3.A.2 For constant acceleration, three kinematic equations can be used to describe instantaneous linear motion in one dimension. 1.3.A.3 Near the surface of Earth, the vertical acceleration caused by the force of gravity is downward, constant, and has a measured value approximately equal to 10 m/s^2. 1.3.A.4 Graphs of position, velocity, and acceleration as functions of time can be used to find the relationships between those quantities. 1.3.A.4.i An object's instantaneous velocity is the rate of change of the object's position, which is equal to the slope of a line tangent to a point on a graph of the object's position as a function of time. 1.3.A.4.ii An object's instantaneous acceleration is the rate of change of the object's velocity, which is equal to the slope of a line tangent to a point on a graph of the object's velocity as a function of time. 1.3.A.4.iii The displacement of an object during a time interval is equal to the area under the curve of a graph of the object's velocity as a function of time (i.e., the area bounded by the function and the horizontal axis for the appropriate interval). 1.3.A.4.iv The change in velocity of an object during a time interval is	

	equal to the area under the curve of a graph of the acceleration of the object as a function of time. 1.4.A.1 The choice of reference frame will determine the direction and magnitude of quantities measured by an observer in that reference frame. 1.4.B.1 Measurements from a given reference frame may be converted to measurements from another reference frame. 1.4.B.2 The observed velocity of an object results from the combination of the object's velocity and the velocity of the observer's reference frame. 1.4.B.2.i Combining the motion of an object and the motion of an observer in a given reference frame involves the addition or subtraction of vectors. 1.4.B.2.ii The acceleration of any object is the same as measured from all inertial reference frames. 1.5.A.1 Vectors can be mathematically modeled as the resultant of two perpendicular components. 1.5.A.2 Vectors can be resolved into components using a chosen coordinate system. 1.5.A.3 Vectors can be resolved into perpendicular components using trigonometric functions and relationships. 1.5.B.1 Motion in two dimensions can be analyzed using one-dimensional kinematic relationships if the motion is separated into components. 1.5.B.2 Projectile motion is a special case of two-dimensional motion that has zero acceleration in one dimension and constant, nonzero acceleration in the second dimension.	

Stage 2 – Evidence

Code	Evaluative Criteria	Assessment Evidence
A,M,T	Comprehensive rubric which outlines necessary calculations and predictions to be made, as well as a target sheet for the test run	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *The behavior of projectiles launched near the Earth's surface and how to predict their motion.* **Goal:** To accurately predict the landing spot of a horizontally launched projectile **Role:** World Health Organization Project Manager **Audience:** Your supervisor has asked you to do the necessary calculations to release a care package of vital medicines from an airplane to a specified location in a remote jungle **Situation:** You have been asked to come up with a plan to launch a care package of medication to a group of ecologists who have contracted a highly contagious virus deep in a remote jungle. You will need to determine where to release the package from so that it lands in a specified clearing. **Product/Performance:** A comprehensive set of calculations with a prediction and a successful test launch registered on target sheet **Standards of Success:** Grading rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving kinematics (E4, E5)	
A,M,T	**Students summarize Kinematics Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M	**Students complete Vector Addition (Lab)** - applying trigonometric concepts and mapping out a series of vectors using a trundle wheel (E1, E2, E4)	
A,T	**Students complete Tortoise and Hare (Lab)** - collecting motion data from students on a track, then graphing and interpreting data (E1, E4, E5)	
M,T	**Students complete Graph Matching (Lab)** - Use a motion detector to duplicate graphs of motion. (E1, E2, E5)	
A,M,T	**Teacher leads class in Deriving Big 4 (Act)** - using basic equations for average velocity and acceleration to derive the four main kinematics equations used in physics (E2, E3, E4)	

A,M,T	**Students complete Prove It (Lab)** - determine gravitational acceleration with a variety of labs. (E1, E5)	
M,T	**Shoot for Your Grade (Lab) -** demonstrate mastery of projectile motion. (E1, E4, E5) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Force and Translational Dynamics

Stage 1 Desired Results

<table>
<tr><td rowspan="4">ESTABLISHED GOALS

2.1.A
Describe the properties and interactions of a system.

2.1.B
Describe the location of a system's center of mass with respect to the system's constituent parts.

2.2.A
Describe a force as an interaction between two objects or systems.

2.2.B
Describe the forces exerted on an object or system using a free-body diagram.

2.3.A
Describe the interaction of</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning for…

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict.(2A, 2D)

Scientific Questioning and Argumentation - Describe experimental procedures, analyze data, and support claims. (3B, 3C)</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…

● Force is an interaction between two objects or systems of objects.
● Forces provide the context in which one can analyze and come to understand a variety of physical phenomena.
● Free body diagrams build upon models used for motion and allow for a deeper</td><td>ESSENTIAL QUESTIONS

● Why do we feel pulled toward Earth but not toward a pencil?
● Why is it more difficult to stop a fully loaded dump truck than a small passenger car?
● Why is it difficult to walk on ice?
● Why will a delivery truck filled with birds sitting on its floor be the same weight as a truck with the same birds flying around inside?</td></tr>
</table>

two objects using Newton's third law and a representation of paired forces exerted on each object. 2.4.A Describe the conditions under which a system's velocity remains constant. 2.5.A Describe the conditions under which a system's velocity changes. 2.6.A Describe the gravitational interaction between two objects or systems with mass. 2.6.B Describe situations in which the gravitational force can be considered constant. 2.6.C Describe the conditions under which the magnitude of a system's apparent weight is different from the magnitude of the gravitational force exerted on that system. 2.6.D Describe inertial and gravitational mass. 2.7.A	understanding of forces.	
	Acquisition	
	Students will know… 2.1.A.1 System properties are determined by the interactions between objects within the system. 2.1.A.2 If the properties or interactions of the constituent objects within a system are not important in modeling the behavior of the macroscopic system, the system can itself be treated as a single object. 2.1.A.3 Systems may allow interactions between constituent parts of the system and the environment, which may result in the transfer of energy or mass. 2.1.A.4 Individual objects within a chosen system may behave differently from each other as well as from the system as a whole. 2.1.A.5 The internal structure of a system affects the analysis of that system. 2.1.A.6 As variables external to a system are changed, the system's substructure may change. 2.1.B.1 For systems with symmetrical mass distributions, the center of mass is located on lines of symmetry. 2.1.B.2 The location of a system's center of mass along a given axis can be calculated using an equation	*Students will be skilled at…* ● Identifying the components and properties of a given system in order to model interactions within, on and/or by the system ● Recognizing that forces are vector quantities that describe an interaction between two objects or systems and that those interactions may or may not involve direct contact ● Interpreting, creating and applying free-body diagrams in order to model interactions and solve for unknowns ● Identifying force pairs by applying Newton's Third Law ● Calculating the net force on a system and determining when a system is in equilibrium ● Recognizing that an object in equilibrium has a constant velocity and that an accelerating object is not in equilibrium ● Applying Newton's Second Law to determine the magnitude of acceleration experienced by a system of a particular mass when a force is applied ● Determining the gravitational force between two objects and describing situations where the gravitational force can be considered constant ● Explaining how a system's apparent weight could be different from the magnitude of the gravitational force on that system ● Differentiating between inertial and gravitational mass ● Defining frictional force, comparing and contrasting static and kinetic friction and calculating frictional forces

Describe kinetic friction between two surfaces 2.7.B Describe static friction between two surfaces. 2.8.A Describe the force exerted on an object by an ideal spring 2.9.A Describe the motion of an object traveling in a circular path. 2.9.B Describe circular orbits using Kepler's third law.	2.1.B.3 A system can be modeled as a singular object that is located at the system's center of mass. 2.2.A.1 Forces are vector quantities that describe the interactions between objects or systems. 2.2.A.1.i A force exerted on an object or system is always due to the interaction of that object with another object or system. 2.2.A.1.ii An object or system cannot exert a net force on itself. 2.2.A.2 Contact forces describe the interaction of an object or system touching another object or system and are macroscopic effects of interatomic electric forces. 2.2.B.1 Free-body diagrams are useful tools for visualizing forces being exerted on a single object or system and for determining the equations that represent a physical situation. 2.2.B.2 The free-body diagram of an object or system shows each of the forces exerted on the object by the environment. 2.2.B.3 Forces exerted on an object or system are represented as vectors originating from the representation of the center of mass, such as a dot. A system is treated as though all of its mass is located at the center of mass. 2.2.B.4 A coordinate system with one axis parallel to the direction of acceleration of the object or system simplifies the translation from free-body diagram to algebraic representation. For example, in a free-body diagram of an object	● Defining spring force and applying Hooke's Law to calculate the magnitude of the spring force on a system ● Defining centripetal force and calculating the magnitude of centripetal forces and accelerations for objects in circular motion ● Applying centripetal force equations and Kepler's Third Law to model circular orbits

	on an inclined plane, it is useful to set one axis parallel to the surface of the incline. 2.3.A.1 Newton's third law describes the interaction of two objects in terms of the paired forces that each exerts on the other. 2.3.A.2 Interactions between objects within a system (internal forces) do not influence the motion of a system's center of mass. 2.3.A.3 Tension is the macroscopic net result of forces that segments of a string, cable, chain, or similar system exert on each other in response to an external force. 2.3.A.3.i An ideal string has negligible mass and does not stretch when under tension. 2.3.A.3.ii The tension in an ideal string is the same at all points within the string. 2.3.A.3.iii In a string with non negligible mass, tension may not be the same at all points within the string. 2.3.A.3.iv An ideal pulley is a pulley that has negligible mass and rotates about an axle through its center of mass with negligible friction. 2.4.A.1 The net force on a system is the vector sum of all forces exerted on the system. 2.4.A.2 Translational equilibrium is a configuration of forces such that the net force exerted on a system is zero. 2.4.A.3 Newton's first law states that if the net force exerted on a system is zero, the velocity of that system	

	will remain constant. 2.4.A.4 Forces may be balanced in one dimension but unbalanced in another. The system's velocity will change only in the direction of the unbalanced force. 2.4.A.5 An inertial reference frame is one from which an observer would verify Newton's first law of motion. 2.5.A.1 Unbalanced forces are a configuration of forces such that the net force exerted on a system is not equal to zero. 2.5.A.2 Newton's second law of motion states that the acceleration of a system's center of mass has a magnitude proportional to the magnitude of the net force exerted on the system and is in the same direction as that net force. 2.5.A.3 The velocity of a system's center of mass will only change if a nonzero net external force is exerted on that system. 2.6.A.1 Newton's law of universal gravitation describes the gravitational force between two objects or systems as directly proportional to each of their masses and inversely proportional to the square of the distance between the systems' centers of mass. 2.6.A.1.i The gravitational force is attractive. 2.6.A.1.ii The gravitational force is always exerted along the line connecting the centers of mass of the two interacting systems. 2.6.A.1.iii The gravitational force on a system can be	

	considered to be exerted on the system's center of mass. 2.6.A.2 A field models the effects of a noncontact force exerted on an object at various positions in space. 2.6.A.2.i The magnitude of the gravitational field created by a system of mass M at a point in space is equal to the ratio of the gravitational force exerted by the system on a test object of mass m to the mass of the test object. 2.6.A.2.ii If the gravitational force is the only force exerted on an object, the observed acceleration of the object (in m/s2) is numerically equal to the magnitude of the gravitational field strength (in N/Kg) at that location. 2.6.A.3 The gravitational force exerted by an astronomical body on a relatively small nearby object is called weight. 2.6.B.1 If the gravitational force between two systems' centers of mass has a negligible change as the relative position of the two systems changes, the gravitational force can be considered constant at all points between the initial and final positions of the systems. 2.6.B.2 Near the surface of Earth, the strength of the gravitational field is g = 10 N/kg 2.6.C.1 The magnitude of the apparent weight of a system is the magnitude of the normal force exerted on the system. 2.6.C.2	

