

**Califon Public School
Curriculum**



Subject: Science	Grade: Kindergarten	Unit #: 1	Pacing: 10 days to start & then ongoing
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Unit Title: Weather

OVERVIEW OF UNIT:

In this unit of study, students develop an understanding of patterns and variations in local weather and the use of weather forecasting to prepare for and respond to severe weather. The crosscutting concepts of patterns, cause and effect, the interdependence of science, engineering, and technology, and the influence of engineering, technology, and science on society and the natural world are identified as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions, analyzing and interpreting data, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Note: Unlike other science units, the Weather unit is intended to become a part of the classroom routine throughout the year. Some weather patterns are not obvious unless the students collect data over long periods of time. For example, in some locations it is sunnier during some parts of a year than others. The temperature outside will change from fall, winter, spring, to summer. Also, during some periods, the weather data should be recorded in the morning and then again in the afternoon. Students will be able to observe patterns in temperature through the course of the day.

Big Ideas

- Weather is the combination of sunlight, wind, snow, or rain and temperature in a particular region at a particular time.
- People measure these conditions to describe and record the weather and to notice patterns over time.
- People look for patterns in the weather data when they organize and order when making observations about the world.
- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
- Some kinds of severe weather are more likely than others in a given region.
- Weather scientists forecast severe weather so that communities can prepare for and respond to these events.
- Events have causes that generate observable patterns.
- People encounter questions about the natural world every day.
- People depend on various technologies in their lives; human life would be very different without technology.
- Before beginning to design a solution, it is important to clearly understand the problem.
- Asking questions, making observations, and gathering information are helpful in thinking about problems.

- A situation that people want to change or create can be approached as a problem to be solved through engineering.
- Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events.

Essential Questions

- What is the weather like today and how is it different from yesterday?
- How can someone predict what the weather will be tomorrow?
- How does weather forecasting help us to prepare for dangerous weather?

Objectives

- Students will be able to use and share observations of local weather conditions to describe patterns over time.
- Students will be able to ask questions to obtain information about the purpose of weather forecasting to prepare for and respond to severe weather.

Assessment

Formative Assessment:

- Group Discussions
- Peer Work

Summative Assessment:

- Projects
- Research Journals

Benchmark:

- Accessing Prior Knowledge

Alternative:

- Modified Projects
- Modified Work

Key Vocabulary

hot, warm, cool, cold, warmer, cooler, temperature, fall, winter, spring, summer, clouds, rain, snow, sun, wind, partly cloudy, precipitation, thunderstorms, hurricanes, nor-Easter, tornado, hail, sleet, degrees, Fahrenheit

Resources & Materials

Weather chart/graph

<https://www.nextgenscience.org/>

www.brainpopjr.com/science/weather

Stemscopes website & kits

- Print and digital copies of textbook

- Lab write-ups
- SEP simulations
- Content videos
- PhET Interactive Simulations
- Reading articles
- Math connections
- Pre-assembled Kits

Technology Infusion

Teacher Technology:

- Promethean Board
- StemScopes
- Chromebooks

Student Technology:

- Chromebooks
- StemScopes
- iPads
- SeeSaw

Activities:

- Students will use Seesaw on Chromebooks to reflect on learned concepts.
- Students will use STEMscopes to explore topics being taught.

Standard	Standard Description
8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network
8.2.2.ED.1	Communicate the function of a product or device

Interdisciplinary Integration

Activities:

- The students will complete a scientific explanation using evidence from observation and informational text
- The students will create a book about weather that contains one detail from the text with a picture to match what their detail chosen.
- The students will develop model (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represents concrete events or design solutions.

Standard	Standard Description
NJSLS-ELA RL.CR.K.1	With prompting and support, ask and answer questions about key details in a literary text (e.g., who, what, where, when, why, how).
NJSLS-ELA RI.CI.K.2	With prompting and support, identify the main topic and key details of an informational text (e.g., who, what, where, when, why, how).

