

NEW MILFORD PUBLIC SCHOOLS

New Milford, Connecticut



General Woodworking

April 15, 2022

BOE Approved August 2022

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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.

Introduction to Woodworking

Grades 9 -12

General Woodworking is a full year course offered at New Milford High School for 1 credit. It is open to 9th-12th grade students. The class incorporates interdisciplinary concepts including math and finance and is based within the hands-on implementation of project based experiences in woodworking. The use of tools, safety procedures, and project design are emphasized throughout the course. Individual and group work, discussion, project based activities, and the safe use of tools and successful implementation of shop procedures will be used to authenticate the learning process. Topics include Safety, Training in the use of power tools, project design, planning, financing, and career options within the trades and emerging technologies within the trades.

Pacing Guide

Unit 1- Safety

Pacing 1-2 weeks or 3-4 classes (As well as ongoing implementation and checks throughout the course)

Unit 2- Project Design and Planning

Pacing 2-3 Weeks or 4-5 classes

Unit 3- Wood and Materials classification (Types and characteristics of wood, adhesives, hardware, finishes)

Pacing 2-3 Weeks or 4-5 classes

Unit 4- Power Tool Training and Implementation (Jointer, Planer, Table Saw, Miter Saw, Band Saw, Drill Press, Disc/Belt Sander, Power Drill, Skill Saw, Jig Saw)

Pacing 18-20 weeks or 30-45 classes

Unit 5- Assembly and Fastening

Pacing 1-2 weeks or 2-3 classes

Unit 6- Sanding and Finishing Wood (Jointer, Planer, Table Saw, Miter Saw, Band Saw, Drill Press, Assembly and Fastening)

Pacing 2-3 Weeks or 4-5 classes

Unit 7- Project Financing

Pacing 2-3 Weeks or 4-5 classes

Unit 8- Career Options and Emerging Technologies within the Trades within the Trades

Pacing 2-3 Weeks or 4-5 classes

Unit 1: Safety

ESTABLISHED GOALS		
<p>Connecticut Technology Education Standard 2:</p> <p>Describe and demonstrate the procedures related to workplace and job site safety including personal protective equipment, machine safety, and material handling practices.</p> <p>WM.02.01 Demonstrate safe material handling practices.</p> <p>WM.02.02 Demonstrate and explain knowledge of workplace safety procedures.</p> <p>WM.02.03 Demonstrate and explain knowledge of personal safety practices pertaining to eyewear, footwear, clothing, and personal protective equipment (PPE) used in wood technology.</p> <p>WM.02.04 Describe safety practices for specific machines.</p>	Transfer	
	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> • Identify how safety plays a critical role within dangerous environments and be able to • Identify dangers within your own environment. • Apply appropriate safety precautions when dealing with dangerous equipment within your own environment. • Apply appropriate safety precautions when handling caustic materials and be able to identify caustic materials within your own environment. • Describe the importance of safety practices in our lives by identifying and explaining protective measures for handling different types of equipment and materials. What safety practices do I employ within my own life and when? 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <p>Safety plays an important role in dangerous environments.</p> <p>Following proper safety guidelines has impact on our well-being.</p> <p>Our safety procedures are always changing</p>	<p>ESSENTIAL QUESTIONS</p> <p>Why do people need safety protocols?</p> <p>Why do people need to understand the dangers of their environment?</p> <p>Why is it the responsibility of the individual to protect himself or herself?</p>

	<p>depending upon the environment we find ourselves within,</p> <p>One should always reflect upon the potential threats when in different situations.</p>	
	Acquisition	
	<p><i>Students will know...</i></p> <p>Proper safety procedures for working within a shop environment.</p> <p>How to identify and handle caustic substances within the shop.</p> <p>The appropriate types of personal protective equipment for working within a shop environment.</p> <p>The different safety procedures for working with different equipment.</p>	<p><i>Students will be skilled at...</i></p> <p>Implementing proper safety procedures.</p> <p>Identifying caustic substances and employing safety protocols for handling them including the use of proper personal protective equipment.</p> <p>Evaluating the appropriate types of personal protective equipment needed for working with different materials and equipment.</p> <p>Analyzing safety procedures to employ when working with specific types of equipment.</p>

<p>WM.04.02 Describe and prepare rough drawings and sketches.</p> <p>WM.04.03 Explain and prepare a cut list or bill of material from a basic plan and assembly drawing.</p>	<ul style="list-style-type: none"> Describe the importance of precision measurement in our lives by identifying and explaining how precision measurements keep us safe in our lives. 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i> Safety plays an important role in dangerous environments.</p> <p>One should always reflect upon the potential threats when in different situations.</p> <p>Precision measuring tools are essential to carpentry</p> <p>Accurately reading precision measuring tools is critical to design and construction of projects.</p> <p>Preparing a formal design plan and cut list is critical to designing and costing out projects.</p>	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i> Why do people need safety protocols?</p> <p>Why do people need to understand the dangers of their environment?</p> <p>Why is it the responsibility of the individual to protect himself or herself?</p> <p>Why is precision measurement critical in any type of construction?</p> <p>Why knowing how to produce accurate readings of precision tools is critical for construction.</p> <p>Why the formal design process can facilitate costing out a project and pricing it for sale?</p>
	Acquisition	
	<p><i>Students will know...</i> The safe and appropriate use of various types of hand and power tools and machinery used for building.</p>	<p><i>Students will be skilled at...</i> Why do people need know the appropriate use of a tool prior to usage?</p> <p>What can happen if an individual uses a hand or power tool without proper training?</p>