	If the system is accelerating, the apparent weight of the system is not equal to the magnitude of the gravitational force exerted on the system. 2.6.C.3 A system appears weightless when there are no forces exerted on the system or when the force of gravity is the only force exerted on the system. 2.6.C.4 The equivalence principle states that an observer in a noninertial reference frame is unable to distinguish between an object's apparent weight and the gravitational force exerted on the object by a gravitational field. 2.6.D.1 Objects have inertial mass, or inertia, a property that determines how much an object's motion resists changes when interacting with another object. 2.6.D.2 Gravitational mass is related to the force of attraction between two systems with mass. 2.6.D.3 Inertial mass and gravitational mass have been experimentally verified to be equivalent. 2.7.A.1 Kinetic friction occurs when two surfaces in contact move relative to each other. 2.7.A.1.i The kinetic friction force is exerted in a direction opposite to the motion of each surface relative to the other surface. 2.7.A.1.ii The force of friction between two surfaces does not depend on the size of the surface area of contact. 2.7.A.2 The magnitude of the kinetic friction force exerted on an object is the product of the normal force the surface exerts on the object	

	and the coefficient of kinetic friction. 2.7.A.2.i The coefficient of kinetic friction depends on the material properties of the surfaces that are in contact. 2.7.A.2.ii Normal force is the perpendicular component of the force exerted on an object by the surface with which it is in contact; it is directed away from the surface. 2.7.B.1 Static friction may occur between the contacting surfaces of two objects that are not moving relative to each other. 2.7.B.2 Static friction adopts the value and direction required to prevent an object from slipping or sliding on a surface. 2.7.B.2.i Slipping and sliding refer to situations in which two surfaces are moving relative to each other. 2.7.B.2.ii There exists a maximum value for which static friction will prevent an object from slipping on a given surface. 2.7.B.3 The coefficient of static friction is typically greater than the coefficient of kinetic friction for a given pair of surfaces. 2.8.A.1 An ideal spring has negligible mass and exerts a force that is proportional to the change in its length as measured from its relaxed length. 2.8.A.2 The magnitude of the force exerted by an ideal spring on an object is given by Hooke's law. 2.8.A.3	

	The force exerted on an object by a spring is always directed toward the equilibrium position of the object–spring system. 2.9.A.1 Centripetal acceleration is the component of an object's acceleration directed toward the center of the object's circular path. 2.9.A.1.i The magnitude of centripetal acceleration for an object moving in a circular path is the ratio of the object's tangential speed squared to the radius of the circular path. 2.9.A.1.ii Centripetal acceleration is directed toward the center of an object's circular path. 2.9.A.2 Centripetal acceleration can result from a single force, more than one force, or components of forces exerted on an object in circular motion. 2.9.A.2.i At the top of a vertical, circular loop, an object requires a minimum speed to maintain circular motion. At this point, and with this minimum speed, the gravitational force is the only force that causes the centripetal acceleration. 2.9.A.2.ii Components of the static friction force and the normal force can contribute to the net force producing centripetal acceleration of an object traveling in a circle on a banked surface. 2.9.A.2.iii A component of tension contributes to the net force producing centripetal acceleration experienced by a conical pendulum. 2.9.A.3	

	Tangential acceleration is the rate at which an object's speed changes and is directed tangent to the object's circular path. 2.9.A.4 The net acceleration of an object moving in a circle is the vector sum of the centripetal acceleration and tangential acceleration. 2.9.A.5 The revolution of an object traveling in a circular path at a constant speed (uniform circular motion) can be described using period and frequency. 2.9.A.5.i The time to complete one full circular path, one full rotation, or a full cycle of oscillatory motion is defined as period, T. 2.9.A.5.ii The rate at which an object is completing revolutions is defined as frequency, f. 2.9.A.5.iii For an object traveling at a constant speed in a circular path, the period is given by a derived equation 2.9.B.1 For a satellite in circular orbit around a central body, the satellite's centripetal acceleration is caused only by gravitational attraction. The period and radius of the circular orbit are related to the mass of the central body.	

Stage 2 – Evidence

Code	Evaluative Criteria	Assessment Evidence
A,M,T	Comprehensive rubric with grading expectations for data collection, analysis, graphs, reflection and recommendation	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *the role of contact forces such as friction on the behavior of objects in contact with surfaces* **Goal:** To generate a comprehensive report on the frictional forces between several types of footwear on a wooden surface in order to make a recommendation of appropriate footwear for a new film **Role:** Wardrobe Consultant on a film **Audience:** Wardrobe Coordinator **Situation:** You have been asked to determine how various shoes will behave on the deck of the "Titanic" in order to select safe, appropriate and aesthetic footwear for the actors on a new film **Product/Performance:** Comprehensive report on the coefficient of friction for several different types of footwear. The report should include data collected and analyzed as well as graphs in addition to a reflection and ultimate recommendation. **Standards of Success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving forces (E4, E5)	
A,M,T	**Students summarize Forces Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A	**Students complete Inertia Smorgasbord (Act)** - Experiment with and explain inertia phenomena. (E1, E2, E4)	
A,M,T	**Students complete "μ" of your shoe (Lab)** - Analyze data and calculate the	

	coefficient of friction. (E1, E4, E5)	
M,T	**Students complete Newton's 2nd Law Sharing (Act)** - students pair up and create N2L equations, then share and describe a situation that could apply to the equation, including a free-body diagram (E2, E3, E4)	
T	**Students complete What's Wrong With this Picture? (Act)** - students are given a scenario with incorrect data and are asked to identify where the errors are (E3, E4, E5)	
M,T	**Students complete Flying Pigs (Lab)** - students use flying model pigs to predict the conditions that will produce the greatest centripetal force (E1, E4, E5)	
M,T	**Students complete My Solar System pHet (Lab)** - students use the pHet and concepts of circular motion to confirm that gravitational force is proportional to mass and inversely proportional to square of distance (E2, E4)	
M,T	**Students complete Hooke's Law (Lab)** - students are given a spring and several masses and asked to determine the spring constant and use that to predict an unknown mass (E2, E4) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 3: Work, Energy and Power

Stage 1 Desired Results

ESTABLISHED GOALS

3.1.A
Describe the translational kinetic energy of an object in terms of the object's mass and velocity.

3.2.A
Describe the work done on an object or system by a given force or collection of forces.

3.3.A
Describe the potential energy of a system.

3.4.A
Describe the energies present in a system.

Transfer

Students will be able to independently use their learning for…

Creating Representations - Create representations that depict physical phenomena. (1A, 1C)

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict. (2A)

Scientific Questioning and Argumentation - Describe experimental procedures, analyze data, and support claims. (3C)

Meaning

UNDERSTANDINGS
Students will understand that…

- The idea of conservation is a foundational principle of physics
- The concept of work is the primary agent of

ESSENTIAL QUESTIONS

- How much money can you save by charging your cell phone at school instead of at home?
- If energy is conserved, why are we running out of it?

3.4.B Describe the behavior of a system using conservation of mechanical energy principles. 3.4.C Describe how the selection of a system determines whether the energy of that system changes. 3.5.A Describe the transfer of energy into, out of, or within a system in terms of power.	change for energy. ● The importance of determining the most appropriate technique for approaching a problem and understanding the limiting factors of each technique.	● Does pushing an object always change its energy? ● Why does it seem easier to carry a large box up a ramp rather than up a set of stairs?
	Acquisition	
	Students will know… 3.1.A.1 An object's translational kinetic energy is given by an equation 3.1.A.2 Translational kinetic energy is a scalar quantity. 3.1.A.3 Different observers may measure different values of the translational kinetic energy of an object, depending on the observer's frame of reference. 3.2.A.1 Work is the amount of energy transferred into or out of a system by a force exerted on that system over a distance. 3.2.A.1.i The work done by a conservative force exerted on a system is path-independent and only depends on the initial and final configurations of that system. 3.2.A.1.ii The work done by a conservative force on a system—or the change in the potential energy of the system—will be zero if the system returns to its initial configuration. 3.2.A.1.iii Potential energies are associated only with conservative forces.	*Students will be skilled at…* ● Calculating the kinetic energy of objects in motion ● Defining work as a change in energy of a system and applying equations to solve for unknowns ● Comparing and contrasting conservative and non-conservative forces which do work on or by systems ● Calculating various forms of potential energy such as gravitational and elastic ● Determining the magnitude of the work done by non-conservative forces such as friction ● Applying the work-energy theorem to find unknowns ● Analyzing graphical representations to determine work done by variable forces ● Describing situations where energy is conserved and applying conservation equations to find unknowns ● Describing situations where energy is not conserved and applying the work-energy theorem to find the magnitude of change in energy of the system ● Defining power and applying equations to calculate unknowns

	3.2.A.1.iv The work done by a nonconservative force is path-dependent. 3.2.A.1.v Examples of non conservative forces are friction and air resistance. 3.2.A.2 Work is a scalar quantity that may be positive, negative, or zero. 3.2.A.3 The amount of work done on a system by a constant force is related to the components of that force and the displacement of the point at which that force is exerted. 3.2.A.3.i Only the component of the force exerted on a system that is parallel to the displacement of the point of application of the force will change the system's total energy. 3.2.A.3.ii The component of the force exerted on a system perpendicular to the direction of the displacement of the system's center of mass can change the direction of the system's motion without changing the system's kinetic energy. 3.2.A.4 The work-energy theorem states that the change in an object's kinetic energy is equal to the sum of the work (net work) being done by all forces exerted on the object. 3.2.A.4.i An external force may change the configuration of a system. The component of the external force parallel to the displacement times the displacement of the point of application of the force gives the change in kinetic energy of the system.	