NJSLS-ELA W.AW.K.1	Use a combination of drawing, dictating, and writing to compose opinion pieces on topics or texts (e.g., My favorite book is...).
NJSLS-ELA W.IW.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts to convey ideas
NJSLS-ELA SL.UM.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
K.DL.A.1	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Clarification: Limit category counts to be less than or equal to 10)

21st Century Life Skills Standards

Activities:

- The learner will participate in an exploration of jobs pertaining to weather.

Standard	Student Learning Objectives
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).

Careers

Activities:

- The learner will participate in STEAM building activities that address the science content and apply critical thinking skills while persevering in solving the task at hand.

Practice	Description
Utilize critical thinking to make sense of problems and persevere in solving them.	Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of the problem and carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through this when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. Their own actions or the actions of others.
Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

Standards			
Standard #	Standard Description	Student Learning Objective	Clarification Statement
K-ESS2-1	Earth's Systems	Use and share observations of local weather conditions to describe patterns over time.	Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]
K-ESS2-2	Earth's Systems	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs	Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.
K-ESS3-2	Earth and Human Activity	Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	Emphasis is on local forms of severe weather
K-2-ETS1-1	Engineering Design	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	

K-2-ETS1-2	Engineering Design	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	
K-2-ETS1-3	Engineering Design	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	

Differentiation

Students with 504 plans

- Preferential seating
- Guided notes
- Extra time
- Teacher check-ins
- Use graphic organizers
- Redirect attention
- Prioritize tasks
- Small group testing
- Provide modifications & accommodations per individual student's 504 plan

Special Education

- Provide modifications & accommodations as listed in the student's IEP
- Position the student near a helping peer or have quick access to the teacher
- Modify or reduce assignments/tasks
- Reduce the length of the assignment for different modes of delivery
- Increase one-to-one time
- Prioritize tasks
- Use graphic organizers
- Use online resources for skill-building
- Provide teacher notes
- Use collaborative grouping strategies, such as small groups
- NJDOE resources - <http://www.state.nj.us/education/specialed/>

Response to Intervention (RTI)

- Tiered interventions following the RTI framework
- Effective RTI strategies for teachers - <http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/>
- Intervention Central - <http://www.interventioncentral.org/>

English Language Learners (ELL)

- Provide text-to-speech

- Use of a translation dictionary or software
- Provide graphic organizers
- NJDOE resources - <http://www.state.nj.us/education/aps/cccs/ELL.htm>
- Adapt a Strategy – Adjusting strategies for ESL students - <http://www.teachersfirst.com/content/esl/adaptstrat.cfm>

Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
- Utilize project-based learning for greater depth of knowledge
- Utilize exploratory connections to higher-grade concepts
- Contents should be modified: real-world problems, audiences, deadlines, evaluations, transformations
- Learning environments should be modified: student-centered learning, independence, openness, complexity, and groups should be varied
- NJDOE resources

Califon Public School
Curriculum

Subject: Science	Grade: Kindergarten	Unit #: 2	Pacing: 15 days
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Unit Title: Pushes and Pulls**OVERVIEW OF UNIT:**

During this unit of study, students apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. The crosscutting concept of cause and effect is called out as the organizing concept for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Big Ideas

- People use different ways to study the world.
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.
- Pushes and pulls can have different strengths and directions.
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.
- When objects touch or collide, they push on one another and can change motion.
- A bigger push or pull makes things speed up or slow down more quickly.
- Simple tests can be designed to gather evidence to support or refute student ideas about causes.
- Pushes and pulls can have different strengths and directions.
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.
- A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.
- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

Essential Questions

- What happens if you push or pull an object harder?
- Why do scientists like to play soccer?
- How can you design a simple way to change the speed or direction of an object using a push or pull from another object?

Objectives

- Students will be able to plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- Students will be able to analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull

- Students will be able to develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Assessment**Formative Assessment:**

- Group Discussions
- Peer Work

Summative Assessment:

- Research Journals
- Projects

Benchmark:

- Access Prior Knowledge

Alternative:

- Performance Assessments
- Modified Projects
- Modified Work

Key Vocabulary

push, pull, weight, speed, slow, motion, direction, hard, soft, collide

Resources & Materials

Stemscopes website & kits

- Print and digital copies of textbook
- Lab write-ups
- SEP simulations
- Content videos
- PhET Interactive Simulations
- Reading articles
- Math connections
- Pre-assembled Kits

Technology Infusion**Teacher Technology:**

- Promethean Board
- StemScopes
- Chromebooks

Student Technology:

- Chromebooks
- StemScopes

- iPads
- SeeSaw

Activities:

- Students will use Seesaw on Chromebooks to reflect on learned concepts.
- Students will use STEMscopes to explore topics being taught.

