

HILLSBOROUGH TOWNSHIP SCHOOL DISTRICT

HILLSBOROUGH HIGH SCHOOL

APPLIED TECHNOLOGY CURRICULUM

WOOD TECHNOLOGY II

AUGUST 2020

This curriculum was approved by the Hillsborough Township
Public Schools Board of Education on September 21, 2020.

Entrepreneurship
Grades 10-12
Course Overview

Wood Technology II is a course that builds on the skills and projects from the Wood Technology I course; therefore, Wood Technology I is a prerequisite. Focus will be on mastering machines as well as hand tools. Confidence and competency with tools will increase while safety procedures and protocols will be reinforced at all times.

Students will turn rough lumber into a finished piece of furniture such as a tables, jewelry boxes, cabinets, and handmade woodworking tools and jigs. Hand planes, carving chisels, layout tools, table saws, jointer, table router, band saw, and portable power tools are among the tools used in the class.

Special jigs and hand tool procedures will be demonstrated to produce unique projects and procedures. Advanced joinery, such as hand cut dovetails, mitered, and splined joints will be utilized by students to create replica and one of a kind pieces of furniture.

2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|--|---|---|--|--|--|--|---|--|
| Wood, The Raw Materials, Part I | 2-4 days After Initial instruction, the subject matter will be incorporated into the daily lessons/work. | 8.2.2.ETW.2: Identify the natural resources needed to create a product. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the raw material I am working with, wood. | The diversity of the material and its physical properties offers both a challenge and a source of inspiration to the emerging woodworker | How trees grow, Structure, photosynthesis, heartwood and sap wood, growth rings. Converting wood through the processes of milling, drying, moisture content and stability Grading natural characteristics of wood: defects, grain, figure, texture, durability | Formative: Trees that have undergone stress and or unusual growth patters will be presented for students to evaluate cause and effect of environmental growing conditions. Summative: Students. will develop a milling procedure to produce either yield quality, veneer or figure. | 8.2.2.ETW.2: Identify the natural resources needed to create a product. Geometric Measurement and Dimension G-GMD A. Explain volume formulas and use them to solve problems | 9.2.8.CAP.10: Evaluate how careers have evolved regionally, nationally, and globally. 8.2.5.ITH.4: Describe a technology/tool that has made the way people live easier or has led to a new business or career |

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|---|--|---|--|--|--|---|---|---|
| Wood, The Raw Materials, Part II | 2- 4 days After initial instruction, the subject matter will be incorporated into the daily lessons/work. | 8.2.2.ETW.2: Identify the natural resources needed to create a product. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the raw material I am working with, wood. | The diversity of the material and its physical properties offers both a challenge and a source of inspiration to the emerging woodworker | Know the differences in quality and use between these softwoods: Coniferous Gymnospermae Needle-shaped leaves Waney edge Color changes Cedar Fir Pine Redwood Spruce Know the differences in quality and use between these hardwoods: Deciduous Angiospermae Broadleaf Color changes Ash Beech Birch Boxwood Cherry Mahogany Maple Oak Walnut | Formative: Students will be given samples of milled lumbers well as thin cross section cuts of tree sections. Students will make up a wood type sampler comprised of pieces of the wood types available in the class. They will write down the names of the wood and use it as reference throughout the course. Summative: Students will be able to provide the correct names for pieces of wood the instructor refers to throughout the course. Students will research online two websites to identify as many species of lumber are on the restricted or endangered list. | PS2: M K-2-ETS1-Motion and Stability: Forces and Interactions | 9.2.8.CAP.10: Evaluate how careers have evolved regionally, nationally, and globally. 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option |