	3.2.A.4.ii If the system's center of mass and the point of application of the force move the same distance when a force is exerted on a system, then the system may be modeled as an object, and only the system's kinetic energy can change. 3.2.A.4.iii The energy dissipated by friction is typically equated to the force of friction times the length of the path over which the force is exerted 3.2.A.5 Work is equal to the area under the curve of a graph of F as a function of displacement. 3.3.A.1 A system composed of two or more objects has potential energy if the objects within that system only interact with each other through conservative forces. 3.3.A.2 Potential energy is a scalar quantity associated with the position of objects within a system. 3.3.A.3 The definition of zero potential energy for a given system is a decision made by the observer considering the situation to simplify or otherwise assist in analysis. 3.3.A.4 The potential energy of common physical systems can be described using the physical properties of that system. 3.3.A.4.i The elastic potential energy of an ideal spring is given by the following equation, where Δx is the distance the spring has been stretched or compressed from its equilibrium length. 3.3.A.4.ii	

	The general form for the gravitational potential energy of a system consisting of two approximately spherical distributions of mass (e.g., moons, planets or stars) is given by an equation 3.3.A.4.iii Because the gravitational field near the surface of a planet is nearly constant, the change in gravitational potential energy in a system consisting of an object with mass m and a planet with gravitational field of magnitude g when the object is near the surface of the planet may be approximated by an equation 3.3.A.5 The total potential energy of a system containing more than two objects is the sum of the potential energy of each pair of objects within the system. 3.4.A.1 A system composed of only a single object can only have kinetic energy. 3.4.A.2 A system that contains objects that interact via conservative forces or that can change its shape reversibly may have both kinetic and potential energies. 3.4.B.1 Mechanical energy is the sum of a system's kinetic and potential energies. 3.4.B.2 Any change to a type of energy within a system must be balanced by an equivalent change of other types of energies within the system or by a transfer of energy between the system and its surroundings. 3.4.B.3 A system may be selected so that the total energy of that system is constant.	

	3.4.B.4 If the total energy of a system changes, that change will be equivalent to the energy transferred into or out of the system. 3.4.C.1 Energy is conserved in all interactions. 3.4.C.2 If the work done on a selected system is zero and there are no nonconservative interactions within the system, the total mechanical energy of the system is constant. 3.4.C.3 If the work done on a selected system is nonzero, energy is transferred between the system and the environment. 3.5.A.1 Power is the rate at which energy changes with respect to time, either by transfer into or out of a system or by conversion from one type to another within a system. 3.5.A.2 Average power is the amount of energy being transferred or converted, divided by the time it took for that transfer or conversion to occur. 3.5.A.3 Because work is the change in energy of an object or system due to a force, average power is the total work done, divided by the time during which that work was done. 3.5.A.4 The instantaneous power delivered to an object by the component of a constant force parallel to the object's velocity can be described with a derived equation.	

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**

A,M,T	Comprehensive rubric with grading expectations for data collection, analysis, sources of error in original design and potential design solutions	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *the principle of conservation of energy and the effect of non conservative forces on predicted outcomes involving energy conversions* **Goal:** To analyze and explain why a newly designed roller coaster is not working as it should and to provide engineering solutions to the owner of the theme park to get the roller coaster working **Role:** Theme park design engineering consultant **Audience:** Local Theme Park Owner **Situation:** You have been asked to analyze the motion of the latest roller coaster being designed for a local theme park. Test trials are showing the roller coaster carts are not able to make it up to the top of the second hill and you have been tasked with developing a solution. **Product/Performance:** Comprehensive report with test trial data, analysis, sources of error in original design and potential design solutions **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code	***Pre-Assessment***	
	• Brainstorming at the start of the unit • Informal assessment of prior knowledge • Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring • Quizzes on Content • Lab Reports • Questions on Activities • Verbal Questioning for Comprehension • AP Progress Checks • AP Practice Problems and FRQs • End of Unit Assessment
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving work, energy and power (E4, E5)	
A,M,T	**Students summarize Work, Energy and Power Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M	**Students complete Energy at the Skate Park (Lab)** - Use a pHet simulation to explore the concept of energy conservation. (E1, E2)	
A,M	**Students complete StairMaster (Lab)** - Calculate human work and power output (E1, E2, E4, E5)	
A,M,T	**Students complete Speeding Carts (Lab)** - students compare actual speeds of carts going down ramps to predicted speeds based on conservation of energy and explain why speeds don't match (E1, E2, E4)	
M,T	**Students complete Energy Conservation Sharing (Act)** - students pair up and create conservation equations, then share and describe a situation that could apply to the equation, including a diagrams and energy bar charts (E2, E3, E4)	
M,T	**Students complete Predict the Spring Constant (Lab)** -students are given	

	a spring-loaded ball launcher, meter stick and scale and asked to find the spring constant of the spring (E2, E3, E4) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 4: Linear Momentum

Stage 1 Desired Results

ESTABLISHED GOALS

4.1.A
Describe the linear momentum of an object or system.

4.2.A
Describe the impulse delivered to an object or system.

4.2.B
Describe the relationship between the impulse exerted on an object or a system and the change in momentum of the object or system.

4.3.A
Describe the behavior of a system using conservation of linear momentum.

4.3.B
Describe how the selection of a system determines whether the momentum of that system changes.

Transfer

Students will be able to independently use their learning for…

Creating Representations - Create representations that depict physical phenomena. (1B)

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict. (2B, 2D)

Scientific Questioning and Argumentation - Describe experimental procedures, analyze data, and support claims. (3A)

Meaning

UNDERSTANDINGS

Students will understand…

- The relationships between force, time, impulse, and linear momentum can be modeled via calculations, data analysis, designing experiments, and making predictions.
- How to use models and representations to illustrate the law of conservation of linear momentum of objects and systems
- The law of conservation of linear momentum can be used to analyze physical situations and provides a more complete picture of forces
- To make connections between momentum and kinetic energy of objects or systems and

ESSENTIAL QUESTIONS

- How is the physics definition of momentum different from how momentum is used to describe things in everyday life?
- Can a person on an elevator that breaks loose and falls to the ground avoid harm by jumping at the last second?
- Why will a water balloon break when thrown on the pavement, but not break if caught carefully?
- Why is it important that cars are designed to include crumple zones?

4.4.A Describe whether an interaction between objects is elastic or inelastic.	see under what conditions these quantities remain constant.	
	Acquisition	
	Students will know… 4.1.A.1 Linear momentum is defined by the equation p = mv. 4.1.A.2 Momentum is a vector quantity and has the same direction as the velocity. 4.1.A.3 Momentum can be used to analyze collisions and explosions. 4.1.A.3.i A collision is a model for an interaction where the forces exerted between the involved objects in the system are much larger than the net external force exerted on those objects during the interaction. 4.1.A.3.ii As only the initial and final states of a collision are analyzed, the object model may be used to analyze collisions. 4.1.A.3.iii An explosion is a model for an interaction in which forces internal to the system move objects within that system apart. 4.2.A.1 The rate of change of momentum is equal to the net external force exerted on an object or system. 4.2.A.2 Impulse is defined as the product of the average force exerted on a system and the	*Students will be skilled at…* ● Explaining the concept of linear momentum and describing situations where momentum can be used to model behaviors of systems ● Defining impulse and using the impulse-momentum theorem to determine the change in momentum of a system when acted upon by an outside force ● Applying the concept of conservation to momentum problems in order to calculate unknowns ● Determining whether interactions between systems can be considered elastic or inelastic collisions and applying conservation equations to find unknowns

	time interval during which that force is exerted on the system. 4.2.A.3 Impulse is a vector quantity and has the same direction as the net force exerted on the system. 4.2.A.4 The impulse delivered to a system by a net external force is equal to the area under the curve of a graph of the net external force exerted on the system as a function of time. 4.2.A.5 The net external force exerted on a system is equal to the slope of a graph of the momentum of the system as a function of time. 4.2.B.1 Change in momentum is the difference between a system's final momentum and its initial momentum. 4.2.B.2 The impulse–momentum theorem relates the impulse exerted on a system and the system's change in momentum. 4.2.B.3 Newton's second law of motion is a direct result of the impulse–momentum theorem applied to systems with constant mass. 4.3.A.1 A collection of objects with individual momenta can be described as one system with one center-of-mass velocity. 4.3.A.1.i For a collection of objects, the velocity of a system's center of mass can be calculated using an equation 4.3.A.1.ii The velocity of a system's center of mass is constant in the absence of a net external force. 4.3.A.2	

	The total momentum of a system is the sum of the momenta of the system's constituent parts. 4.3.A.3 In the absence of net external forces, any change to the momentum of an object within a system must be balanced by an equivalent and opposite change of momentum elsewhere within the system. Any change to the momentum of a system is due to a transfer of momentum between the system and its surroundings. 4.3.A.3.i The impulse exerted by one object on a second object is equal and opposite to the impulse exerted by the second object on the first. This is a direct result of Newton's third law. 4.3.A.3.ii A system may be selected so that the total momentum of that system is constant. 4.3.A.3.iii If the total momentum of a system changes, that change will be equivalent to the impulse exerted on the system. 4.3.A.4 Correct application of conservation of momentum can be used to determine the velocity of a system immediately before and immediately after collisions or explosions. 4.3.B.1 Momentum is conserved in all interactions. 4.3.B.2 If the net external force on the selected system is zero, the total momentum of the system is constant. 4.3.B.3 If the net external force on the selected system is nonzero, momentum is transferred between the system and the environment.	

	4.4.A.1 An elastic collision between objects is one in which the initial kinetic energy of the system is equal to the final kinetic energy of the system. 4.4.A.2 In an elastic collision, the final kinetic energies of each of the objects within the system may be different from their initial kinetic energies. 4.4.A.3 An inelastic collision between objects is one in which the total kinetic energy of the system decreases. 4.4.A.4 In an inelastic collision, some of the initial kinetic energy is not restored to kinetic energy but is transformed by nonconservative forces into other forms of energy. 4.4.A.5 In a perfectly inelastic collision, the objects stick together and move with the same velocity after the collision.	

Stage 2 – Evidence

Code	Evaluative Criteria	Assessment Evidence
A,M,T	Comprehensive rubric which includes grading guidelines for package design component, test drop results and reflection	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *the impulse-momentum theorem as it applies to reducing impact forces from collisions* **Goal:** To create a lightweight, original design for a container that will prevent a raw egg from breaking when dropped from a height **Role:** Packaging Design Engineer **Audience:** Supervisor **Situation:** Your supervisor has asked you to research a new design for a package to hold eggs. The package needs to be lightweight but it also must prevent the egg from breaking when dropped. **Product/Performance:** Lightweight container for test drop, summary of the design process and reflection on results after test drop. **Standards of Success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code	***Pre-Assessment***	
	● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving momentum (E4, E5)	
A,M,T	**Students summarize Momentum Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M,T	**Students complete Collisions and Conservation of Momentum (Lab)** - Use motion sensors and carts on tracks to model elastic and inelastic collisions (E1, E2, E4)	
A,T	**Teacher leads discussion on Transferring Maximum Momentum** -	

	students discuss and support with bar charts why a dart bouncing off a cart will increase the cart's speed more than it sticking or passing through (E2, E3, E5) <u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 5: Torque and Rotational Dynamics -

Stage 1 Desired Results

ESTABLISHED GOALS

5.1.A
Describe the rotation of a system with respect to time using angular displacement, angular velocity, and angular acceleration.

5.2.A
Describe the linear motion of a point on a rotating rigid system that corresponds to the rotational motion of that point, and vice versa.