Standard	Standard Description
8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network
8.2.2.ED.1	Communicate the function of a product or device

Interdisciplinary Integration

Activities:

- The students will complete a scientific explanation using evidence from observation and informational text
- The students will compare two objects with a measurable attribute in common

Standard	Standard Description
NJSLS-ELA RL.CR.K.1	With prompting and support, ask and answer questions about key details in a literary text (e.g., who, what, where, when, why, how).
NJSLS-ELA RI.CI.K.2	With prompting and support, identify the main topic and key details of an informational text (e.g., who, what, where, when, why, how).
NJSLS-ELA W.AW.K.1	Use a combination of drawing, dictating, and writing to compose opinion pieces on topics or texts (e.g., My favorite book is...).
NJSLS-ELA W.IW.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts to convey ideas
NJSLS-ELA SL.ES.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
K.M.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

21st Century Life Skills Standards

Activities:

- Students will watch STEMscopes videos of a Civil Engineer and discuss the video using the guiding questions.

Standard	Student Learning Objectives
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).

Careers	
Activities: The learner will participate in STEAM building activities that address the science content and apply critical thinking skills while persevering in solving the task at hand.	
Practice	Description
Utilize critical thinking to make sense of problems and persevere in solving them.	Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of the problem and carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through this when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. Their own actions or the actions of others.
Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

Standards			
Standard #	Standard Description	Student Learning Objective	Clarification Statement
K-PS2-1	Motion and Stability: Forces and Interactions	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.] [Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.]
K-PS2-2	Motion and Stability: Forces and Interactions	Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.	[Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain

			distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]
k-PS3.C	Relationship Between Energy and Forces	A bigger push or pull makes things speed up or slow down more quickly. (secondary to K-PS2-1)	
K-2-ETS1-1	Engineering Design	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	
K-2-ETS1-2	Engineering Design	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	
K-2-ETS1-3	Engineering Design	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	

Differentiation

Students with 504 plans

- Preferential seating
- Guided notes
- Extra time
- Teacher check-ins

- Use graphic organizers
- Redirect attention
- Prioritize tasks
- Small group testing
- Provide modifications & accommodations per individual student's 504 plan

Special Education

- Provide modifications & accommodations as listed in the student's IEP
- Position the student near a helping peer or have quick access to the teacher
- Modify or reduce assignments/tasks
- Reduce the length of the assignment for different modes of delivery
- Increase one-to-one time
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- Provide teacher notes
- Use collaborative grouping strategies, such as small groups
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Response to Intervention (RTI)

- Tiered interventions following the RTI framework
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English Language Learners (ELL)

- Provide text-to-speech
- Use of a translation dictionary or software
- Provide graphic organizers
- NJDOE resources - <http://www.state.nj.us/education/aps/cccs/ELL.htm>
- Adapt a Strategy – Adjusting strategies for ESL students - <http://www.teachersfirst.com/content/esl/adaptstrat.cfm>

Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
- Utilize project-based learning for greater depth of knowledge
- Utilize exploratory connections to higher-grade concepts
- Contents should be modified: real-world problems, audiences, deadlines, evaluations, transformations
- Learning environments should be modified: student-centered learning, independence, openness, complexity, and groups should be varied
- NJDOE resources

**Califon Public School
Curriculum**



Subject: Science	Grade: Kindergarten	Unit #: 3	Pacing: 15 days
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Unit Title: Effects of the Sun

OVERVIEW OF UNIT:

During this unit of study, students apply an understanding of the effects of the sun on the Earth's surface. The crosscutting concepts of cause and effect and structure and function are called out as organizing concepts for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in developing and using models; planning and carrying out investigations; analyzing and interpreting data; and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Big Ideas

- Scientists use different ways to study the world.
- Events have causes that generate observable patterns.
- Sunlight warms Earth's surface.
- Events have causes that generate observable patterns.
- The shape and stability of structures of natural and designed objects are related to their function(s).
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
- Sunlight warms Earth's surface.