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| | | | | | Poplar Understand the importance of material conservation | | | |
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| Wood, The Raw Materials. | 1-3 days After Initial instruction, the subject matter will be incorporated into the daily lessons/work | 8.2.2.ETW.2: Identify the natural resources needed to create a product. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the raw material I am working with: wood? | The diversity of the material and its physical properties offers both a challenge and a source of inspiration to the emerging woodworker | Identify veneer and its processing as follows: Cutting veneer Types of veneer Burl Colored Curly—figured Ray- figured Inlay | Formative: Sections of veneer will be handed out to students for evaluation and discussion. Images of projects using veneer, burl, and figured woods will be shown for design ideas/ inspiration. Summative: Students will make small sample pieces using veneer in an inlay technique. Students will be show representative design ideas after which they will obtain their own design. Assessment will be the selection of design and completion of project. | PS2: M K-2-ETS1-Motion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects | 9.2.8.CAP.10: Evaluate how careers have evolved regionally, nationally, and globally. |

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| Designing in Wood | <p>3-5 days</p> <p>After initial instruction, and review the subject matter will be incorporated into the daily lessons/work</p> | <p>9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option</p> <p>9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas</p> <p>8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.</p> | <p>What does a designer need to consider in order to create a item with sound construction, while keeping in mind aesthetes and function</p> | <p>Designing in 3D requires the ability to visualize how an object will eventually look before you actually make it.</p> | <p>Understand the importance of the design process:</p> <p>Functional and structural requirements, stability, wood appearance and movement, sketching methods, orthographic project dimensioning, Scale drawings, and cut lists</p> | <p>Formative:</p> <p>Students will be presented with a lesson on the need for good sketches as well as how to make one will be taught.</p> <p>A wooden object will be shown to the class and a discussion of the problems of representing an idea in three dimensions will follow.</p> <p>A review of material taught in woodworking 1 on how to make and label an Orthographic projection of an object will be covered.</p> <p>Summative:</p> <p>Students will use pencil and paper or the most recent software application for computer design of an object in two</p> | <p>Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects</p> <p>ETS1: Engineering Design ETS1.A: Defining and Delimiting an Engineering Problem</p> | <p>9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills</p> |

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| | | | | | | <p>and three dimensions.</p> <p>Students will demonstrate their command of the design process by designing an instructor supplied object's dimension and completing a drawing of that object.</p> | | |
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| Math and Wood-working | 2 days After initial instruction, and review the subject matter will be incorporated into the daily lessons/work | 8.2.5.ITH.4: Describe a technology/tool that has made the way people live easier or has led to a new business or career | What essential skills of Trigonometry and Geometry are useful in describing, visualizing and constructing objects in wood? | The geometry and trigonometry needed to construct two- and three-dimensional objects cover a wide field of usefulness and play an active and practical role in many occupations as well as in common daily challenges. | Accurately use the following measuring and marking tools: Try square Ruler Marking gauge Winding boards Miter square Marking knife Tape measure Framing Square | Formative: As a review, the instructor will use the either the computer or the blackboard to illustrate several construction exercises. Students will complete each construction exercise. Summative: Students will address problems and issues with the tools or construction techniques will be addressed by the instructor. A quiz will follow the unit of study. | ETS1.C: Optimizing the Design Solution G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects | 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option |

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| Shop Safety | 3-4 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.5.ITH.2: Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have. 8.2.2.ITH.2: Explain the purpose of a product and its value 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option | What safe practices are needed within the woodshop environment to do accurate work and to avoid injury. | Safety education begins in the schools but is carried on throughout life in the workplace and at home. | Learn and show evidence of shop safety through use these concepts: Lighting Workspace Ventilation Storage Shop Discipline Workzones Kill switches Protective equipment Safety Glasses Ear Plugs Face Shield Goggles Guards Push Sticks Aprons Attire | Formative: Students will be taken on a tour of the various woodshop stations, including machines, marking tape, work zones, panic switches and guards will be identified. Summative: Students will go to the eye station and put on safety eyewear immediately upon entering the room. Students will be presented with Safety regulations form to be signed and initialed. Students will be given a practicum test regarding safety measures. | 8.2.5.NT.4: Identify how improvement in the understanding of materials science impacts technologies. 8.2.2.ITH.3: Identify how technology impacts or improves life. 8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks | 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential 9.2.12.CAP.5: Assess and modify a personal plan to support current interests |