	<p>The precise use of various types of measuring devices used with precision. Devices shall include a ruler, tape measure, compass, and calipers</p> <p>Apply the process to prepare rough drawings and sketches.</p> <p>The preparation of a cut list and a bill of material from a basic plan.</p>	<p>Why precision measurement is critical in all building methods?</p> <p>Why it is helpful to first start from rough sketches prior to drawing final plans?</p> <p>Why it is important for businesses to know how much material and the cost of material before creating a product and bringing it to market?</p> <p>Applying the process of preparing rough sketches</p> <p>Preparing a cut list and bill of materials.</p>
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Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Students will use active demonstrations on implementing safe and appropriate use of various types of hand and power tools and machinery used for building.</p> <p>Students will follow a teacher created precision measurement rubric/ guidelines document.</p> <p>Guideline sheet to prepare rough drawings and sketches.</p> <p>Students will follow a teacher created rubric/ guidelines document for preparing a detailed cut list and bill of materials.</p> <p>Discussion on feedback of student practical demonstrations of machine usage.</p>	<p>PERFORMANCE TASK(S): <i>Students will show that they really understand evidence of...</i></p> <p>GRASPS</p> <p>G - Students will be able to apply safe strategies and procedures when working with various and measurement tools.</p> <p>R- High school students learning to handle power tools safely and with precision.</p> <p>A-Student is the audience because they are actively implementing safe and precise usage of power tools for projects.</p> <p>S- As students learn about how safety plays a critical role when using power tools, it will allow them to identify potential dangers within the world around them and develop strategies on how to keep themselves safe. Students will begin to analyze potential dangers with equipment commonly found in real life environments.</p> <p>P-The active monitoring of safe usage when using power tools.</p> <p>S- Students will reflect on their ability to assess potential dangers with various types of equipment and employ proper strategies to keep themselves safe.</p>

A	Observation of student notes and discussions during teaching lead notes/discussions.	OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively implementing safe and appropriate procedures for the use of various types of hand and power tools and machinery used for building. Students will complete a notetaking guide for safe usage of equipment. Group discussions and reflections along with google documents asking students to think about specific safety procedures for handling various equipment. Students will be actively implementing accurate measuring procedures.. Students will complete a notetaking guide for precision measurement instruments. Group discussions and reflections along with google documents asking students to think about why precision is critical for building. Unit test.
A	Observation of student practical application of techniques.	
A,M	Project based activities demonstrate general knowledge about content from the previous class.	
M,T	Activities based on the information learned.	
T	Summative assessment.	
Code	<i>Pre-Assessment</i>	
M	Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.	
A,M, T	Summary of Key Learning Events and Instruction	Progress Monitoring Do Now questions or brief discussions.
A, M	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion.	Monitor student notes during note taking. Student project based assignments. Monitor student progress during project based assignment.
	Teacher provided note-taking guides.	Student application of safety procedures.
A	Students implement safe and appropriate use of various types	Test and Quiz results.

<p>T</p> <p>T</p> <p>M</p> <p>M, T</p> <p>A</p> <p>M, T</p>	<p>of hand and power tools and machinery used for building and reflect on their understanding of the content.</p> <p>Students implement accurate measuring, layout, and marking tools: steel rule, tape measure..</p> <p>Students create rough drawings and sketches and prepare a cut list or bill of material from a basic plan.</p> <p>Real-world application projects may include:</p> <ul style="list-style-type: none"> • Identifying the costs related to the creation of everyday products. • Analyzing methods used to create products they use within their lives. • Videos and articles on safety. • Identifying how material costs go into pricing a product. <p>Recommended Resources may include: Precision Instruments for Woodworking</p> <p>How to Price Your Woodworking Projects</p> <p>Summative assessments.</p>	
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Unit 3- Wood and Materials classification

<p>ESTABLISHED GOALS</p> <p>Connecticut Technology Education Standard 4:</p> <p>Explain and be able to demonstrate the methods involved in turning raw materials into useable products.</p> <p>WM.04.11 Consider the natural characteristics of grain, knots, and checks when laying out a board.</p> <p>WM.04.14 Identify how grain direction affects a material's strength.</p> <p>WM.04.16 Identify characteristics and applications of the following coniferous</p>	<i>Transfer.</i>	
	<p><i>Students will be able to independently use their learning to...</i></p> <p>Identify different methods of turning raw material into usable products.</p> <ul style="list-style-type: none"> • Apply knowledge of types of wood and wood grain when selecting materials to create a strong finished product and understand the importance of why builders select specific materials for different projects and structures. • Describe the importance of knowing the uses of softwood in comparison with hard wood and understand why builders select different types for different projects and how this selection helps create strong products and structures to keep us safe. • • 	
	<i>Meaning</i>	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <p>There are different methods used to create a finished product.</p>	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <p>Why it is important to understand that something as simple as wood is still a complex item that requires proper knowledge prior to use?</p>

<p>softwoods: pine, cedar, and fir.</p> <p>WM.04.17 Identify characteristics and applications of the following deciduous hardwoods: oak, maple, and poplar.</p>	<p>Each method comes with its own advantages and disadvantages</p> <p>Each method involves a specific process.</p> <p>Using different types of materials deliver different attributes towards the finished product.</p>	<p>How different materials in different products and structures keep us safe within our daily lives?</p> <p>What attributes will a specific type of material add to the finished product?</p>
<p>Acquisition</p>		
	<p><i>Students will know...</i></p> <p>Different methods involved in turning raw materials into useable products.</p> <p>The natural characteristics of types of woods, including grain, knots, strength, and durability.</p>	<p><i>Students will be skilled at...</i></p> <p>Implementing proper procedures to turn raw material into usable products.</p> <p>Describe the characteristics of common softwoods and recognize why builders use them in different types of projects or structures.</p> <p>Describe the characteristics of common hardwoods and recognize why builders use them in different types of projects or structures</p> <p>Identifying the natural characteristics of grain, knots in wood.</p> <p>Identifying the natural direction of the grain in wood.</p> <p>Identifying the characteristics and applications of softwoods.</p> <p>Identifying the characteristics and applications of hardwoods.</p>

Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Teacher created rubrics. Student assessment is in relation to applying the different methods involved in turning raw materials into useable products.</p> <p>Students will use an organized google slideshow coupled with active demonstrations on the characteristics and applications of both soft and hard woods..</p> <p>Students will follow a teacher created guidelines for the proper identification and outline of characteristics of various types of wood.</p>	<p>G - Students will be able to demonstrate the methods involved in turning raw materials into useable products. Students will also be able to identify characteristics of various types of hard and soft woods.</p> <p>R- High school students will be able to identify construction methods and types of woods used in building and furniture they come across in their daily lives. .</p> <p>A-The student is the audience because they are determining what methods and materials are used to complete their projects.</p> <p>S- As students learn about how proper material choice plays a critical role within the project completion, it will allow them to identify the best materials to use for the project at hand. Students will also begin to analyze potential construction methods used during the construction of items within their environments.</p> <p>P-The active monitoring of materials and methods used during the construction of their projects.</p> <p>S- Students will reflect on their ability to assess appropriate materials and proper construction methods used in the completion of projects.</p>

A,M	Observation of student notes and discussions during teacher led notes/discussions.	OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively applying knowledge about the characteristics and usage of various types of wood.
M,	Activities demonstrate general knowledge about the characteristics and usage of various types of wood.	Students will complete a notetaking guide for characteristics of soft and hard woods. Group discussions and reflections along with google documents asking students to think about specific uses for the different types of wood
M,T	Class discussions.	Unit test.
T	Summative assessment.	
Code	<i>Pre-Assessment</i>	
	<u>Questions to help complete this portion:</u>	
M	Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.	
A,M, T	Summary of Key Learning Events and Instruction	Progress Monitoring
	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion.	Do Now questions or brief discussions. Monitor student notes during note taking. Student project based assignments.
A, M		Monitor student progress during project based assignment.
A	Teacher provided note-taking guides.	Student application of safety procedures.
	Students implement methods involved in turning raw materials into useable products.	Test and Quiz results.
T	Students demonstrate knowledge of characteristics and	

T	applications of soft and hard woods.	
M	Real-world application projects may include: <ul style="list-style-type: none"> Identifying potential construction methods within real world environments and for existing products. 	
M, T	<ul style="list-style-type: none"> Analyzing types of construction materials used in everyday objects. 	
A	<ul style="list-style-type: none"> Videos and articles on safety. 	
M, T	<ul style="list-style-type: none"> Identifying activities in our lives that require a base knowledge of construction methods. 	
	Recommended Resources may include: Logs to Lumber	
	Log Furniture 101	
T	Summative assessments.	

Unit 4- Power Tool Training and Implementation

<p>ESTABLISHED GOALS</p> <p>Connecticut Technology Education Standard 3:</p> <p>Identify and describe the safe and appropriate use of various types of hand and power tools and machinery used for building.</p> <p>WM.03.02 Identify proper use and function of the following portable power tools: circular saw, drill, jig/saber saw, finishing sanders, and routers.</p> <p>WM.03.08 Identify the proper use and function specialty machinery (e.g. drill presses. jointers. Surface planers. Table saws. Power miter saws. Band saws. Scroll saws. And stationary sanders.</p> <p>WM.03.13 Identify and demonstrate use and function of sanders.</p> <p>WM.03.14 Select appropriate tools, procedures, and/or equipment.</p>	<p><i>Transfer</i></p> <p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> Identify and describe the safe and appropriate use of various types of hand and power tools and machinery used for building. Understand how proper use of any equipment is imperative to safety, be it a hammer or a car etc... Apply appropriate safety precautions when dealing with dangerous equipment. Apply appropriate safety precautions when using various types of equipment and that appropriate use mitigates dangers in all aspects of our lives. Describe the importance of safety practices in our lives by identifying and explaining protective measures for handling different types of equipment understanding that this applies to any equipment we use in our lives. . 	
	<p><i>Meaning</i></p>	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <p>Thorough knowledge of the purpose and usage of a particular tool is required to help keep one safe upon usage.</p>	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <p>Why do people need safety protocols?</p> <p>What are the safety protocols for the specific tool that I am using?</p> <p>Why is it important to use the proper tool for the job at hand?</p> <p>Why it is the responsibility of the individual to protect himself or herself?</p>

<p>WM.03.15 Follow laboratory safety rules and procedures.</p> <p>WM.03.16 Demonstrate good housekeeping at a workstation within total laboratory.</p>	<p>Following proper safety guidelines for each type of tool has an important part impact on our well-being.</p> <p>Specific safety procedures are always different depending upon the piece of equipment that we are using.</p> <p>One should always reflect upon the potential threats when using different tools.</p> <p>Proper maintenance and usage is critical no matter what tool we are using.</p>	
	Acquisition	
	<p><i>Students will know...</i></p> <p>Proper safety procedures for various types of hand and power tools as well as machinery used for building.</p> <p>The safe usage of various types of hand and power tools as well as machinery used for building.</p> <p>The proper use and function of portable power tools. (See standard WM.03.02 for specific tools).</p>	<p><i>Students will be skilled at...</i></p> <p>Implementing proper safety procedures for various types of hand and power tools.</p> <p>Safely using various types of hand and power tools as well as machinery.</p> <p>Safely using various types of portable power tools as well as machinery.</p> <p>Safely using various types of specialty machinery</p> <p>Selecting the appropriate tools, procedures, and/or equipment for the job.</p> <p>Following Shop safety rules and procedures.</p>