5.3.A

Transfer

Students will be able to independently use their learning for…

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict. (2A, 2C, 2D)

Scientific Questioning and Argumentation - Describe experimental procedures, analyze data, and support claims. (3B)

Meaning

UNDERSTANDINGS *Students will understand that…*	ESSENTIAL QUESTIONS
	• Why does it matter where a door handle is

Identify the torques exerted on a rigid system. 5.3.B Describe the torques exerted on a rigid system. 5.4.A Describe the rotational inertia of a rigid system relative to a given axis of rotation. 5.4.B Describe the rotational inertia of a rigid system rotating about an axis that does not pass through the system's center of mass. 5.5.A Describe the conditions under which a system's angular velocity remains constant. 5.6.A Describe the conditions under which a system's angular velocity changes.	● Force and linear motion have rotational analogs—torque and rotational motion. ● One can compare and connect their understanding of linear and rotational motion, dynamics, energy, and momentum to develop holistic models to evaluate physical phenomena.	placed? ● Why are long wrenches more effective? ● What do mobiles have in common with the Grand Canyon Skywalk? ● Why does a tightrope walker use a long pole?
	Acquisition	
	Students will know… 5.1.A.1 Angular displacement is the measurement of the angle, in radians, through which a point on a rigid system rotates about a specified axis. 5.1.A.1.i A rigid system is one that holds its shape but in which different points on the system move in different directions during rotation. A rigid system cannot be modeled as an object. 5.1.A.1.ii One direction of angular displacement about an axis of rotation—clockwise or counterclockwise—is typically indicated as mathematically positive, with the other direction becoming mathematically negative. 5.1.A.1.iii If the rotation of a system about an axis may be well described using the motion of the system's center of mass, the system may be treated as a single object. For example, the rotation of Earth about its axis may be considered negligible when considering the revolution of Earth about	*Students will be skilled at…* ● Identifying the properties of rotating systems in terms of angular displacement, angular velocity and angular acceleration ● Applying rotational and translational equations to model the motion of a rigid rotating system ● Identifying and calculating the torques exerted on a rigid system ● Defining rotational inertia and applying the correct equations to describe various configurations of rotating objects ● Comparing and contrasting situations where a systems angular velocity remains the same and where it changes

	the center of mass of the Earth–Sun system. 5.1.A.2 Average angular velocity is the average rate at which angular position changes with respect to time. 5.1.A.3 Average angular acceleration is the average rate at which the angular velocity changes with respect to time. 5.1.A.4 Angular displacement, angular velocity, and angular acceleration around one axis are analogous to linear displacement, velocity, and acceleration in one dimension and demonstrate the same mathematical relationships. 5.1.A.4.i For constant angular acceleration, the mathematical relationships between angular displacement, angular velocity, and angular acceleration can be described with a series of equations 5.1.A.4.ii Graphs of angular displacement, angular velocity, and angular acceleration as functions of time can be used to find the relationships between those quantities. 5.2.A.1 For a point at a distance r from a fixed axis of rotation, the linear distance s traveled by the point as the system rotates through an angle $\Delta\theta$ is given by an equation. 5.2.A.2 Derived relationships of linear velocity and of the tangential component of acceleration to their respective angular quantities are given by a series of equations. 5.2.A.3	

	For a rigid system, all points within that system have the same angular velocity and angular acceleration. 5.3.A.1 Torque results only from the force component perpendicular to the position vector from the axis of rotation to the point of application of the force. 5.3.A.2 The lever arm is the perpendicular distance from the axis of rotation to the line of action of the exerted force. 5.3.B.1 Torques can be described using force diagrams. 5.3.B.1.i Force diagrams are similar to free-body diagrams and are used to analyze the torques exerted on a rigid system. 5.3.B.1.ii Similar to free-body diagrams, force diagrams represent the relative magnitude and direction of the forces exerted on a rigid system. Force diagrams also depict the location at which those forces are exerted relative to the axis of rotation. 5.3.B.2 The magnitude of the torque exerted on a rigid system by a force is described by an equation, where θ is the angle between the force vector and the position vector from the axis of rotation to the point of application of the force. 5.4.A.1 Rotational inertia measures a rigid system's resistance to changes in rotation and is related to the mass of the system and the distribution of that mass relative to the axis of rotation. 5.4.A.2 The rotational inertia of an object rotating a perpendicular distance r from an axis is described by a equation	

	5.4.A.3 The total rotational inertia of a collection of objects about an axis is the sum of the rotational inertias of each object about that axis. 5.4.B.1 A rigid system's rotational inertia in a given plane is at a minimum when the rotational axis passes through the system's center of mass. 5.4.B.2 The parallel axis theorem uses the following equation to relate the rotational inertia of a rigid system about any axis that is parallel to an axis through its center of mass. 5.5.A.1 A system may exhibit rotational equilibrium (constant angular velocity) without being in translational equilibrium, and vice versa. 5.5.A.1.i Free-body and force diagrams describe the nature of the forces and torques exerted on an object or rigid system. 5.5.A.1.ii Rotational equilibrium is a configuration of torques such that the net torque exerted on the system is zero. 5.5.A.1.iii The rotational analog of Newton's first law is that a system will have a constant angular velocity only if the net torque exerted on the system is zero. 5.5.A.2 A rotational corollary to Newton's second law states that if the torques exerted on a rigid system are not balanced, the system's angular velocity must be changing. 5.6.A.1 Angular velocity changes when the net torque exerted on the object or system is not equal to zero.	

	5.6.A.2 The rate at which the angular velocity of a rigid system changes is directly proportional to the net torque exerted on the rigid system and is in the same direction. The angular acceleration of the rigid system is inversely proportional to the rotational inertia of the rigid system. 5.6.A.3 To fully describe a rotating rigid system, linear and rotational analyses may need to be performed independently.	

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**

A,M,T	Comprehensive rubric with grading expectations for design schematics and calculations	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* … **Goal:** To design an off-center hanging piece of art that is balanced in rotational equilibrium **Role:** Artist **Audience:** Patrons at a local exhibition hall **Situation:** You have been asked to design a stunning, hanging piece of art to display as the central focus of a newly designed exhibition hall. The design must be supported off-center but be in equilibrium. **Product/Performance:** Artwork design schematics drawn to scale with appropriate calculations **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving torque and rotational dynamics (E4, E5)	
A,M,T	**Students summarize Torque and Rotational Dynamics Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M	**Students complete Which Egg is Which? (Act)** - students are given a raw egg and a hard-boiled egg but not told which is which and will use rotational kinematics to determine which egg is which (E1, E2, E3)	
A,M	**Teacher leads demonstration of Bicycle Tire Peeling Out** - students will predict and explain what happens to the translational and rotational speeds of a bicycle tire released onto the floor while spinning (E1, E2, E3)	
A,M,T	**Students complete Balancing Act (Lab)** - students use the concept of angular equilibrium to indirectly measure the mass of a meter stick balanced on a pivot (E2, E3, E5)	
	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and	

	vetted by the writers and department heads prior to submission for approval.	

Unit 6: Energy and Momentum of Rotating Systems -

Stage 1 Desired Results

ESTABLISHED GOALS

6.1.A
Describe the rotational kinetic energy of a rigid system in terms of the rotational inertia and angular velocity of that rigid system.

6.2.A
Describe the work done on a rigid system by a given torque or collection of torques.

6.3.A
Describe the angular momentum of an object or rigid system.

6.3.B
Describe the angular impulse delivered to an object or rigid system by a torque.

6.3.C
Relate the change in angular momentum of an object or

Transfer

Students will be able to independently use their learning for…

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict.(2C, 2D)

Scientific Questioning and Argumentation - Describe experimental procedures, analyze data, and support claims. (3B, 3C)

Meaning

UNDERSTANDINGS
Students will understand that…

- It is important to have a conceptual understanding of how angular momentum and rotational energy change due to external torque(s) on a system.
- Articulating the conditions under which the rotational energy and/or angular momentum of a system remains constant is foundational to working through more complex scenarios.

ESSENTIAL QUESTIONS

- What keeps a bicycle balanced?
- Why do planets move faster when they travel closer to the sun?
- What do satellites and projectiles have in common?
- What do ice skaters do with their arms when they want to spin faster? Why?

Acquisition

rigid system to the angular impulse given to that object or rigid system. 6.4.A Describe the behavior of a system using conservation of angular momentum. 6.4.B Describe how the selection of a system determines whether the angular momentum of that system changes. 6.5.A Describe the kinetic energy of a system that has translational and rotational motion. 6.5.B Describe the motion of a system that is rolling without slipping. 6.5.C Describe the motion of a system that is rolling while slipping. 6.6.A Describe the motions of a system consisting of two objects interacting only via gravitational forces.	*Students will know…* 6.1.A.1 The rotational kinetic energy of an object or rigid system is related to the rotational inertia and angular velocity of the rigid system and is given by an equation 6.1.A.1.i The rotational inertia of an object about a fixed axis can be used to show that the rotational kinetic energy of that object is equivalent to its translational kinetic energy, which is its total kinetic energy. 6.1.A.1.ii The total kinetic energy of a rigid system is the sum of its rotational kinetic energy due to its rotation about its center of mass and the translational kinetic energy due to the linear motion of its center of mass. 6.1.A.2 A rigid system can have rotational kinetic energy while its center of mass is at rest due to the individual points within the rigid system having linear speed and, therefore, kinetic energy. 6.1.A.3 Rotational kinetic energy is a scalar quantity. 6.2.A.1 A torque can transfer energy into or out of an object or rigid system if the torque is exerted over an angular displacement. 6.2.A.2 The amount of work done on a rigid system by a torque is related to the magnitude of that torque and the angular displacement through which the rigid system rotates during the interval in which that torque is exerted. 6.2.A.3 Work done on a rigid system by a given torque	*Students will be skilled at…* ● Applying understanding of translational energy and momentum to rotating systems in order to model those systems in terms of rotational energy and angular momentum ● Calculating work done on a rigid system by finding net torque ● Applying the impulse-momentum theorem to rotating systems in order to find change in angular momentum ● Applying conservation principles to the angular momentum of rotating systems ● Combining both translational and rotational energies of rolling systems to find unknowns

	can be found from the area under the curve of a graph of torque as a function of angular position. 6.3.A.1 The magnitude of the angular momentum of a rigid system about a specific axis can be described with an equation 6.3.A.2 The magnitude of the angular momentum of an object about a given point is given by an equation. 6.3.A.2.i The selection of the axis about which an object is considered to rotate influences the determination of the angular momentum of that object. 6.3.A.2.ii The measured angular momentum of an object traveling in a straight line depends on the distance between the reference point and the object, the mass of the object, the speed of the object, and the angle between the radial distance and the velocity of the object. 6.3.B.1 Angular impulse is defined as the product of the torque exerted on an object or rigid system and the time interval during which the torque is exerted. 6.3.B.2 Angular impulse has the same direction as the torque exerted on the object or system. 6.3.B.3 The angular impulse delivered to an object or rigid system by a torque can be found from the area under the curve of a graph of the torque as a function of time. 6.3.C.1 The magnitude of the change in angular momentum can be described by comparing	