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| Hand Tools. Pt.1 | 3-4 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Measuring and marking tools: Try square Ruler Marking gauge Winding boards Miter square Marking knife Tape measure | Formative: After an initial review, students will show proficiency in using a ruler to measure a series of lines to an accuracy of 1/32 of an inch. A quiz testing and enforcing the skills learned in measuring with a ruler. Summative: Students will use a marking gauge for the layout of various woodworking joints. Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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|-------------------------|---|---|---|---|---|--|---|---|
| Hand Tools. Pt.2 | 2 days After the initial instruction, and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Hand Saws: Ripsaw Crosscut saw Cabinet saw Coping saw Bucksaw Dovetail saw Compass saw Japanese saws | Formative: After review, students will be able to make a series of straight and compound cuts in a practice board to show proficiency in saw' control. Students will demonstrate their ability to choose the correct saw for various cutting operations. Summative: Students will use the tool in it's appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| Hand Tools. Pt 3 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Hand Planes: Block plane Bench plane Smoothing plane Jointer plane Rabbit plane Shoulder plane Router plane Molding plane | Formative: Students will be given a rough piece of lumber and will be required to bring all surfaces into square using hand planes and winding sticks and no machinery. Students will submit their finished board for evaluation and grade Students will demonstrate safe and accurate use of the shoulder plane and rabbit plane. Students will demonstrate safe and accurate use of a shooting board and Low angle plane by making perfect ninety- and forty-five-degree | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| | | | | | | <p>cuts in strips of wood.</p> <p>Summative:</p> <p>Students will watch a demonstration on using hand planes and be able to correctly answer the questions on a quiz.</p> <p>Students will be able to select the correct plane for various woodworking situations and explain the reason for their choice of plane.</p> <p>Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor.</p> | | |
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| Hand Tools. Pt. 4 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Chisels and Gouges: Firmer chisel Bevel-edged chisel Paring chisel Skew chisel Mortise chisel Chisel tang Storing and using chisels Hand and mallet work with chisels Gouge profiles Sharpening Types of steel blades | Formative: Students As a review, students will use a chisel to make a practice rabbet and dado on a small piece of wood supplied by the instructor. Students work will be observed, corrected, and graded. Students will be introduced to the technique of carving. They will demonstrate their understanding of the process and skill level by submitting a small practice example they have carved. Students will be introduced to the technique of letter carving using gauges and various v- groove and carving chisels. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| | | | | | | Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | | |
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| Hand Tools. Pt. 5 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Wood Rasps and Files: File cuts File shapes File cards Needle files Riffle files Cleaning and maintaining files File tang Tightening file handles | Formative: Many shop files will be utilized at some point during the woodworking course. Students will observe a demonstration on end grain, long grain filing and shaping. Student will then use scrap lumber to demonstrate skill and knowledge of end grain, long grain filing Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| Hand Tools. Pt.6 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Hammers and Mallets: Claw hammer Cross-peen hammer Pin hammer Wood mallet Rawhide mallet Nail set | Formative: Students will use a mallet to make a practice rabbet and dado on a small piece of wood supplied by the instructor. Students work will be observed. Students will use a hammer and nail construction to recreate a compound joint. The instructor will observe and make suggestions as needed. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| Hand Tools. Pt. 7 | 3-4 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Types of clamps: Bar clamp Fast-action bar clamp Parallel clamp Miter clamp Quick-grip C-clamp Strap clamps | Formative: Students will review, clamping procedures and a demonstration by the instructor on clamping for various purposes and with various clamps. Students will demonstrate the ability to select the correct clamp for the correct application from a choice of miter clamps; strap clamps, small and large bar clamps; parallel clamps and quick grip clamps. Summative: Students will be required to glue their projects and the instructor will observe that the operation is performed safely and accurately. The process will be observed and graded by the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| Hand Tools. Pt. 8 | 3-4 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process | What do I need to know about the safe use of woodworking hand tools to build various wood projects? | At a time when more and more woodworkers are turning to machine tools for convenience or greater accuracy, someone coming fresh to woodwork might assume hand tools were relics left over from the antique past. On the contrary, a competent woodworker can often finish a project by hand in the time it takes to set up a machine for the same purpose. In addition, working by hand gives a feel for materials that cannot be derived from operating a machine. | Show safe and effective use of the following tools at the intermediate skill level: Screwdrivers: Cabinet screwdriver Fluted-handled screwdriver Crosshead screwdriver Ratchet screwdriver Slotted style Phillips head style Pilot hole counter sink | Formative: Students will review use and techniques of various handheld drivers. The instructor will observe each student's ability to use a hand screwdriver to put a screw into a piece of wood without stripping the screw head, snapping the screw shank or splitting the wood. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income. |