Essential Questions

- How can we use science to keep a playground cool in the summertime?
- How does sunlight affect the playground?
- Imagine that we have been asked to design a new playground. How would we keep the sand, soil, rocks, and water found on the playground cool during the summer?

Objectives

- Students will be able to make observations to determine the effect of sunlight on Earth's surface.
- Students will be able to use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
- Students will be able to ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Assessment**Formative Assessment:**

- Group Discussions
- Peer Work

Summative Assessment:

- Research Journals
- Projects

Benchmark:

- Access Prior Knowledge

Alternative:

- Performance Assessments
- Modified Projects
- Modified Work

Key Vocabulary

Sunlight, warm, cool, sand, soil, rocks, water

Resources & Materials

Stemscopes website & kits

- Print and digital copies of textbook
- Lab write-ups
- SEP simulations
- Content videos
- PhET Interactive Simulations
- Reading articles
- Math connections
- Pre-assembled Kits

Technology Infusion**Teacher Technology:**

- Promethean Board
- StemScopes
- Chromebooks

Student Technology:

- Chromebooks
- StemScopes
- iPads
- SeeSaw

Activities:	
- Students will use Seesaw on Chromebooks to reflect on learned concepts. - Students will use STEMscopes to explore topics being taught.	
Standard	Standard Description
8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network
8.2.2.ED.1	Communicate the function of a product or device

Interdisciplinary Integration	
Activities:	
The students will complete a scientific explanation using evidence from observation and informational text.	
Standard	Standard Description
NJSLS-ELA RI.CI.K.2	With prompting and support, identify the main topic and key details of an informational text (e.g., who, what, where, when, why, how).
NJSLS-ELA W.IW.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts to convey ideas
NJSLS-ELA SL.PE.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

21 st Century Life Skills Standards	
Activities:	
Students will observe a STEMScopes video to discuss careers in earth science	
Standard	Student Learning Objectives
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).

Careers	
Activities:	
The learner will participate in STEAM building activities that address the science content and apply critical thinking skills while persevering in solving the task at hand.	
Practice	Description
Utilize critical thinking to make sense of problems and persevere in solving them.	Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of the problem and carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through this when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. Their own actions or the actions of others.

Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
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Standards			
Standard #	Standard Description	Student Learning Objective	Clarification Statement
K-PS3-1	Energy	Make observations to determine the effect of sunlight on Earth's surface	Examples of Earth's surface could include sand, soil, rocks, and water] [Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.]
K-PS3-2	Energy	Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth's surface.	Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.
K-2-ETS1-1	Engineering Design	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	
K-2-ETS1-2	Engineering Design	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	
K-2-ETS1-3	Engineering Design	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	

Differentiation
Students with 504 plans
• Preferential seating • Guided notes • Extra time • Teacher check-ins • Use graphic organizers • Redirect attention • Prioritize tasks • Small group testing • Provide modifications & accommodations per individual student's 504 plan
Special Education
• Provide modifications & accommodations as listed in the student's IEP • Position the student near a helping peer or have quick access to the teacher • Modify or reduce assignments/tasks • Reduce the length of the assignment for different modes of delivery • Increase one-to-one time • Prioritize tasks • Use online resources for skill-building • Provide teacher notes • Use collaborative grouping strategies, such as small groups • NJDOE resources - http://www.state.nj.us/education/specialed/
Response to Intervention (RTI)
• Tiered interventions following the RTI framework • Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ • Intervention Central - http://www.interventioncentral.org/
English Language Learners (ELL)
• Provide text-to-speech • Use of a translation dictionary or software • Provide graphic organizers • NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm • Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm
Enrichment
• Process should be modified: higher order thinking skills, open-ended thinking, discovery • Utilize project-based learning for greater depth of knowledge • Utilize exploratory connections to higher-grade concepts • Contents should be modified: real-world problems, audiences, deadlines, evaluations, transformations • Learning environments should be modified: student-centered learning, independence, openness, complexity, and groups should be varied