	<p>The proper use and function specialty machinery (See standard WM.03.08 for specific tools).</p> <p>How to select the appropriate tools, procedures, and/or equipment.</p> <p>Shop safety rules and procedures.</p> <p>Good housekeeping at a workstation within total laboratory.</p>	<p>Keeping a clean shop and workspace.</p>
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Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Teacher created rubrics. Student assessment is in relation to applying the selection and proper use of portable power tools and specialty equipment.</p> <p>Students will use an organized google slideshow coupled with active demonstrations on the proper use and function of the following portable power tools.</p> <p>Students will use an organized google slideshow coupled with active demonstrations on the proper use and function specialty machinery.</p> <p>Students will follow a teacher created guidelines for safety rules and procedures</p>	<p>PERFORMANCE TASK(S): <i>Students will show that they really understand evidence of...</i></p> <p>GRASPS G - Students will be able to apply safety strategies when working with various types of power tools and specialty equipment. R- High school students learning to use power tools and specialty equipment in a correct and safe manner for the completion of their projects. A-Student is the audience because they are learning how to use the various power tools and specialty equipment in a safe manner. S- As students learn about how safe usage of tools and equipment plays a critical role within the shop environment, it will allow them to identify potential dangers within the world around them and allow them to develop strategies on how to keep themselves safe with other forms of tools and machinery. P-The active monitoring of safe usage of power tools and specialty equipment in a correct manner for the completion of their projects. S- Students will reflect on their ability to assess potential dangers and outcomes of improperly using a tool and the ramifications of what could happen if they do not.</p>
A A M	<p>Observation of student notes and discussions during teacher led notes/discussions.</p> <p>Do now activities demonstrating general knowledge about the proper use of portable tools and specialty equipment.</p> <p>Class discussions with articles and videos explaining how proper use is imperative to keep the operator and the equipment safe. .</p>	<p>OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively implementing safety procedures.</p> <p>Students will complete a notetaking guide for safety procedures. Related to portable tool, and specialty equipment.</p> <p>Group discussions, and reflections along with videos asking students to think about the potential dangers of improperly using portable power tools and specialty equipment.</p>

T	Summative assessment	
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Code	<i>Pre-Assessment</i>	
M	<p><u>Questions to help complete this portion:</u></p> <p>Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.</p>	
A,M, T	Summary of Key Learning Events and Instruction	Progress Monitoring
A, M	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion.	Do Now questions or brief discussions.
A	Teacher provided note-taking guides.	Monitor student notes during note taking.
T	Students implement safe and appropriate use of various types of hand and power tools and machinery used for building safe and appropriate use of various types of hand and power tools and machinery used for building.	Student project based assignments.
M, T	Real-world application projects may include:	Monitor student progress during project based assignment.
M, T	<ul style="list-style-type: none"> • The proper use and function of the following portable power tools. • The proper use and function specialty machinery. • Videos and articles on safety. • Identifying activities in our lives that impact our safety. 	Student application of safety procedures.
A		Test and Quiz results.
M, T	Recommended Resources may include:	

T	<p>Hand and Power Tool Safety Training from SafetyVideos.com</p> <p>Intro to woodworking machines – Wood Magazine</p> <p>Summative assessments.</p>	
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Unit 5- Assembly and Fastening

<div>ESTABLISHED GOALS</div> <div>Connecticut Technology Education Standard 4:</div> <div>Explain and be able to demonstrate the methods involved in turning raw materials into useable products.</div> <div>WM.04.19 Identify and describe the purpose and use of the following woodworking fasteners: common nails, round head screws, flat head screws, and oval head screws.</div> <div>WM.04.20 Identify, describe purpose of and use woodworking adhesives.</div>	<div>Transfer</div>	
	<div>Students will be able to independently use their learning to...</div> <ul style="list-style-type: none">Explain and be able to demonstrate the methods involved in turning raw materials into useable products, understand that all things are a culmination of materials and a process to get to a finished product.Apply identification procedures of different types of fasteners for different purposes and the reason for its selection. How does the appropriate fastener keep us safe in our day-to-day lives?Describe the different types of adhesives and be able to identify the proper adhesive for the proper job in order to keep us safe.	
	<div>Meaning</div>	
	<div>UNDERSTANDINGS</div> <div>Students will understand that...</div> <div>Demonstrate the methods involved in turning raw</div>	<div>ESSENTIAL QUESTIONS</div> <div>Students will keep considering...</div> <div>What is the specific purpose for different types of fasteners?</div> <div>What is the appropriate time to use each type of fastener?</div> <div>What is the specific purpose for different types of adhesive?</div>

	<p>materials into useable products.</p> <p>Be able to identify the proper types of fasteners for the job.</p> <p>Be able to identify the proper types of adhesive for the job.</p> <p>Understand when a combination of fasteners and adhesives is required.</p> <p>Explain and be able to demonstrate the methods involved in turning raw materials into useable products.</p>	<p>What is the appropriate time to use each type of adhesive?</p> <p>What is the purpose of using both fasteners and adhesives simultaneously?</p>
Acquisition		
	<p><i>Students will know...</i></p> <p>Be able to demonstrate the methods involved in turning raw materials into useable products.</p> <p>The purpose and use of the following woodworking fasteners: common nails, round head screws, flat head screws, and oval head screws.</p>	<p><i>Students will be skilled at...</i></p> <p>Identifying the appropriate fasteners for the job.</p> <p>The specific purpose for different types of fasteners.</p> <p>Identifying the appropriate adhesive for the job.</p> <p>The specific purpose for different types of adhesives.</p> <p>-The use of both fasteners and adhesives simultaneously.</p>