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| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|-------------------|--|---|--|--|---|--|--|---|
| Sharpening | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about safely sharpening a hand tool and identifying a tool which requires sharpening? | A dull tool is more dangerous than a sharp one. Injuries and poor craftsmanship may result if a tool's edge is not maintained. Maintaining a sharp edge on a tool is of paramount importance. Compared with a dull tool, a properly angled and honed edge leaves a superior finish and handles better with minimal resistance. | Students will utilize the following tools to sharpen tools safely and effectively: Hand Stones: Water stones Oil stones Stone grades Stone maintenance Sharpening aids Power Sharpeners: High speed grinder Rubberized abrasive wheels Motorized whetstone Combination grinders Grinding jigs Types of steel: Steel lattice structure Temper Burr Dull edge | Formative: Students will observe the instructor's demonstration of various methods of sharpening a chisel, plane iron spoke shave, and card scraper. Students will learn to use the power sharpener as well as dress the tool blade on a sharpening water stone, and leather strop. Summative: Evaluation will be based on successful demonstration of how to properly sharpen the tool, safety precautions applied and the care of the items used in the sharpening process. Students will demonstrate | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | | | <p>knowledge of the various angle blades should be sharpened depending on the type of wood to be cut.</p> <p>Students will be able to explain the concept of heating and cooling steel in the sharpening process.</p> <p>Students will be able to identify a dull tool and present the instructor with the tool pre and post sharpening. Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor.</p> | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|---|---|--|--|--|---|---|
| Power Tools. Pt. 1 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate personal protective | Show safe and effective use of the following tools at the intermediate skill level: Power Drills Hand held Cordless Dremmel Jigsaw Cuts: Reciprocal cutting Plunge cuts Curved cuts Safety Safety guards | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will attach and remove a drill bit and a driver bit from a corded and cordless power drill. The instructor will observe and advise as needed. Summative: Students will use the tool in it's appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|---|---|--|--|---|---|
| Power Tools. Pt. 2 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate personal protective equipment to guard | Show safe and effective use of the following tools at the intermediate skill level: Routers: Fixed routers Plunge routers Motor size and speed Collet capacity Router table bit selection Rabbeting cuts Dado cuts Grooves Circles Freehand Molding Edge- forming Fence Table inserts | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will observe a router table demonstration and will be able to safely and successfully show the instructor they can attach and remove a router bit, turn on the router, adjust the fence and select the correct router table inserts. Students will successfully route a contour design in a strip of wood used in their class project. The instructor will observe and advise Summative: Students will use the tool in its appropriate | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | manner to construct their wood working project under the evaluation of the instructor. | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|---|---|--|--|---|--|---|
| Power Tools. Pt. 3 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate personal protective | Show safe and effective use of the following tools at the intermediate skill level: Power Sanders: Belt sanders Orbital sanders Disc sanders Bench mount Sanding sheets Sanding pads Grit Selection | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will observe a sanding demonstration and will be able to show the instructor safely and successfully they can attach and remove a sheet and sending disc on the sander. Students will explain the use of various grits in various applications. (IE. Hardwood vs. softwood) Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|---|---|---|--|---|---|
| Power Tools. Pt. 4 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate personal protective equipment to guard | Show safe and effective use of the following tools at the intermediate skill level: Table saw: Electric motor horsepower Saw blade diameter Saw blade angle Table insert Riving knife or splitter Blade guard Rip fence Miter fence Rip cuts Crosscuts blade selection | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will be able to identify the principal parts of the table saw: guard, splitter, fence, on/off switch. The instructor will observe and advise. A table saw may be utilized in several operations during the woodworking course. The instructor, however, will perform these operations at this level of the student's woodworking skill and the student will observe the process Summative: Students will assist in the use of use tool in its appropriate manner to construct | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | their wood working project under the evaluation of the instructor. | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|---|--|--|--|---|---|
| Power Tools. Pt. 5 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate | Show safe and effective use of the following tools at the intermediate skill level: Radial Arm Saw Miter saw: Electric motor Depth of cut Blade selection Anti- kickback assembly Crosscut capacity Rip capacity Blade guard Riving knife Cutting joints on the Radial- arm saw | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will be shown a demonstration by the instructor. They will in turn be able to repeat the procedure of setting up a piece of wood to be cut, setting the angle of cut, utilize the locking system and safety identify features of the saw. The instructor will observe each individual student and advise. Students will be required to make a ninety degree cut at a specified length on a board safely and accurately. The cut | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | <p>personal protective equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.</p> | | <p>will be observed and graded by the instructor</p> <p>Summative:</p> <p>Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor.</p> | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|---|---|--|--|---|--|---|
| Power Tools. Pt. 6 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate | Show safe and effective use of the following tools at the intermediate skill level: Band Saw: Wheels Guides Tensions Tracking Guards Depth of cut Width of Blade Guides Jigs | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will observe a demonstration by the instructor of various cuts on the band saw. Students will be able to identify the guard, fence, guides, blade tensioner, locks and on/off switch. A quiz on saw parts and safety will follow. The band saw may be used by the student at the instructors discretion depending on the woodworking process, the student's project needs and skill. Summative: Students will use the tool in it's | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | personal protective equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | appropriate manner to construct their wood working project under the evaluation of the instructor. | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|---|--|---|---|--|---|
| Power Tools. Pt. 7 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate personal protective | Show safe and effective use of the following tools at the intermediate skill level: Planers: Jointer and planer knives Feed rollers Maximum machining width Depth of cut Fence Guards Direction of feed Bevel Taper | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students observe a demonstration by the instructor of various uses of the planer. Students will be able to identify the infeed and outfeed tables, the thickness setting and the safe method of feeding the work. A quiz on planer parts and procedures and safety test will follow. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|---|---|--|---|---|---|
| Power Tools. Pt. 8 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, | Show safe and effective use of the following tools at the intermediate skill level: Drill Press: Electric motor Worktable Depth gauge Chuck Holding the work securely Drill bits Drill speed | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will be shown a demonstration by the instructor. They will in turn be able to repeat the procedure of setting up a piece of wood to be drilled, mounting the drill bit in the chuck, setting the depth stop, securing the work and safely drilling a hole of a specified diameter. The instructor will observe each individual student and provide immediate feedback Students will be required to drill a ninety-degree hole in their project at | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | <p>vapors or gases. Students must be wear appropriate personal protective equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.</p> | | <p>various locations. The instructor will observe that the operation is done safely and accurately</p> <p>Summative:</p> <p>Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor.</p> | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|---|---|--|---|---|---|
| Power Tools. Pt. 9 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate personal protective equipment to guard | Show safe and effective use of the following tools at the intermediate skill level: Wood Lathe: Electric motor Lathe size Headstock Tailstock speed control Tool rest Turning between centers Faceplate turning | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will observe a demonstration by the instructor of various uses and techniques on the wood lathe. Students will be able to identify the headstock, tailstock, tool rest and safety measures in operation of the machine. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary. | | | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|----------------------------|--|---|---|---|--|---|--|---|
| Power Tools. Pt. 10 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors, or gases. Students must be wear appropriate | Show safe and effective use of the following tools at the intermediate skill level: Scroll Saw: Saw table throat Depth of cut Length of stroke Blade tension Blade guard Hold downs Types of cuts cut | Formative: Students will be required to review procedures and practices associated with the proper use of the tool. Students will be shown a demonstration by the instructor. They will in turn be able to repeat the procedure of setting up a piece of wood to be sawed, mounting the blade in the machine, setting the guard and safely sawing a compound curved line in a piece of wood. The instructor will observe each individual student and advise. Summative: Students will be required to cut decorative parts for their project on the scroll saw. The instructor will | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. I3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | <p>personal protective equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.</p> | <p>observe that the operation is done safely and accurately</p> <p>Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor.</p> | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|----------------------------|--|--|---|--|--|---|--|---|
| Power Tools. Pt. 11 | 1-2 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions | What do I need to know about the safe and practical use of power woodworking tools to build various woodworking projects? | Power tools are a part of a modern workshop. They allow the woodworker to easily perform tasks that otherwise would be difficult and time consuming. However, these simple tools can be hazardous, and have the potential for causing severe injuries when used or maintained improperly. Special attention toward power tool safety is necessary in order to reduce or eliminate these hazards. Students using power tools are exposed to hazards of falling, flying, abrasive or splashing materials, as well as harmful dusts, fumes, mists, vapors or gases. Students must be wear appropriate | Show safe and effective use of the following tools at the intermediate skill level: Hollow-Chisel Mortiser: Auger Chisel Sharpening Depth of cut Length of stroke Blade guard Hold-downs Types of cut | Formative: Students will be shown a demonstration by the instructor. They will in turn be able to repeat the procedure of setting up a piece of wood to produce a mortise of a specific dimension and depth. They will show proficiency in selecting the Auger and Chisel, aligning the work, setting the fence and operating the machine safely. The instructor will observe each individual student and advise and refine procedures associated with the proper use of the tool. Summative: Students will be required to cut decorative parts for their project on the scroll saw. The instructor will | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. I3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | | | <p>personal protective equipment to guard against injury. All electrical connections for tools must be suitable for the type of tool and the working conditions. The student will be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.</p> | | <p>observe that the operation is done safely and accurately</p> <p>Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor.</p> | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|----------------------|--|---|---|---|--|--|---|---|
| Joinery Pt. 1 | 2-3 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology. 8.2.2.ETW.2: Identify the natural resources needed to | How do I join pieces of a project which will be strong, functional, and aesthetically pleasing? | Regarded as the quintessential skill of every woodworker, joinery. A measure of a woodworker is the ability and the refined skill to determine the most steadfast joint, measure, cut and assemble pieces of timber in a fashion that will be timeless. | Show safe and effective use of the following joints at the intermediate skill level: Butt joints: Square ended Mitered Reinforced Splined Loose Rabbet joint Lap Joints: Corner mitered oblique Mortise and Tenon: Through Wedged Stubbed Haunched | Formative: Joint project 1: Students will assemble the tools needed to layout and cut a single piece of practice wood joined on each end with smaller pieces of wood using a angled butt joint and assembled dry assemble. The instructor will observe each student and advise. Joint project 2: Students will assemble the tools needed to layout and cut two angled rabbet joints on a single piece of practice wood. They will then dry fit and join two smaller pieces of wood to each rabbet joint. Joint project 3: Students will | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