**Califon Public School
Curriculum**



Subject: Science	Grade: Kindergarten	Unit #: 4	Pacing: 20 days
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Unit Title: Basic Needs of Living Things

OVERVIEW OF UNIT:

In this unit of study, students develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students compare and contrast what plants and animals need to survive and the relationship between the needs of living things and where they live. The crosscutting concepts of patterns and systems and system models are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in developing and using models, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Big Ideas

- Plants do not need to take in food, but do need water and light to live and grow.
- All animals need food in order to live and grow, that they obtain their food from plants or from other animals, that different kinds of food are needed by different kinds of animals, and that all animals need water.
- Scientists look for patterns and order when making observations about the world.
- Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.

Essential Questions

- Where do plants and animals live and why do they live there?
- How can you tell if something is alive?
- What do animals and plants need to survive?
- Where do organisms live and why do they live there?

Objectives

- Students will be able to describe patterns of animal and plant needs for survival using observation.

Assessment

Formative Assessment:

- Group Discussions
- Peer Work

Summative Assessment:

- Projects

- Research Journals

Benchmark:

- Accessing Prior Knowledge

Alternative:

- Modified Projects
- Modified Work

Key Vocabulary

living, non-living, survive, needs, water, sunlight, roots, stem, seeds, sprout,

Resources & Materials

Stemscopes website & kits

- Print and digital copies of textbook
- Lab write-ups
- SEP simulations
- Content videos
- PhET Interactive Simulations
- Reading articles
- Math connections
- Pre-assembled Kits

Technology Infusion**Teacher Technology:**

- Promethean Board
- StemScopes
- Chromebooks

Student Technology:

- Chromebooks
- StemScopes
- iPads
- SeeSaw

Activities:

- Students will use Seesaw on Chromebooks to reflect on learned concepts.
- Students will use STEMscopes to explore topics being taught.

Standard	Standard Description
8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network

8.2.2.ED.1	Communicate the function of a product or device
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Interdisciplinary Integration	
Activities: The students will complete a scientific explanation using evidence from observation and informational text	
Standard	Standard Description
NJSLS-ELA RI.CR.K.1	With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).
NJSLS-ELA W.IW.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts to convey ideas.

21 st Century Life Skills Standards	
Activities: - Students will observe a STEMScopes video to discuss careers that work with living things - Students will use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.	
Standard	Student Learning Objectives
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).

Careers	
Activities: The learner will participate in STEAM building activities that address the science content and apply critical thinking skills while persevering in solving the task at hand.	
Practice	Description
Utilize critical thinking to make sense of problems and persevere in solving them.	Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of the problem and carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through this when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. Their own actions or the actions of others.
Demonstrate creativity and innovation.	Students regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

Standards			
Standard #	Standard Description	Student Learning Objective	Clarification Statement
K-LS1-1	From Molecules to Organisms: Structures and Processes	Use observations to describe patterns of what plants and animals need to survive.	Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]
K-ESS3-1	Earth and Human Activity	Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.	Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight, so they often grow in meadows. Plants, animals, and their surroundings make up a system.
K-ESS2-2	Earth's Systems	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	
K-2-ETS1-1	Engineering Design	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	
K-2-ETS1-2	Engineering Design	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	
K-2-ETS1-3	Engineering Design	Analyze data from tests of two objects designed to solve the same problem to compare	

		the strengths and weaknesses of how each performs.	
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Differentiation			
Students with 504 plans			
• Preferential seating • Guided notes • Extra time • Teacher check-ins • Use graphic organizers • Redirect attention • Prioritize tasks • Small group testing • Provide modifications & accommodations per individual student's 504 plan			
Special Education			
• Provide modifications & accommodations as listed in the student's IEP • Position the student near a helping peer or have quick access to the teacher • Modify or reduce assignments/tasks • Reduce the length of the assignment for different modes of delivery • Increase one-to-one time • Prioritize tasks • Use graphic organizers • Use online resources for skill-building • Provide teacher notes • Use collaborative grouping strategies, such as small groups • NJDOE resources - http://www.state.nj.us/education/specialed/			
Response to Intervention (RTI)			
• Tiered interventions following the RTI framework • Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ • Intervention Central - http://www.interventioncentral.org/			
English Language Learners (ELL)			
• Provide text-to-speech • Use of a translation dictionary or software • Provide graphic organizers • NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm • Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm			
Enrichment			
• Process should be modified: higher order thinking skills, open-ended thinking, discovery • Utilize project-based learning for greater depth of knowledge • Utilize exploratory connections to higher-grade concepts			