	<p>The use of woodworking adhesives</p> <p>When a combination of fasteners and adhesives is required.</p>	
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Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Students will use an organized google slideshow coupled with active demonstrations on turning raw materials into useable products.</p> <p>Students will follow a teacher created guidelines document on the different types of fasteners and their use.</p> <p>Students will follow a teacher created guidelines document on the different types of adhesives and their use.</p> <p>Discussion on the various types of fasteners and adhesives used for construction; and when they are used.</p>	<p>G - Students will be able to demonstrate different methods involved in turning raw materials into useable products..</p> <p>R- High school students learning to select proper fasteners and adhesives that add to the strength and durability of the project.</p> <p>A-Student is the audience because they are actively demonstrating the correct procedures for turning raw materials into usable products.</p> <p>S- As students learn about different construction methods, it will allow them to begin to think about the methods used in real life situations and for actual products.</p> <p>P-The active monitoring of actively correct procedures the students are using to turn raw materials into usable products.</p> <p>S- Students will reflect on their ability to assess the methods of construction and the intended purpose for selecting those methods.</p>

A	Observation of student notes and discussions during teacher led notes/discussions.	OTHER EVIDENCE: OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively demonstrating different methods involved in turning raw materials into useable products.
A	Do now activities demonstrating methods to turn raw materials into usable products.	Students will complete a notetaking guide for fasteners and adhesives.
A	Do now activities demonstrating the advantages and disadvantages of different types of fasteners and adhesives.	Group discussions and reflections along with google documents asking students to think about selection of fasteners and adhesives for different uses.
M	Class discussions with articles and videos explaining how selection of the proper fastener or adhesive adds to the strength and durability of the final product.	Unit test.
T	Summative assessment	

Code	<i>Pre-Assessment</i>	
M	<u>Questions to help complete this portion:</u> Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.	
A,M, T	Summary of Key Learning Events and Instruction	Progress Monitoring
A, M	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion.	Do Now questions or brief discussions. Monitor student notes during note taking.
A	Teacher provided note-taking guides.	Student project based assignments. Monitor student progress during project based assignment.

T	Students implement methods involved in turning raw materials into useable products.	Student application of safety procedures.
M	Real-world application projects may include:	Test and Quiz results.
M	<ul style="list-style-type: none"> Identifying appropriate fasteners within real world environments. 	
M, T	<ul style="list-style-type: none"> Identifying appropriate adhesives within real world environments. 	
A	<ul style="list-style-type: none"> Analyzing appropriate safety measures and strength of joinery when selecting fasteners and adhesives. 	
M, T	<ul style="list-style-type: none"> Videos and articles on safety. Identifying how selection of appropriate fasteners and adhesives that impact our safety. <p>Recommended Resources may include:</p> <p><u>Types of Fasteners and the Tools That Go With Them</u></p> <p><u>How to Choose Wood Glues: Woodworking for Beginners</u></p>	
T	Summative assessments.	

Unit 6- Sanding and Finishing Wood

<p>ESTABLISHED GOALS</p> <p>Connecticut Technology Education Standard 4:</p> <p>Explain and be able to demonstrate the methods involved in turning raw materials into useable products.</p> <p>WM.04.22 Identify and apply various wood finishes for interior and exterior, with brush or wipe on, for the following: paint, stain, and clear coat.</p> <p>WM.04.23 Describe the abrasive grit numbering grading system.</p> <p>WM.04.24 Differentiate among various abrasive materials.</p>	<i>Transfer</i>	
	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> Explain and be able to demonstrate the methods involved in turning raw materials into useable products and translate that knowledge into being able to identify the raw materials used to create everyday objects. Apply appropriate safety precautions when applying paints, stains, and be able to identify when and where each type should be is used and translate that knowledge into being able to identify the finish used on everyday objects. Describe the importance of proper finishing tools and techniques and be able to articulate how a proper finish used in everyday objects and helps to protect both the object and us simultaneously. 	
	<i>Meaning</i>	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <p>The methods involved in turning raw materials into useable products.</p> <p>Different types of methods for different purposes.</p> <p>Proper finishing techniques add to the quality and durability of the finished product.</p> <p>The appropriate finish and tools required to derive a desired result.</p>	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <p>Why are raw materials processed into finished goods?</p> <p>How these finished goods add to the quality of our life?</p> <p>Why it is important to select the appropriate procedure to gain a desired result?</p>

Acquisition		
	<p><i>Students will know...</i></p> <p>How to identify and apply various wood finishes for interior and exterior</p> <p>Proper application of various types of wood finishes.</p> <p>The abrasive grit numbering grading system.</p> <p>The differences among various abrasive materials.</p>	<p><i>Students will be skilled at...</i></p> <p>Identifying the appropriate finish for the job.</p> <p>Applying various for wood finishes using different methods</p> <p>Identifying different abrasives on the grit numbering grading system.</p> <p>Identifying differences among various abrasive materials.</p>

Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Students will use an organized google slideshow coupled with active demonstrations on turning raw materials into useable products.</p> <p>Students will follow a teacher created guidelines for the selection and application of wood finishes.</p> <p>Guideline sheet for students to fill out while analyzing the abrasive grit numbering grading system.</p> <p>Discussion on feedback of finish selection. Students are then be challenged to make another analysis on why a different type of finish would be more suitable.</p>	<p>PERFORMANCE TASK(S): <i>Students will show that they really understand evidence of...</i></p> <p>GRASPS G - Students will be able to apply wood finishes safety using various application methods. R- High school students learning to apply protective and decorative finishes to their finalized projects. A-Student is the audience because they are analyzing the type of finish and application method for their final product. S- As students learn about how safety apply various wood finishes, it will allow them to identify how the finish selected adds to the price, durability, and aesthetic of the final product. P-The active application of different types of wood finishes using various application methods. S- Students will reflect on their ability to apply different types of finishes in a safe and conscientious manner.</p>
A A M T	<p>Observation of student notes and discussions during teacher led notes/discussions.</p> <p>Do now activities demonstrating general knowledge about the different types of finishes and application methods.</p> <p>Class discussions and videos explaining the advantages and disadvantages of various finishes.</p> <p>Summative assessment</p>	<p>OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively implementing the application of different types of wood finishes.</p> <p>Students will complete a notetaking guide for wood finishes and abrasives.</p> <p>Group discussions and reflections along with google documents asking students to think about specific types of finishes and their intended purpose for selection.</p>