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| | | create a product. | | | | assemble the tools needed to layout and cut two pieces of lumber for a long grain joint and dry fit. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|----------------------|--|---|--|---|--|--|--|---|
| Joinery Pt. 2 | 2-3 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology. 8.2.2.ETW.2: Identify the natural resources needed to create a product. | How do I join pieces of a project which will be strong, functional, and aesthetically pleasing | Regarded as the quintessential skill of every woodworker, joinery. A measure of a woodworker is the ability and the refined skill to determine the most steadfast joint, measure, cut and assemble pieces of timber in a fashion that will be timeless. | Show safe and effective use of the following joints at the intermediate skill level: Housing joints Through Stopped Edge to Edge: Butt Tongue and groove Dovetail joint: Through Blind | Formative: Joint project: Students will assemble the tools needed to layout and cut a multiple through and blind dovetail joints then dry assemble. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions Geometric Measurement and Dimension G-GMD 4.3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|---------------------------|--|--|--|---|---|---|--|---|
| Unit Joinery Pt. 3 | 2-3 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology. 8.2.2.ETW.2: Identify the natural resources needed to create a product. | How do I join pieces of a project which will be strong, functional, and aesthetically pleasing | Regarded as the quintessential skill of every woodworker, joinery. A measure of a woodworker is the ability and the refined skill to determine the most steadfast joint, measure, cut and assemble pieces of timber in a fashion that will be timeless. | Show safe and effective use of the following joints at the intermediate skill level: Mortise and Tenon: Through Wedged Stubbed Haunched | Formative: Joint project: Students will assemble the hand tools needed to layout and cut a through mortise and tenor joint, then dry assemble the joint. The instructor will observe each team and advise. Joint project: Students will assemble layout and marking tools necessary to use the tables aw/band saw or router to create through mortise and tenor joint, then dry assemble the joint. The instructor will observe each team and advise. Summative: Students will use the tool in its appropriate manner to construct their wood working project under the evaluation of the instructor. | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential |

2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|------------------|--|---|--|--|---|--|--|--|
| Finishing | 2-3 days After the initial instruction and review the subject matter will be incorporated into daily lessons. | <p>8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.</p> <p>8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process.</p> <p>ETS1.B: Developing Possible Solutions</p> <p>8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology.</p> <p>8.2.2.ETW.2: Identify the natural resources.</p> | What do I need to know about the finishing process to make my project both durable and bring out the inherent beauty and figure of the wood. | Finishing is the process of applying a special kind of liquid or paste to the wood surfaces, which then dries into a protective layer. This coating transforms the appearance of the wood, making it look rich and elegant by highlighting its color and figure. Finishes also protect the wood from dirt and moisture | <p>Show safe and effective use of the following finishes at the intermediate skill level:</p> <p>Stain: Bleaching Oil based Water based Lacquer Varnish Poly Fuming wood Wax Shellac Applying stain End Grain</p> <p>Hand sanding between coats</p> <p>Dry time</p> | <p>Formative:</p> <p>Students will watch a participate in a demonstration of multiple types of applications of finishes, including brush on, whip on, and submerging techniques.</p> <p>Summative:</p> <p>Students will use stains and finishes in its appropriate manner to finish their wood working project under the evaluation of the instructor.</p> | <p>Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects</p> <p>PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions</p> | <p>9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving</p> <p>9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential</p> |