	the magnitudes of the final and initial angular momenta of the object or rigid system. 6.3.C.2 A rotational form of the impulse–momentum theorem relates the angular impulse delivered to an object or rigid system and the change in angular momentum of that object or rigid system. 6.3.C.2.i The angular impulse exerted on an object or rigid system is equal to the change in angular momentum of that object or rigid system. 6.3.C.2.ii The rotational form of the impulse–momentum theorem is a direct result of the rotational form of Newton's second law of motion for cases in which rotational inertia is constant. 6.3.C.3 The net torque exerted on an object is equal to the slope of the graph of the angular momentum of an object as a function of time. 6.3.C.4 The angular impulse delivered to an object is equal to the area under the curve of a graph of the net external torque exerted on an object as a function of time. 6.4.A.1 The total angular momentum of a system about a rotational axis is the sum of the angular momenta of the system's constituent parts about that axis. 6.4.A.2 Any change to a system's angular momentum must be due to an interaction between the system and its surroundings. 6.4.A.2.i The angular impulse exerted by one object	

	or system on a second object or system is equal and opposite to the angular impulse exerted by the second object or system on the first. This is a direct result of Newton's third law. 6.4.A.2.ii A system may be selected so that the total angular momentum of that system is constant. 6.4.A.2.iii The angular speed of a nonrigid system may change without the angular momentum of the system changing if the system changes shape by moving mass closer to or further from the rotational axis. 6.4.A.2.iv If the total angular momentum of a system changes, that change will be equivalent to the angular impulse exerted on the system. 6.4.B.1 Angular momentum is conserved in all interactions. 6.4.B.2 If the net external torque exerted on a selected object or rigid system is zero, the total angular momentum of that system is constant. 6.4.B.3 If the net external torque exerted on a selected object or rigid system is nonzero, angular momentum is transferred between the system and the environment. 6.5.A.1 The total kinetic energy of a system is the sum of the system's translational and rotational kinetic energies. 6.5.B.1 While rolling without slipping, the translational motion of a system's center of mass is related to the rotational motion of the system itself	

	with a series of equations 6.5.B.2 For ideal cases, rolling without slipping implies that the frictional force does not dissipate any energy from the rolling system. 6.5.C.1 When slipping, the motion of a system's center of mass and the system's rotational motion cannot be directly related. 6.5.C.2 When a rotating system is slipping relative to another surface, the point of application of the force of kinetic friction exerted on the system moves with respect to the surface, so the force of kinetic friction will dissipate energy from the system. 6.6.A.1 In a system consisting only of a massive central object and an orbiting satellite with mass that is negligible in comparison to the central object's mass, the motion of the central object itself is negligible. 6.6.A.2 The motion of satellites in orbits is constrained by conservation laws. 6.6.A.2.i In circular orbits, the system's total mechanical energy, the system's gravitational potential energy, and the satellite's angular momentum and kinetic energy are constant. 6.6.A.2.ii In elliptical orbits, the system's total mechanical energy and the satellite's angular momentum are constant, but the system's gravitational potential energy and the satellite's kinetic energy can each change. 6.6.A.2.iii	

	The gravitational potential energy of a system consisting of a satellite and a massive central object is defined to be zero when the satellite is an infinite distance from the central object. 6.6.A.3 The escape velocity of a satellite is the satellite's velocity such that the mechanical energy of the satellite–central-object system is equal to zero. 6.6.A.3.i When the only force exerted on a satellite is gravity from a central object, a satellite that reaches escape velocity will move away from the central body until its speed reaches zero at an infinite distance from the central body. 6.6.A.3.ii The escape velocity of a satellite from a central body of mass M can be derived using conservation of energy laws.	

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
A,M,T	Comprehensive rubric with grading expectations for experimental procedure, data collection and analysis and a recommendation	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *Rotational dynamics and energy, specifically in reference to rolling systems* **Goal:** To test various shaped wheels to determine which would be best for your sibling to use in their boxcar so they win the race **Role:** Boxcar Designer, Supportive Sibling **Audience:** Younger Sibling **Situation:** You have been asked by your younger sibling to help design a boxcar for a local boxcar derby, specifically what shape/type of wheels to use to maximize the speed of the car as it rolls downhill **Product/Performance:** Report on the best wheel shape to use for maximum speed in the boxcar derby. Report should include a discussion of testing methods, data collection and analysis and a recommendation. **Standards of Success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving energy and momentum of rotating systems (E4, E5)	
A,M,T	**Students summarize Energy and Momentum of Rotating Systems Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M,T	**Students complete Rollin', Rollin', Rollin' (Lab)** - students release several disks and rings of equal mass down an inclined ramp and analyze data to	

A,M	determine why their speeds were different (E3,E4,E5) **Students complete Fidget Spinners (Act)** - students will use fidget spinners, gyroscopes and/or spinning bicycle tires to explain why it is difficult to change the axis of rotation while spinning (E1, E2, E3) Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 7: Oscillations

Stage 1 Desired Results

ESTABLISHED GOALS	***Transfer***
7.1.A Describe simple harmonic motion. 7.2.A Describe the frequency and period of an object exhibiting SHM. 7.3.A Describe the displacement, velocity, and acceleration of	*Students will be able to independently use their learning for…* **Creating Representations** - Create representations that depict physical phenomena. (1A, 1C) **Mathematical Routines** - Conduct analyses to derive, calculate, estimate, or predict. (2A) **Scientific Questioning and Argumentation** - Describe experimental procedures, analyze data, and support claims. (3C)
	Meaning

<table>
<tr><td rowspan="4">an object exhibiting SHM.

7.4.A
Describe the mechanical energy of a system exhibiting SHM.</td><td>UNDERSTANDINGS
Students will understand that…

● It is necessary to consider fundamental physics principles and their limitations, as they relate to oscillating systems.
● Even in new situations, the fundamental laws of physics remain the same.</td><td>ESSENTIAL QUESTIONS

● How can oscillations be used to make our lives easier and more comfortable?
● How can an astronaut be “weighed” in space?
● How could you measure the length of a long string with a stopwatch?
● What do a child on a swing, a beating heart, and a metronome have in common?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…

7.1.A.1
Simple harmonic motion is a special case of periodic motion.
7.1.A.2
SHM results when the magnitude of the restoring force exerted on an object is proportional to that object’s displacement from its equilibrium position.
7.1.A.2.i
A restoring force is a force that is exerted in a direction opposite to the object’s displacement from an equilibrium position.
7.1.A.2.ii
An equilibrium position is a location at which the net force exerted on an object or system is zero.
7.1.A.2.iii
The motion of a pendulum with a small angular displacement can be modeled as simple harmonic motion because the restoring torque is proportional to the angular displacement.
7.2.A.1
The period of SHM is related to the frequency</td><td>Students will be skilled at…

● Defining simple harmonic motion and explaining how previously learned physics principles apply to oscillating systems
● Calculating frequency, period, displacement, velocity and acceleration of objects in simple harmonic motion
● Determining the mechanical energy of a system in simple harmonic motion</td></tr>
</table>

	f of the object's motion by the following equation: T = 1/f 7.2.A.1.i The period of an object - ideal spring oscillator is given by an equation 7.2.A.1.ii The period of a simple pendulum displaced by a small angle is given by an equation 7.3.A.1 For an object exhibiting SHM, the displacement of that object measured from its equilibrium position can be represented a set of equations 7.3.A.1.i Minima, maxima, and zeros of displacement, velocity, and acceleration are features of harmonic motion. 7.3.A.1.ii Recognizing the positions or times at which the displacement, velocity, and acceleration for SHM have extrema or zeros can help in qualitatively describing the behavior of the motion. 7.3.A.2 Changing the amplitude of a system exhibiting SHM will not change the period of that system. 7.3.A.3 Properties of SHM can be determined and analyzed using graphical representations. 7.4.A.1 The total energy of a system exhibiting SHM is the sum of the system's kinetic and potential energies. 7.4.A.2 Conservation of energy indicates that the total energy of a system exhibiting SHM is constant. 7.4.A.3 The kinetic energy of a system exhibiting SHM is at a maximum when the system's potential energy is at a minimum.	

	7.4.A.4 The potential energy of a system exhibiting SHM is at a maximum when the system's kinetic energy is at a minimum. 7.4.A.4.i The minimum kinetic energy of a system exhibiting SHM is zero. 7.4.A.4.ii Changing the amplitude of a system exhibiting SHM will change the maximum potential energy of the system and, therefore, the total energy of the system.	

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**

A,M,T	Comprehensive rubric with grading expectations for pendulum design and necessary calculations for five different songs	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *simple harmonic motion and how to adjust the oscillatory period of a pendulum near Earth's surface* **Goal:** To create a visual element for the stage that incorporates a swinging pendulum whose oscillatory period can be adjusted to match the beat of each song in the set **Role:** Set Designer for a major touring band/artist **Audience:** Band members/artist and audience **Situation:** You are in charge of set design for a touring band/artist and they would like you to design a swinging pendulum for the stage that oscillates to the beat of each song in their set list. **Product/Performance:** Pendulum design with calculations for adjustments that need to be made for five different songs **Standards of Success:** Rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code	***Pre-Assessment*** ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving oscillations (E4, E5)	
A,M,T	**Students summarize Oscillations Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M	**Students complete Find the Beat (Act)** - students choose a song and then create a pendulum that oscillates to the beat of the song (E1, E2)	
M,T	**Students complete Prove It!, Part Deux (Lab)** - students use a pendulum to find the acceleration due to gravity (E4, E5)	
A,M	**Teacher leads demonstration of What Happens?** - a mass oscillating on a spring has a blob of clay dropped onto it and sticks. Students are asked to predict what will happen to period, total energy, amplitude and maximum speed (E1, E2, E3)	
	Resources: All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 8: Fluids

Stage 1 Desired Results

ESTABLISHED GOALS

8.1.A
Describe the properties of a fluid.

8.2.A
Describe the pressure exerted on a surface by a given force.

8.2.B
Describe the pressure exerted by a fluid.

8.3.A
Describe the conditions under which a fluid's velocity changes.

8.3.B
Describe the buoyant force exerted on an object interacting with a fluid.

8.4.A
Describe the flow of an incompressible fluid through a cross-sectional area by using mass conservation.

8.4.B

Transfer

Students will be able to independently use their learning for…

Creating Representations - Create representations that depict physical phenomena. (1A, 1B, 1C)

Mathematical Routines - Conduct analyses to derive, calculate, estimate, or predict. (2A, 2B, 2C, 2D)

Scientific Questioning and Argumentation - Describe experimental procedures, analyze data, and support claims. (3A, 3B, 3C)

Meaning

UNDERSTANDINGS
Students will understand that…

- The forces and conservation laws studied in Units 1 through 4 can be applied to the study of ideal fluids.

ESSENTIAL QUESTIONS

- Why do some objects float while others sink?
- Why is an object's ability to float an important characteristic?
- What implications to our lives would there be if nothing floated?
- Why don't we feel the miles of air above us pushing us down?

Acquisition

Students will know…

8.1.A.1
Distinguishing properties of solids, liquids, and gases stem from the varying interactions between atoms and molecules.