Code	<i>Pre-Assessment</i>	
M	<p><u>Questions to help complete this portion:</u></p> <p>Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.</p>	
A, M, T	Summary of Key Learning Events and Instruction	Progress Monitoring
A, M	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion.	Do Now questions or brief discussions.
A	Teacher provided note-taking guides.	Monitor student notes during note taking.
T	Students implement methods involved in turning raw materials into useable products.	Student project based assignments.
M	Real-world application projects may include:	Monitor student progress during project based assignment.
M, T	<ul style="list-style-type: none"> Identifying type of finishes used in existing products and why they were selected 	Student application of safety procedures.
M, T	<ul style="list-style-type: none"> Analyze what abrasive materials are used for specific projects and why. 	Test and Quiz results.
M, T	<ul style="list-style-type: none"> Analyze the abrasive grit numbering and grading system and how its use for finished products. 	
M, T	<ul style="list-style-type: none"> Select various abrasive materials for specific projects. 	
A	<ul style="list-style-type: none"> Videos and articles on finishing. 	
M, T	<ul style="list-style-type: none"> Identifying activities in our lives when we would need to apply various finishing techniques. 	
	Recommended Resources may include: <u>All you need to know about sandpaper</u>	

T	<u>What Kind of Finish Should You Use? WOOD FINISHING BASICS</u> Summative assessments.	
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Unit 7- Project Financing

<p>ESTABLISHED GOALS</p> <p>Connecticut Technology Education Standard 5:</p> <p>Describe and demonstrate the attributes of wood design.</p> <p>WM.05.01 Utilize the design process; including defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, develop a design proposal.</p> <p>WM.05.04 Develop a production plan, including the layout, bill of materials, and cost analysis, for the</p>	<i>Transfer</i>	
	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> Describe and demonstrate the attributes of wood design and be able to recognize how design not only improves the finished piece but also adds to the aesthetic of the object. Apply the design process to advance lateral thinking and problem solving skills. Apply the process of the product plan to understand how businesses utilize this to design, create and price affordable products for the consumer while simultaneously generating the company a profit. Identify materials and specification to be able to appreciate the design concept of items in our everyday lives. Identifying design specifications in everyday objects helps to develop ones critical thinking skills. 	
	<i>Meaning</i>	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <p>The types of wood used will deliver different results in the finished product.</p>	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <p>Why is utilizing the proper raw materials critical to the functioning of a product?</p> <p>Why do people first conceptualize a plan prior to implementation?</p>

<p>production of cabinets or wood products.</p> <p>Connecticut Technology Education Standard 6:</p> <p>WM.06.04 Identify lists of materials and specifications.</p>	<p>Each type of wood comes with its own set of characteristics each with its own advantages and disadvantages.</p> <p>Following the design process is essential to the construction of any product.</p> <p>The design process is a creative endeavor and facilitates creative and lateral thinking.</p> <p>The production plan allows you to understand the specific amount and cost of materials needed for the project. .</p>	<p>Why it is important for a company to engage in the production plan before pricing a final product for sale?</p>
	<p>Acquisition</p>	
	<p><i>Students will know...</i></p> <p>How to identify and apply various attributes of wood design</p> <p>How to apply the design process.</p> <p>Create a production plan.</p>	<p><i>Students will be skilled at...</i></p> <p>Applying the different stages of the design process. Stages include defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, develop a design proposal</p> <p>Developing a production plan and applying the different stages. Stages will include the layout, bill of materials, and cost analysis, for the production wood products.</p> <p>Identifying lists of materials and specifications for their projects.</p>

	Create a materials list with specifications..	
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Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Students will use an organized google slideshow coupled with active demonstrations on implementing the design process and creating a production plan.</p> <p>Students will follow a teacher created design plan rubric/ guidelines document.</p> <p>Guideline sheet for students to fill out while implementing the stages of the design process.</p> <p>Students will follow a teacher created production plan rubric/ guidelines document.</p> <p>Guideline sheet for students to fill out while implementing the stages of the production plan.</p> <p>Discussion and feedback of student responses about the design process. Students are then be challenged to develop other methods of expanding creative though during this process.</p>	<p>PERFORMANCE TASK(S): <i>Students will show that they really understand evidence of...</i></p> <p>GRASPS</p> <p>G - Students will be able to apply the design process and create a production plan for an imagined project.</p> <p>R- High school students learning to be creative, design a project from scratch, determine materials, and cost for the project.</p> <p>A-Student is the audience because they are the ones actively engaging in both the design process and creation of the production plan.</p> <p>S-Students learn about how creativity plays a critical role within the design of projects and products. Students will begin to analyze how companies create products for the end consumer.</p> <p>P-The active engagement in the design process and developing sketches and measurements along with a materials list and cost sheet for materials required for the project.</p> <p>S- Students will reflect on their ability to be creative while operating within budgetary constraints.</p>

A	Observation of student notes and discussions during teacher led notes/discussions.	OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively engaging in the design process and designing a project from scratch.
A	Do now activities demonstrating methods used during the design process.	Students will complete a notetaking guide for procedures involved in creating a production plan.
M	Class discussions with articles and videos explaining how to create a production plan.	Group discussions and reflections along with google documents asking students to think about how companies use the design process and production plan when creating products for sale to an end consumer.
T	Summative assessment	Unit test.