2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|-------------------------------|--|--|--|--|---|---|--|--|
| Wood-working Project 1 | 2-3 days After the initial instruction and review the subject matter will be incorporated into daily lessons for the remainder of the design and build process. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology. 8.2.2.ETW.2: Identify the natural resources. | What do I need to know about the safe use of woodworking, tools, hand held and stationary machinery, the physical properties of the materials I am working with and a variety of woodworking joints and processes in order to build various wood projects? | This project builds upon the skills learned in previous units and takes the student through the entire furniture-making process, from design to finishing. | The students will complete a woodworking project using these strategies: Safety The Design Process Measuring and Marking Hand cut joinery Refinement of joinery/design Structural integrity Longevity of materials Planes Chisels and gouges Power machinery Sanding Adhesives Finishing | Formative: Students will be assigned or choose a woodworking project to build; they will be shown images of similar types of project. Students will be asked to interpret the examples and range of allowable dimensions and will create their own design, set of design drawings, cut list and calculation for material needed. Students will show their command of the design process by submitting a set of plans to the instructor for review and grading. Summative: Students will work independently to build their project Students will present | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions 8.2.5.NT.4: Identify how improvement in the understanding of materials science impacts technologies Geometric Measurement and Dimension G-GMD B. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential 9.4.12.CT.3: Enlist input from a variety of stakeholders 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income |