- Contents should be modified: real-world problems, audiences, deadlines, evaluations, transformations
- Learning environments should be modified: student-centered learning, independence, openness, complexity, and groups should be varied
- NJDOE resources

**Califon Public School
Curriculum**



Subject: Science	Grade: Kindergarten	Unit #: 5	Pacing: 20 days
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Unit Title: Basic Needs of Humans

OVERVIEW OF UNIT:

In this unit of study, students develop an understanding of what humans need to survive and the relationship between their needs and where they live. The crosscutting concept of cause and effect is called out as the organizing concept for the disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, and in obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Big Ideas

- Events have causes that generate observable patterns.
- Things that people do to live comfortably can affect the world around them. • People can make choices that reduce their impacts on the land, water, air, and other living things.
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
- A situation that people want to change or create can be approached as a problem to be solved through engineering.
- Asking questions, making observations, and gathering information are helpful in thinking about problems.
- Before beginning to design a solution, it is important to clearly understand the problem.

Essential Questions

- How do people impact the environment as they gather and use what they need to live and grow?
- How can humans reduce their impact on the land, water, air, and other living things in the local environment?

Objectives

- Students will be able to identify how people impact the environment
- Students will be able to determine ways to reduce human impacts on the environment.

Assessment

Formative Assessment:

- Group Discussions
- Peer Work

Summative Assessment:

- Projects
- Research Journals

Benchmark:

- Accessing Prior Knowledge

Alternative:

- Modified Projects
- Modified Work

Key Vocabulary

reduce, reuse, recycle, natural resources, land, water, air, environment
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Resources & Materials

Stemscopes website & kits

- Print and digital copies of textbook
- Lab write-ups
- SEP simulations
- Content videos
- PhET Interactive Simulations
- Reading articles
- Math connections
- Pre-assembled Kits

Technology Infusion

Teacher Technology:

- Promethean Board
- StemScopes
- Chromebooks

Student Technology:

- Chromebooks
- StemScopes
- iPads
- SeeSaw

Activities:

- Students will use Seesaw on Chromebooks to reflect on learned concepts.
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- The students will complete a scientific explanation using evidence from observation and informational text

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21st Century Life Skills Standards

Activities:

- Students will observe a STEMScopes video to discuss careers in earth science

Standard	Student Learning Objectives
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Careers

Activities:

- The learner will participate in STEAM building activities that address the science content and apply critical thinking skills while persevering in solving the task at hand.

Practice	Description
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Standards			
Standard #	Standard Description	Student Learning Objective	Clarification Statement
K-ESS3-3	Earth and Human Activity	Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.
K-2-ETS1-1	Engineering Design	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	
K-2-ETS1-2	Engineering Design	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	
K-2-ETS1-3	Engineering Design	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	

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• Provide modifications & accommodations as listed in the student's IEP

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- Modify or reduce assignments/tasks
- Reduce the length of the assignment for different modes of delivery
- Increase one-to-one time
- Prioritize tasks
- Use graphic organizers
- Use online resources for skill-building
- Provide teacher notes
- Use collaborative grouping strategies, such as small groups
- NJDOE resources - <http://www.state.nj.us/education/specialed/>

Response to Intervention (RTI)

- Tiered interventions following the RTI framework
- Effective RTI strategies for teachers - <http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/>
- Intervention Central - <http://www.interventioncentral.org/>

English Language Learners (ELL)

- Provide text-to-speech
- Use of a translation dictionary or software
- Provide graphic organizers
- NJDOE resources - <http://www.state.nj.us/education/aps/cccs/ELL.htm>
- Adapt a Strategy – Adjusting strategies for ESL students - <http://www.teachersfirst.com/content/esl/adaptstrat.cfm>

Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
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