Code	<i>Pre-Assessment</i>	
M	<u>Questions to help complete this portion:</u> Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.	
A,M, T	Summary of Key Learning Events and Instruction	Progress Monitoring
A, M	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion.	Do Now questions or brief discussions. Monitor student notes during note taking.
A	Teacher provided note-taking guides.	Student project based assignments.
T	Students implement design process and reflect on their understanding of the content.	Monitor student progress during project based assignment. Student application of safety procedures.
T	Students implement production plan and reflect on their understanding of the content.	Test and Quiz results.
	Real-world application projects may include:	

<p>M</p> <p>M, T</p> <p>A</p> <p>T</p>	<ul style="list-style-type: none"> Identifying potential design process used in the creation of everyday products. Analyzing what steps are required in developing the production plan of existing products. Videos and articles on planning and production. <p>Recommended Resources may include: Helping You Make Wood Work : Episode 1 - Basic Furniture Design</p> <p>Woodworking: Making a Plan</p> <p>Summative assessments.</p>	
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Unit 8- Career Options and Emerging Technologies

<p>ESTABLISHED GOALS</p> <p>Connecticut Technology Education Standard 1:</p> <p>Identify and appraise the impacts wood manufacturing has on their future aspirations; both career based and/or as an educated consumer.</p> <p>WM.01.01 Develop career goals and objectives as part</p>	<p><i>Transfer</i></p> <p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> Identify the impacts of manufacturing on everyday purchases within their lives in order for them to be consumers that are more educated. Utilize the knowledge of career planning so they develop strategies that will gain them employment in a field that is both growing and is of interest to them.

<p>of a plan for future career direction.</p> <p>WM.O1.02 Develop strategies to reach career objectives.</p>	<ul style="list-style-type: none"> Utilize the career planning process to begin to create required documents to gain employment. 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i> Career planning is a critical process to engage in to gain fulfilling employment.</p> <p>Developing goals, strategies and, objectives for your career is essential to ensure that you make the correct choices to get what you want out of life</p>	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i> Why is it important to have a plan for your future career? Why is it important that my job is fulfilling</p>
	Acquisition	
	<p><i>Students will know...</i></p> <p>The impacts wood manufacturing has on both career based aspirations</p> <p>The impacts wood manufacturing has on making them a more educated consumer.</p> <p>How to establish career goals and create objectives and strategies to establish a career path.</p>	<p><i>Students will be skilled at...</i></p> <p>Researching future careers.</p> <p>Developing a plan to fulfill future career aspirations.</p>

Code	Evaluative Criteria	Assessment Evidence
A,M, T	<p>Students will use an organized google slideshow coupled with active demonstrations to develop career goals and objectives as part of a plan for future career direction.</p> <p>Students will follow a teacher created rubric for researching potential careers.</p> <p>Guideline sheet for students to fill out while analyzing what career path they might want to take.</p> <p>Discussion and feedback of student responses relating to different types of careers in the trades and compared to careers in other areas.</p>	<p>PERFORMANCE TASK(S): <i>Students will show that they really understand evidence of...</i></p> <p>GRASPS G - Students will be able to apply research methods to compare different types of careers. R- High school students learning to assess the pros and cons of different types of careers. A-Student is the audience because they are analyzing potential careers and developing a cost benefit analysis for each. S- As students learn about how different career paths come with different costs and benefits it will help them analyze what possible careers are right for them. P-The active monitoring of student research and analysis of different types of careers. S- Students will reflect on their ability to assess the pros and cons of different careers so they can make an educated decision prior to additional training or schooling.</p>
A A M T	<p>Observation of student notes and discussions during teacher led notes/discussions.</p> <p>Do now activities demonstrating general knowledge about the pros and cons of different career paths.</p> <p>Class discussions with articles and videos explaining how proper selection of a career path greatly contributes to one's overall wellbeing. .</p> <p>Summative assessment</p>	<p>OTHER EVIDENCE: <i>Students will show they have achieved Stage 1 goals by...</i> Students will be actively engaging in career research</p> <p>Students will complete a comparison guide for the pros and cons of three different types of careers.</p> <p>Group discussions and reflections along with google documents asking students to think about what type of career is best for them and the reasons why.</p> <p>Unit test.</p>

Code	Pre-Assessment	
M	<p><u>Questions to help complete this portion:</u></p> <p>Students will complete a google form answering questions about the unit to tap into prior knowledge. This will lead to a discussion about the content before we begin the lessons.</p>	
A,M, T	Summary of Key Learning Events and Instruction	Progress Monitoring
A, M	Teacher facilitates discussions when having a question of the day, notes, visual learning (videos) or group class discussion. (A,M)	Do Now questions or brief discussions.
A	Teacher provided note-taking guides. (A)	Monitor student notes during note taking.
T	Students implement career research and reflect on their understanding of the content. (T)	Student project based assignments.
M	Real-world application projects may include:	Monitor student progress during project based assignment.
M,T	<ul style="list-style-type: none"> Identifying potential careers within the trades. (M) Analyzing appropriate safety measures to implement for the situation they find themselves (M,T) Videos and articles on careers within the trades.(A) Identifying the importance of a stable career in our lives (M,T) 	Student application of safety procedures.
A		Test and Quiz results.
M, T	Recommended Resources may include: <u>mike rowe careers within the trades</u>	
	<u>Jordan Peterson: What Kind of Job Fits You?</u>	
T	Summative assessments. (T)	

Connecticut Technology Education Standards

Revised December 2014

GRADES 9.12 STANDARDS

WOOD TECHNOLOGY

Description: Individuals working in wood manufacturing construct and repair wooden products. Students are immersed in a design and manufacturing environment that strengthens three-dimensional thought while utilizing tools safely and efficiently. Students work collaboratively and independently. Skills taught and assessed promote technologically literate citizen in an economy founded on manufacturing.

ACADEMIC EXPECTATIONS

All secondary students should meet Connecticut's academic standards. All Knowledge and Skills are predicated on the assumption that academic skills have been attained. Some knowledge and skill statements will further define critical linkages and applications of academics.