Students will be skilled at…

- Defining the properties of a fluid and explaining various conditions under which the velocity of a fluid changes
- Describing and calculating pressure as it is

Describe the flow of a fluid as a result of a difference in energy between two locations within the fluid–Earth system.	8.1.A.2 A fluid is a substance that has no fixed shape. 8.1.A.3 Fluids can be characterized by their density. Density is defined as a ratio of mass to volume. 8.1.A.4 An ideal fluid is incompressible and has no viscosity. 8.2.A.1 Pressure is defined as the magnitude of the perpendicular force component exerted per unit area over a given surface area, as described by an equation 8.2.A.2 Pressure is a scalar quantity. 8.2.A.3 The volume and density of a given amount of an incompressible fluid is constant regardless of the pressure exerted on that fluid. 8.2.B.1 The pressure exerted by a fluid is the result of the entirety of the interactions between the fluid's constituent particles and the surface with which those particles interact. 8.2.B.2 The absolute pressure of a fluid at a given point is equal to the sum of a reference pressure P0, such as the atmospheric pressure P_{atm}, and the gauge pressure P_{gauge}. 8.2.B.3 The gauge pressure of a vertical column of fluid is described by an equation 8.3.A.1 Newton's laws can be used to describe the motion of particles within a fluid. 8.3.A.2 The macroscopic behavior of a fluid is a result of the internal interactions between the fluid's constituent particles and external forces	exerted on a surface by a given force and pressure exerted by a fluid ● Calculate the buoyant force exerted on an object interacting with a fluid ● Apply Bernoulli and Torricelli equations to model the behavior of fluids in motion

	exerted on the fluid. 8.3.B.1 The buoyant force is a net upward force exerted on an object by a fluid. 8.3.B.2 The buoyant force exerted on an object by a fluid is a result of the collective forces exerted on the object by the particles making up the fluid. 8.3.B.3 The magnitude of the buoyant force exerted on an object by a fluid is equivalent to the weight of the fluid displaced by the object. 8.4.A.1 A difference in pressure between two locations causes a fluid to flow. 8.4.A.1.i The rate at which matter enters a fluid-filled tube open at both ends must equal the rate at which matter exits the tube. 8.4.A.1.ii The rate at which matter flows into a location is proportional to the cross-sectional area of the flow and the speed at which the fluid flows. 8.4.A.2 The continuity equation for fluid flow describes conservation of mass flow rate in incompressible fluids. 8.4.B.1 A difference in gravitational potential energies between two locations in a fluid will result in a difference in kinetic energy and pressure between those two locations that is described by conservation laws. 8.4.B.2 Bernoulli's equation describes the conservation of mechanical energy in fluid flow. 8.4.B.3 Torricelli's theorem relates the speed of a fluid exiting an opening to the difference in height between the opening	

	and the top surface of the fluid and can be derived from conservation of energy principles.	

Stage 2 – Evidence

Code	Evaluative Criteria	Assessment Evidence
A,M,T	Comprehensive rubric with grading expectations for calculations, diagrams and target sheet results.	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* *the behavior of fluids under pressure and that fluids behave according to physical laws and their motion can be predicted in certain scenarios* **Goal:** To create a water park attraction that will be incorporated into the park's splash pad that is designed to send a stream of water out and strike a "splash zone" target below **Role:** Water Park design engineer **Audience:** Owner of water park **Situation:** You have been asked to determine how much water must be added to a container so that when a spigot at the bottom of the container is opened, the water released will reach a particular target. This contraption will be incorporated into a splash pad at your park. **Product/Performance:** Report with calculations, diagrams and results of trials on target sheets **Standards of Success:** Rubric

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Quizzes and Tests ● Formative Assessments ● Lab Analysis and Reflection on Results ● Warm Ups and Exit Tickets ● Homework Assignments and Practice Problems

Stage 3 – Learning Plan

Code		
	Pre-Assessment ● Brainstorming at the start of the unit ● Informal assessment of prior knowledge ● Developing questions related to upcoming unit	
	Summary of Key Learning Events and Instruction *Student success at transfer, meaning and acquisition depends on…*	Progress Monitoring ● Quizzes on Content ● Lab Reports ● Questions on Activities ● Verbal Questioning for Comprehension ● AP Progress Checks ● AP Practice Problems and FRQs ● End of Unit Assessment
A,M,T	**Teacher prepares notes and leads class discussions** - to introduce unit, provide content, provide opportunity for formative assessment, and address misconceptions (E3)	
A,M,T	**Students utilize Problem Solving Protocol (GUESS)** - use the GUESS protocol (**g**iven, **u**nknown, **e**quation, **s**et up, **s**olution) to calculate unknowns in problems involving fluids (E4, E5)	
A,M,T	**Students summarize Fluids Concepts** - unit concepts are summarized in a format of the student's choosing (ie: outlines, one-pagers, graphic organizers, etc) (E2, E3, E4)	
A,M,T	**Students complete Are You Dense? (Lab)** - students will determine the volume and density of an irregularly shaped metal object (E1, E2, E5)	
M,T	**Students complete Leaky Cauldron (Act)** - students are given a scenario which involves the movement of fluid and create Bernoulli bar charts in order to make and defend a claim about the pressure in two different parts of the system (E3, E4)	

	<u>Resources:</u> All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut

Spanish 1

November 2023

New Milford Board of Education

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New Milford's Mission Statement

Do NOt Distribute Not BOE Approved

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Spanish 1 College Prep

Grades 9-12

In Spanish 1, students will develop novice skills in the four language skill areas: listening, reading, writing and speaking. Emphasis will be placed on high frequency vocabulary acquisition drawing on story-based units and classroom discussion. Some themes explored are student life in school, preferred leisure activities, sports and music, clothing and technology. Additionally, most units expose students to Spanish-speaking countries and cultures. This course connects with New Milford Public School's Vision of a Graduate through its focus on communication, positive relationships and social awareness.

Pacing Guide

Approximate Time Frame	Unit
4-5 Weeks	Unit 1: Personal and Public Identities: All About Me
4-5 Weeks	Unit 2: Families and Communities: My School Life
4-5 Weeks	Unit 3: Beauty and Aesthetics: My Interesting Friends
4-5 Weeks	Unit 4: Contemporary Life: In My Free Time
4-5 Weeks	Unit 5: Science and Technology: Navigating the Digital World
4-5 Weeks	Unit 6: Global Challenges: El Escape Cubano

Unit 1: Personal and Public Identities- All About Me

ESTABLISHED GOALS Include any national/state/or school goals (Power standards). 1.1 Interpersonal Communication - *Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.* 1.2 Interpretive Communication - *Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.* 1.3 Presentational Communication - *Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.* 4.2 Cultural Comparisons - *Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.* 5.2 Lifelong Learning - *Learners set goals and reflect on their progress in using languages for*	***Transfer*** *Students will be able to independently use their learning to…* see how language opens the door to new connections. use context to expand their vocabulary.	
	Meaning	
	UNDERSTANDINGS *Students will understand that…* Spanish is spoken around the world. Studying Spanish can expose you to a wide variety of practices, perspectives and products. There are many similar words in Spanish and in English.	ESSENTIAL QUESTIONS What are things we all have in common? Who am I in the world?

enjoyment, enrichment, and advancement.	***Acquisition***	
	Students will know…	*Students will be skilled at…*
	the pronunciation of the Spanish alphabet	understanding the spelling of various names and cities
	feelings/emotions vocabulary	reading a calendar, including times and days of the week.
	greetings and leave-takings	practicing simple conversations about names, feelings, age, birthdays, etc…
	the Spanish alphabet and vocabulary to say your name	talking about where they are from and their nationality
	nationalities	introducing themselves in writing with a few details about themselves.
	numbers from 0-31	saying where they are from
	the months of the year	saying their nationality
	the days of the week	saying their age
	the difference between formal and informal speech	saying the date (of their birthday)

Code	Evaluative Criteria	Assessment Evidence
TMA	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid)	PERFORMANCE TASK(S): **Goal/challenge**: meeting your host sister and getting to know her a little **Role for student:** exchange student in a Spanish-speaking country **Audience for student work:** host sister in a Spanish-speaking country **Situation:** you're on a video conference meeting your host sister for the first time **Products and performances generated by student:** answering host sister's questions about you **Standards/criteria for judging success:** rubric specific to this performance task
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● alphabet quiz ● can-do "calendar" ● formal and informal interpretive listening assessments ● informal presentational speaking assessments

Stage 3 - Learning Plan	
Code	***Pre-Assessment***
T, A, M	Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
TM	The teacher and students will discuss a slide full of photos of Hispanic/latino culture.	• self-paced completion of can-do “calendar” • teacher observation of pair practice • informal speaking/listening/reading assessments • participation in storytelling asking and answering
TMA	The teacher will scaffold interviews related to the unit personal questions.	
TMA	The students will practice asking and answering unit personal questions together, including basic personal information.	
MA	The teacher presents target structures using total physical response(tprs), visuals, circling and personalized questions and answers(pqa).	
A	The students watch a video about students counting in class, introducing themselves and spelling their names.	
MA	The students write the dialogue for a formal and an informal conversation in Spanish.	
MA	In pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
MA	The students complete a variety of cloze activities, filling in missing names, ages, facial expressions, etc…	
TMA	The teacher and students engage in guessing game to determine the different birthdays of the students in the class.	
MA	The students will rewrite a paragraph that the teacher wrote about themself, changing the information for themselves.	
	<u>Resources:</u> • https://docs.google.com/presentation/d/1SiCfCkYxlga9BLKQeQzmyeWzLhwafhElCFuybLPXei4/edit?usp=drive_link Special Person Interviews • https://docs.google.com/presentation/d/1uGYNjJ5Bql8fZgA9poTil	

	oHkUWxa3x_-FbMCYEPdp2U/edit?usp=drive_link • https://docs.google.com/document/d/1w6b2Uzh5jfvcAoEe5Isg3pvRt8JsdTHzcswqKd7XIjs/edit?usp=drive_link • https://docs.google.com/document/d/1SGl29zPMoGetEaM42FZvJa4ATLdUYRr4XvOIuORFjgY/edit?usp=drive_link • https://docs.google.com/document/d/1SDXSp1UeTxqhLWk3oZWG5N8BMlVJ9WOVpvgVOGnM4IE/edit (can-do calendar) All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 2: Families and Communities: My School Life

ESTABLISHED GOALS	***Transfer***	
ACTFL World-Readiness Standards 1.1 Interpersonal Communication - *Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.* 1.2 Interpretive Communication - *Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.*	*Students will be able to independently use their learning to…* appreciate the many different approaches to our universal experiences and goals. communicate effectively in the target language(s) in **realistic** situations while displaying a sensitivity to culture and context.	
	Meaning	
	UNDERSTANDINGS *Students will understand that…* Spanish is spoken in many countries.	ESSENTIAL QUESTIONS What are the differences between your school and schools in Spanish-speaking countries? Similarities?