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| | | <p>8.2.5.ITH.2: Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have</p> <p>8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks</p> <p>8.2.8.ED.5: Explain the need for optimization in a design process.</p> <p>8.2.8.ED.6: Analyze how trade-offs can impact the design of a product</p> | | | | finished project for critiques, refinement and grading. | | |
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2020 HTPS Applied Technology Curriculum Map – Wood Technology II

| Unit of Study | Pacing | NJ Student Learning Standards | Essential Questions | Enduring Understandings | Learning Targets | Assessment: Formative & Summative | Interdisciplinary Connections | Career Readiness, Life Literacies, & Key Skills Standards |
|-------------------------------|---|--|--|--|--|--|---|--|
| Wood-working Project 2 | 2-3 days After the initial instruction and review the subject matter will be incorporated into daily lessons for the reminder of the design and build process. | 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. ETS1.B: Developing Possible Solutions 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology. 8.2.2.ETW.2: Identify the natural resources. | What do I need to know about the safe use of woodworking, tools, hand held and stationary machinery, the physical properties of the materials I am working with and a variety of woodworking joints and processes in order to build various wood projects? | This project builds upon the skills learned in previous units and takes the student through the entire furniture-making process, from design to finishing. | The students will complete a woodworking project using these strategies: Safety The Design Process Measuring and Marking Hand cut joinery Refinement of joinery/design Structural integrity Longevity of materials Planes Chisels and gouges Power machinery Sanding Adhesives | Formative: Students will complete a project of a difficulty level which builds on the skills and tools used to complete their first furniture project piece. Examples of mastery of advanced skills will be: Use of more difficult joinery, advanced machine processes, additional decorative elements, and project size These elements will be incorporated in the design and completion of their advanced project. Students may use instructor supplied reference material, the internet or their own design ideas. Demonstration of the student intent to use advanced techniques, will be indicated by a | Geometric Measurement and Dimension G-GMD B. Visualize relationships between two-dimensional and three-dimensional objects PS2: M K-2-ETS1-2otion and Stability: Forces and Interactions 8.2.5.NT.4: Identify how improvement in the understanding of materials science impacts technologies Geometric Measurement and Dimension G-GMD B. 3. Apply geometric methods to solve design problems | 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential 9.4.12.CT.3: Enlist input from a variety of stakeholders 9.2.12.CAP.14: Analyze and critique various sources of income and available resources and how they may substitute for earned income |

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| | | <p>8.2.5.ITH.2: Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have</p> <p>8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks</p> <p>8.2.8.ED.5: Explain the need for optimization in a design process.</p> <p>8.2.8.ED.6: Analyze how trade-offs can impact the design of a product</p> | | | <p>Finishing</p> | <p>sketch submitted to the instructor for approval.</p> <p>The project ideas will reflect the student's awareness of the design process, the tools and materials on hand in the shop and the student's level of ability.</p> <p>Students will be able to submit a tentative time table for the time needed to complete the project selected.</p> <p>Summative:</p> <p>Students will show their command of the design process by submitting a set of plans to the instructor for review and grading.</p> <p>A cut list, board foot measurement and total cost sheet will be handed to the instructor for a grade. Students will work independently to build their project. Students will present finished project for critiques, refinement and grading.</p> | |
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WEBLIOGRAPHY

None.

ASSOCIATED JOBS LIST BY UNIT

Safety Unit

PPE Sales Representatives and Sales
PPE Manufacturing
Service Technician in Safety Equipment
First Aid Specialist
Marketing Agent for Safety and First aid Equipment
Medical Sales Associate
Product Manager
Product Designer
Equipment Operator
Research and development of Safety Equipment and PPE

Hand Tool Unit

Apprentice Carpenter
Lead Carpenter
Carpenter Foreman
General Construction
Tool Manufacturing
Machinist
Product Developer/Tester
Sales and Marketing

Power Tool Unit

Apprentice Carpenter
Lead Carpenter
Carpenter Foreman
General Construction
Tool Manufacturing
Machinist
Product Developer/Tester
Sales and Marketing

Project Unit

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|-----------------------|--|
| Apprentice Carpenter | Deck Builder |
| Lead Carpenter | Fine Furniture Construction and Repair |
| Carpenter Foreman | Designer |
| General Construction | Millwright |
| Framing Installer | Shipwright |
| Roofer | Woodwright |
| Site Manager | Product Manager |
| Finish Trim Carpenter | Manufacturing |
| Cabinet Maker | Small Business Owner/Operator |