KNOWLEDGE AND SKILLS

THE STANDARDS NEED TO BE ADDRESSED IN THE PERFORMANCE OBJECTIVES

The following knowledge and skill statements apply to all careers in wood technology.

WM.01 Identify and appraise the impacts wood manufacturing has on their future aspirations; both career based and/or as an educated consumer.

WM.01.01 Develop career goals and objectives as part of a plan for future career direction.

WM.O1.02 Develop strategies to reach career objectives.

WM.02 Describe and demonstrate the procedures related to workplace and job site safety including personal protective equipment, machine safety, and material handling practices.

WM.02.01 Demonstrate safe material handling practices. Unit 1- Safety

WM.02.02 Demonstrate and explain knowledge of workplace safety procedures.*(A2)

WM.02.03 Demonstrate and explain knowledge of personal safety practices pertaining to eye wear, footwear, clothing, and personal protective equipment (PPE) used in wood technology.*

WM.02.04 Describe safety practices for specific machines.

WM.02.05 Demonstrate knowledge of proper use, storage, and disposal of hazardous materials following OSHA's proper safety practices for a woodworking facility.*(A1)

WM.02.06 Obtain, read and follow SDS (Safety Data Sheets) information.

WM.02.07 Follow safe practices relating to environmental hazards.

WM.02.08 Explain safe proper use, disposal, and storage of chemicals following OSHA standards.*(A7)

WM.02.09 Describe safety practices for the following machines: table saw, drill press, stationary sander, router table, and miter saw.

WM.03 Identify and describe the safe and appropriate use of various types of hand and power tools and machinery used for building.

WM.03.01 Identify, use, and maintain the following measuring, layout, and marking tools: steel rule, tape measure, combination square, sliding "T" bevel, and compass.*(B8)

WM.03.02 Identify proper use and function of the following portable power tools: circular saw, drill, jig/saber saw, finishing sanders, and routers.*(B9)

WM.03.08 Identify the proper use and function specialty machinery (e.g. drill presses. jointers. Surface planers. table saws. power miter saws. band saws. scroll saws. and stationary sanders.*

WM.03.13 Identify and demonstrate use and function of sanders.

WM.03.14 Select appropriate tools, procedures, and/or equipment.

WM.03.15 Follow laboratory safety rules and procedures.

WM.03.16 Demonstrate good housekeeping at a workstation within total laboratory.

WM.03.17 Identify color coding safety standards.

WM.03.18 Explain fire prevention and safety precautions and practices for extinguishing fires.

WM.03.19 Identify harmful effects/potential dangers of familiar hazardous substances/devices to people and the environment.

WM.04 Explain and be able to demonstrate the methods involved in turning raw materials into useable products.

WM.04.01 Describe and interpret technical drawings.

WM.04.02 Describe and prepare rough drawings and sketches.*(C14)

- WM.04.03 Explain and prepare a cut list or bill of material from a basic plan and assembly drawing.(C15)
- WM.04.04 Interpret a design to facilitate replication
- WM.04.05 Describe and identify fractional measurements from a basic plan and assembly drawings.*(C13)
- WM.04.06 Identify the difference between both nominal and actual dimensions.*(C17)
- WM.04.07 Extrapolate information from a set of plans.
- WM.04.08 Measure accurately to a sixteenth of an inch.*(C16)
- WM.04.09 Estimate materials quantities in both board feet and linear feet.*(C18)
- WM.04.10 Interpret a design to facilitate replication Prepare stock for use.*(G28)
- WM.04.11 Consider the natural characteristics of grain, knots, and checks when laying out a board.*(C19)
- WM.04.12 Identify and assemble the following types of joints: butt, miter, dado, rabbet, and lap.*(G27)
- WM.04.13 Identify and select the proper cutting process based on grain direction.*(E23)
- WM.04.14 Identify how grain direction affects a material's strength.*(E24)
- WM.04.15 Understanding kerf and its application to cutting and layout operations.*(E25)
- WM.04.16 Identify characteristics and applications of the following coniferous softwoods: pine, cedar, and fir.*(D20)
- WM.04.17 Identify characteristics and applications of the following deciduous hardwoods: oak, maple, and poplar.*(D21)
- WM.04.18 Identify characteristics and applications of the following engineered lumber: plywood and medium density fiberboard.(D22)
- WM.04.19 Identify and describe the purpose and use of the following woodworking fasteners: common nails, round head screws, flat head screws, and oval head screws.*(H29)
- WM.04.20 Identify, describe purpose of and use woodworking adhesives.*
- WM.04.21 Identify and describe the purpose of the following clamping devices: bar clamp, c-clamp, parallel/hand screw clamp, and spring clamps.*(H30)
- WM.04.22 Identify and apply various wood finishes for interior and exterior, with brush or wipe on, for the following: paint, stain, and clear coat.*(I31)
- WM.04.23 Describe the abrasive grit numbering grading system.*(F26)

WM.04.24 Differentiate among various abrasive materials.

WM.05 Describe and demonstrate the attributes of wood design.

WM.05.01 Utilize the design process; including defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, developing a design proposal, making a model or prototype, testing and evaluating the design using specifications, refining the design, creating or making it, and communicating processes and results.

WM.05.02 Check and critique a design continually, and improve and revise the idea of the design as needed.

WM.05.03 Design and create cabinet and wood products

WM.05.04 Develop a production plan, including the layout, bill of materials, and cost analysis, for the production of cabinets or wood products.

WM.06 Read blueprints and specifications

WM.06.01 Explain the purpose and components of contract documents and specifications.

WM.06.02 Identify and explain the following elements: Dimensions; Construction views; Section views; Site plans; Foundation plans; Floor plans and elevations; Details; Wiring details.

WM.06.03 Identify building symbols.

WM.06.04 Identify lists of materials and specifications.

WM.06.05 Use architectural and engineering scales.

WM.06.06 Demonstrate a basic understanding of computer-aided design.