1.3 Presentational Communication - *Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.* 4.2 Cultural Comparisons - *Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.* 5.2 Lifelong Learning - *Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.*	Cultural perspectives influence school systems.	What do you need to be successful in school?
	Acquisition	
	Students will know… verbs change form based on subject articles change based on gender or nouns some school supplies some school subjects how to negate a sentence	*Students will be skilled at…* reading a schedule, including times and days of the week. comparing their schedules with those of students in Spanish-speaking countries. understanding a video about school. talking about where they are from, where they live and information about school. introducing themselves in writing with a few details about themselves. presenting basic information about school understanding short stories related to school in Spanish

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
TMA	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid)	PERFORMANCE TASK(S): **Goal/challenge** - You will talk with a fellow student about your choice and then make a voice recording about yourself and your home school to share with your new classmates in Mexico. **Role for student** - You are a student of Spanish and you will be going on a student exchange in Mexico for one year. **Audience for student work** - fellow students and future classmates in Mexico. **Situation** - You need to prepare for your exchange by choosing a school to attend. **Products and performances generated by student** - Reading two Mexican school schedules and answering questions about the main idea, key words and details (interpretive reading). Listening to voice messages from a fellow student who is also going to study in Mexico and responding to her questions about your school classes and materials (interpersonal speaking). Creating a recording for your future class in which you introduce yourself and discuss your current school life (presentational speaking). **Standards/criteria for judging success** - ACTFL Interpersonal Performance Rubric (Novice Mid)

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Formal and informal interpretive reading assessments ● Formal and informal interpretive listening assessments ● Informal presentational speaking assessments

Code	***Pre-Assessment***	
T, A, M	Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● completion of personal question slides ● teacher observation of pair practice ● informal speaking/listening/reading assessments ● participation in storytelling asking and answering
TMA	Teacher engages students in picture talks about schools and people in this unit's target countries (Mexico and Guatemala).	
TM	Teacher engages students in map talks about the locations of the unit's target countries (Mexico and Guatemala).	
TMA	Teacher will scaffold interviews related to the unit personal questions.	
TMA	Students will practice asking and answering unit personal questions together.	
MA	Teacher presents unit target structures using Total Physical Response (TPRS), visuals, circling comprehensible input techniques and personalized questions and answers (PQA).	
TMA	Teacher will use a variety of comprehensible input techniques to engage students in stories about a boy and girl in class, teachers, starting at a new school, making friends, school practices and norms, going to school, calling friends on the phone and school supplies.	
M	Students and teacher engage in a discussion about a Spanish-speaking country's class schedule.	
A	Teacher and students co-construct stories using target structures. Teacher engages in storytelling using circling, visuals, TPRS and repetition.	
TMA	Teacher and students discuss images from a movie short about school and bullying.	

A	Students write their own schedules in Spanish.	
TMA	Students watch a video about Spanish-speaking students' favorite and least favorite classes.	
A	In pairs, students engage in informal conversations, often taking on new identities to vary vocabulary.	
TMA	Teacher guides students to read articles about a school in Guatemala, a Guatemalan immigrant that values education, English-speaking American students studying in Mexico after their parents' deportation, Mexican students going to school in a bicycle convoy and a Mexican teacher using creative methods to teach math.	
TMA	Teacher will engage students in a movie talk of the short animated videos that accompany Voces Digital. **Resources:** ● Voces Digital online Access ● Senor Jordan video son Voces Digital ● Profe Loco videos on Voces Digital ● https://www.youtube.com/watch?v=LJSnWmfLLqI&list=RDETLoTxVVvjM&index=6 (song that uses some target structures) All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 3: Beauty and Aesthetics: My Interesting Friends

<table>
<tr><td rowspan="8">ESTABLISHED GOALS
ACTFL World-Readiness Standards

1.1 Interpersonal Communication - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

1.3 Presentational Communication - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.

4.2 Cultural Comparisons - Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…

Communicate effectively in the target language, in varied situations, while displaying a sensitivity to culture and context.

Read, interpret and synthesize information from a variety of texts.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…

Differences are what make people beautiful

Appearances do not define people</td><td>ESSENTIAL QUESTIONS
Students will keep considering…
How do ideals of beauty affect daily life?

What sources influence fashion and the definitions of beauty?

What is considered beautiful in different cultures?

How does our past shape our definitions of beauty?</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…

Verb conjugations change for the subject</td><td>Students will be skilled at…

understanding stories about someone’s physical</td></tr>
</table>

5.2 Lifelong Learning - *Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.*	Adjectives in Spanish agree with the gender of the noun they describe existence of two verbs to say “to be” in Spanish Indirect object pronouns le and me indicate to or for whom something is done. Usted is a word and verb form used to show respect Vocabulary related to physical appearance	appearance, wishes and likes. understanding videos about someone’s preferences and physical appearance. presenting a description of their own preferences. presenting a description of their own physical appearance.

STAGE 2

Code	Evaluative Criteria	Assessment Evidence
T, M, A	ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid)	PERFORMANCE TASK(S): **Goal/challenge** - Interpreting a video clip and biography from a Spanish-language television program. Corresponding with a friend about the show and filling out an application with demographic information. Role for student - Exchange student in Venezuela watching TV with their host family. **Audience for student work** - A friend in Venezuela **Situation** - Since beginning to learn Spanish, you enjoy watching *La Voz Kids* on *Telemundo*. *La Voz Kids* is like the show *The Voice*, but with Latino singers your own age competing against one another. **Products and performances generated by student** - You watch an episode of *La Voz Kids* and a new contestant sings a song and introduces himself (interpersonal listening), followed by comprehension questions. On La Voz Kids website, you read the bio of a contestant and answer questions about key word recognition (interpretive reading). You respond to a Venezuelan friend's text messages related to the clip you just watched (interpersonal writing). You fill out an application to audition for La Voz Kids (presentational writing). **Standards/criteria for judging success** ● ACTFL - Interpersonal Performance and Proficiency Rubrics (Novice Mid)

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● Formal and informal interpretive reading assessments ● Formal and informal interpretive listening assessments ● Informal presentational speaking assessments

Code	***Pre-Assessment***	
T, A, M	Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● completion of personal question slides ● interviews with personal questions slides ● teacher observation of pair practice ● informal speaking/listening/reading assessments ● participation in storytelling asking and answering
TMA	Teacher engages students in picture talks about people and places in this unit's target countries (Venezuela and Costa Rica).	
TM	Teacher engages students in map talks about the locations of the unit's target countries (Venezuela and Costa Rica).	
TMA	Teacher will scaffold interviews related to the unit personal questions.	
TMA	Students will practice asking and answering unit personal questions together.	
MA	Teacher presents unit target structures using Total Physical Response (TPRS), visuals, circling comprehensible input techniques and personalized questions and answers (PQA).	
TMA	Teacher will use a variety of comprehensible input techniques to engage students in stories about an artist, a man taking selfies, a memory and disappearing shoes.	
M	Students and teacher engage in a discussion about an infographic about fashion and beauty.	
A	Teacher and students co-construct stories using target structures. Teacher engages in storytelling using circling, visuals, TPRS and repetition.	
TMA	Students watch videos about people introducing themselves, describing themselves and describing their likes and dislikes.	
TMA	Students practice interpersonal writing by responding to a Venezuelan pen pal's text messages inquiring about the students' personal information	

	(age, origin, physical description, name, etc.)	
TA	Students practice presentational writing by writing an email to a Costa Rican restaurant saying what they want, why they want it, where to deliver and the student's physical appearance (so the delivery person can find them).	
MA	Teacher scaffolds retelling of class stories, using images of story scenes to jog students' memory.	
TMA	Students read various versions of stories, written from multiple characters' perspectives.	
TA	Students practice retelling the story from a different character's perspective.	
TMA	Students practice interpretive listening skills by listening to portions of a story and drawing to demonstrate their comprehension.	
A	Students engage in various activities and games to review stories and provide repetition of target structures.	
TMA	listening and drawing activities where students describe what their drawing of a person is wearing and students color in their own person based on the description	
TMA	Teacher will engage students in a movie talk of the short animated videos that accompany Voces Digital	
TMA	Teacher will guide students to read articles about indigenous women's attire in Bolivia, El Chupacabras myth in Latin America and the stigma of having Afro-textured hair in Latin America.	
	Resources: ● Voces Digital online access ● Edpuzzle video	

	● items of clothing for dress up and story acting ● Senor Jordan Super Lapiz videos in Voces Digital ● Profe Loco videos in Voces Digital All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 4: Contemporary Life: In My Free Time

Stage 1 Desired Results		
ESTABLISHED GOALS **ACTFL World-Readiness Standards** 1.1 Interpersonal Communication - *Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.* 1.2 Interpretive Communication - *Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.* 1.3 Presentational Communication - *Learners present information, concepts, and ideas to inform,*	***Transfer***	
	Students will be able to independently use their learning to… Determine what role travel will play in their life. Read, interpret and synthesize information from a variety of texts. View, listen, interpret and synthesize information from a variety of media sources.	
	Meaning	
	UNDERSTANDINGS *Students will understand that…* people in Spanish-speaking countries value their leisure time. culture influences how and where people go on vacation. climate influences leisure choices.	ESSENTIAL QUESTIONS *Students will keep considering…* How do people in different cultures spend their free time? What are some differences between your daily life and the daily life of people in Spanish-speaking countries?

explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers. 4.2 Cultural Comparisons - *Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.* 5.2 Lifelong Learning - *Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.*	seasons and climates vary based on location	
	Acquisition	
	Students will know… modal verbs (verb + infinitive) sentence structure with modal verbs vocabulary related to free time activities, vacation and weather. adverbs of frequency	*Students will be skilled at…* understanding short stories about vacation and leisure time in Spanish. saying what they like to do in their free time. compare popular vacation destinations in Spain and Latin America to those in their own country. understanding a video about a vacation destination. listening to a weather forecast.

STAGE 2

Stage 2 – Evidence		
Code	**Evaluative Criteria**	**Assessment Evidence**
T. M, A	Interpretive Performance and Proficiency Rubric ACTFL - Interpersonal Performance and Proficiency Rubric (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* GRASPS **Goal** - communicating with a Salvadoran penpal about hobbies. **Role for student** - a student studying Spanish **Audience for student work** - Salvadoran penpal **Situation** - Your teacher contacted a school in El Salvador, and you and your classmates will chat with Salvadoran students. Before you chat with a Salvadoran student, you want to learn more about common hobbies and pastimes in Latin America. So, you go online and find an infographic about hobbies. After reading the infographic, you talk with José, the Salvadoran student with whom you have been paired. He is excited to learn about you, so he asks you questions about

		your hobbies. José sends you a video showing places and activities in Santa Tecla in El Salvador. Then, write José a short email in which you introduce yourself and tell him which of the activities you like the most. **Products and performances generated by student** - reading an infographic about hobbies and responding to questions about the main idea, key words and details (interpretive reading). Responding to penpal's questions about hobbies (interpersonal speaking). After watching a video about activities in El Salvador, writing an email to the penpal, commenting on the places and activities in the video (presentational writing). **Standards/criteria** for judging success ● Rubric specific to this performance task ● ACTFL Novice Mid rubric
		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● vocabulary quiz ● formal and informal interpretive reading assessments ● formal and informal interpretive listening assessments ● informal presentational speaking and writing assessments

Code T, A, M	***Pre-Assessment*** Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit.	
	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring ● completion of personal question slides
TMA	Teacher engages students in picture talks about people and places in this unit's target countries (Chile and El Salvador).	● teacher observation of pair practice
TM	Teacher engages students in map talks about the locations of the unit's target countries (Chile and El Salvador).	● informal speaking/listening/reading and writing assessments
TMA	teacher will scaffold interviews related to the unit's personal questions.	● participation in storytelling, asking and answering
TMA	students will practice asking and answering unit's personal questions together	
A	teacher presents target structures using total physical response (TPR), visuals, circling and personalized questions and answers (PQA).	
TMA	teacher and student co-construct stories throughout the unit using target structures.	
TMA	teacher engages in storytelling by circling, yes or no questions, visuals, TPRS and repetition.	
TMA	teacher uses a variety of comprehensible input techniques to engage students in stories about a party, dancing, sports, drawing, the park, playing video games and swimming.	

M	students and teacher engage in a discussion about pictures of vacation destinations in Spain and Latin America.	
A	information gap activities about hobbies, free time preferences and the weather.	
T	students watch a weather forecast from Latin America or Spain.	
TMA	Teacher will engage students in a movie talk of the short animated videos that accompany Voces Digital	
A	students describe what they like to do on their free time	
TMA	Teacher will guide students in reading articles about Easter Island, an artisan in El Salvador and a sports academy in El Salvador that is training young athletes	
TMA	Students will watch videos of native speakers describing the activities they do in their free time and the climates where they live. <u>Resources</u> ● https://www.youtube.com/watch?v=JaRk6i8s3D4 ● video and written weather forecasts ● Voces online access ● Gimkit ● Profe Loco videos from Voces Digital ● Senor Jordan videos from Voces Digital All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 5: Science and Technology: Navigating the Digital World

ESTABLISHED GOALS **ACTFL World-Readiness Standards** 1.1 Interpersonal Communication - *Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.* 1.2 Interpretive Communication - *Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.* 1.3 Presentational Communication - *Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.*	***Transfer***	
	Students will be able to independently use their learning to… reflect on the advantages and disadvantages of new technologies. decide what role technology will play in their life.	
	Meaning	
	UNDERSTANDINGS *Students will understand that…* there are safe and unsafe online behaviors. different Spanish-speaking countries have similar and different practices. technology can connect us to new people.	ESSENTIAL QUESTIONS *Students will keep considering…* how can technology connect people? why do we use technology? how does technology influence cultural identity?
	Acquisition	
	Students will know… how to say different media and literature that they	*Students will be skilled at…* understanding short stories related to technology in

4.2 Cultural Comparisons - *Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.* 5.2 Lifelong Learning - *Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.*	read how to say different media that they watch how to discuss their online and telephone habits how to say & write what they do or don't do in the present tense subject pronouns forms of present tense verbs adverbs that end in -mente different genres of music Popular Latin and Spanish music	Spanish. reading a poster about how to be safe online. comparing what they do on their phones to what Spanish-speaking teens do on their phones. understanding a video about the personal use of technology. talking about where they are from, where they live and information about technology. writing an email about cultural events in Latin America or Spain. giving reasons for their habits and opinions

STAGE 2

Code	Evaluative Criteria	Assessment Evidence

	ACTFL - Presentational Rubric (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal/challenge** - Communicating with a Spanish friend and writing a social media post about cell phone usage. **Role for student** - It's summer vacation and you're in Spain, traveling around and visiting some friends while you're there. In order to coordinate your travels and keep in touch with friends and family back home, you are using social media apps, like Instagram and even WhatsApp.Audience for student work - Your friend in Spain, Andrea. **Situation** - You're visiting your friend, Andrea, in Spain. While on a bus to meet Andrea at the Plaza Mayor, you find a magazine someone left and start flipping through the pages. On one page, you find an infographic (about cell phone addiction) that catches your eye and you try to figure out the message and meaning. You watch a Youtube video about “nomofobia” (fear of being without a cellphone). After you read the infographic on cell phone addiction and watch the video, you realize that you exhibit some of the habits of a person addicted to their cell phone. You text Andrea and, in order to gauge whether or not your cell phone usage is typical, you ask her how often she uses her phone and for what activities. **Products and performances generated by student** - You read an infographic about cell phone addiction and answer comprehension questions (interpretive reading). You watch a video about “nomofobia” and answer comprehension questions (interpretive listening). You text Andrea and, in order to gauge whether or not your cell phone usage is typical, you ask her how often she uses her phone and for what activities (interpersonal writing). You write a public service announcement in Spanish to post on social media to help your friends realize the signs of *nomofobia* and cell phone addiction (presentational writing). **Standards/criteria for judging success** - rubric specific to this performance task

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● vocabulary quiz ● formal and informal interpretive reading assessments ● formal and informal interpretive listening assessments ● informal presentational speaking assessments

Code **TMA**	***Pre-Assessment*** <u>Questions to help complete this portion:</u> Students complete a can-do pre-assessment of reading, listening and speaking skills assessed at the end of the unit.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…* .	Progress Monitoring
TMA	Teacher engages students in picture talks about people and places in this unit's target countries (Spain and Dominican Republic).	● completion of personal question slides ● teacher observation of pair practice ● informal speaking/listening/reading assessments ● participation in storytelling asking and answering
TM	Teacher engages students in map talks about the locations of the unit's target countries (Spain and Dominican Republic).	
T	Teacher introduces students to the Locura de marzo music competition.	
TA	Students preview 16 Spanish language songs from the competition and rank them in a bracket.	
TMA	Throughout the unit, teacher will present more information about the music genres of the 16 songs, biographies of artists and lyrics of songs.	
T	Students will listen and vote daily on the Locura de marzo website.	
TMA	Teacher will scaffold interviews related to the unit personal questions.	
TMA	students will practice asking and answering unit personal questions together.	
MA	teacher presents target structures using total physical response(tprs), visuals, circling and personalized questions and answers(pqa).	
TMA	teacher and student co-construct stories throughout the unit using target structures.	
M	teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, tprs and repetition.	
A	teacher uses a variety of comprehensible input techniques to engage students in stories about texting a friend, buying concert tickets, using the computer, listening to music on Youtube and reading Instagram profiles.	
TMA	students watch several videos about what people use their smartphones for.	

TMA	students and teacher engage in a discussion about what New Milford teenagers vs. Latin American and Spanish teenagers use their phones for.	
TA	teacher and students discuss a poster about how to be safe online.	
MA	students write a pie chart of their cell phone usage.	
TMA	in pairs, students engage in informal conversations, often taking on new identities to vary vocabulary. For example, about what they read and watch and do on their phones.	
TA	students will “buy” a ticket for a music concert in a Spanish-speaking country and answer questions about the ticket/concert	
TMA	Students practice interpersonal writing by role-playing sending Whatsapp messages to a Spanish friend to discuss a television show	
A	After viewing tourist destinations in the Dominican Republic, students practice interpersonal speaking by discussing which places they would most like to visit, roleplaying a phone call with a Dominican friend.	
TMA	Students practice interpretive listening by watching a video about family rules regarding cell phone usage. Students identify the main idea, key words and details.	
TMA	Students read an article about the use of Whatsapp in Europe and respond to comprehension questions.	
TMA	Teacher will engage students in a movie talk of the short animated videos that accompany Voces Digital - <u>Resources:</u> ● Voces stories and website ● Senor Jordan videos on Voces Digital ● Profe Loco videos on Voces Digital	

	• Senor Ashby's Locura de Marzo music competition All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	

Unit 6: Global Challenges: El Escape Cubano

<table>
<tr><td rowspan="8">ESTABLISHED GOALS
ACTFL World-Readiness Standards

1.1 Interpersonal Communication - Learners interact and negotiate meaning in spoken or written conversations to share information, reactions, feelings, and opinions.

1.2 Interpretive Communication - Learners understand, interpret, and analyze, what is heard, read or viewed on a variety of topics.

1.3 Presentational Communication - Learners present information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to…
- Communicate effectively based on purpose, task, and audience using appropriate vocabulary and conventions
- Develop insight into the nature of language and the concept of culture and realize there are multiple ways of viewing the world</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that…
- our surroundings influence our lives
- common interests can connect people
- many Cubans do not experience the rights and freedoms that we have in the United States</td><td>ESSENTIAL QUESTIONS
Students will keep considering…
- what influences people to immigrate
- what challenges people face when immigrating</td></tr>
<tr><td colspan="2">Acquisition</td></tr>
<tr><td>Students will know…

modal verbs

present tense verb conjugations</td><td>Students will be skilled at…

reading a short novel in the target language.

summarizing the main idea of a novel</td></tr>
</table>

4.2 Cultural Comparisons - *Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.* 5.2 Lifelong Learning - *Learners set goals and reflect on their progress in using languages for enjoyment, enrichment, and advancement.*	indirect object pronouns vocabulary for body parts	identifying details describing settings and main characters identifying characters' motivations

STAGE 2

Code	Evaluative Criteria	Assessment Evidence

TMA	ACTFL - Presentational Rubric (Novice Mid)	PERFORMANCE TASK(S): *Students will show that they really understand evidence of…* **Goal/challenge** - Demonstrate comprehension of novel through writing **Role for student** - The main character, Miguel **Situation** - Write a message to your mother telling her about your arrival in Florida, the journey from Cuba. **Products and performances generated by student** - Message to mother **Standards/criteria for judging success** - rubric specific to this performance task

		OTHER EVIDENCE: *Students will show they have achieved Stage 1 goals by…* ● chapter quizzes ● formal and informal interpretive reading assessments ● formal and informal interpretive listening assessments ● informal presentational speaking assessments

Code	***Pre-Assessment***
A	Students compete in a game that includes previously learnt vocabulary that will be recycled in the book.

	Summary of Key Learning Events and Instruction *Student success at transfer meaning and acquisition depends on…*	Progress Monitoring
T	teacher will prepare mini lessons on Cuba	• completion of personal question slides • teacher observation of pair practice • informal speaking/listening/reading assessments • participation in question asking and answering
A	teacher presents target structures using total physical response (TPRS), visuals, circling and personalized questions and answers(PQA).	
MA	teacher engages in storytelling, introducing new vocabulary by circling, yes or no questions, visuals, TPRS and repetition.	
MA	Students make predictions about what they think will happen in the novel	
MA	students make smash doodles about a chapter	
T	students compare themselves to a main character using a Venn diagram	
MA	sequencing events	
TMA	teacher and students will engage in review games, group review activities and individual comprehension checks	
TMA	students will write true and false statements about the story	
	<u>Resources:</u> • Novel: El Escape Cubano • Slideshows • https://palmyraspanish1.blogspot.com/2018/05/ • https://palmyraspanish1.blogspot.com/2017/03/el-escape-cubano-chapters-1.html • https://palmyraspanish1.blogspot.com/2017/02/preparing-to-read-novel-ideas-for-el.html	

	• https://sites.google.com/view/cyber-profe/curriculum/readers_1/2-escape-cubano All Resources and materials must adhere to all New Milford Board of Education policies and regulations and are subject to New Milford Board of Education approval. Resources and materials must be researched and vetted by the writers and department heads prior to submission for approval.	