

Construction I and II Curriculum Maps

Unit 1: Shop Safety

Unit 2: Shop Equipment and Tools A

Unit 3: Shop Equipment and Tools B

Unit 4: Shop Equipment and Tools C

Unit 5: Birdhouse

Unit 6: Charging Station

Unit 7: Marking Period Project

Grade: 9-12 Subject: Construction I and II	Unit 1: Shop Safety
Big Idea/Rationale	All students will demonstrate safe life skills in order to be functional members of society.
Enduring Understanding (Mastery Objective)	Lack of awareness about laws and rules may lead to unsafe situations and chaos.
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • How is safety a personal and societal responsibility? • What causes accidents in the wood shop environment? • What safety equipment and attire should be worn in the wood shop? • What are the safety rules for working with tools and power tools? • What conditions in the shop could be considered hazardous?
Content (Subject Matter)	<ul style="list-style-type: none"> • Class Discussion, Shop tour and demonstration, and worksheets on: • Workshop safety • Tools and materials safety • Power tools safety • Hazardous materials safety
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • <i>{WORK.9-12.4}</i> Demonstrate occupational health and safety skills related to industry-specific activities. • <i>{WORK.9-12.9.1.12 B.4.i}</i> Safety • <i>{WORK.9-12.9.2.12 F.4}</i> Practice the safe use of tools and equipment. • <i>{WORK.9-12.9.2.12 F.5}</i> Implement safety procedures in the classroom and workplace, where appropriate.
Materials and Resources	<ul style="list-style-type: none"> • Handouts • Worksheets • Safety Test
Notes	

Grade: 9-12 Subject: Construction I and II	Unit 2: Shop Equipment and Tools A
Big Idea/Rationale	This unit will assist students in choice of the correct tools as they work on their project. It will also make them know and understand how these tools are still essential in industry today for the production of high end furniture.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • What is meant by, and what are the considerations which define, quality and craftsmanship? • How do we approach simple furniture design and construction in a way which displays practical thinking, while using required tools and machinery safely?
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What determines length, width and thickness measurements? • How do you accurately read a ruler or tape measure using fractions of an inch? • What are our common layout tools and where are they used? • What are our common cutting tools and where are they used? • How do you use the following Hand Tools safely and properly? • Tape Measure, Center Punch • How do you use the following Power Tools safely and properly? • Band Saw, Drill Press, Belt/Disc Sander, Reciprocating Drum sander • What is a relief cut and when are they required? • When should you utilize the disc sander versus the belt sander? And vice versa • How do you properly prepare your stock before you drill a hole? • How do you prevent a blow out on the drill press?
Content (Subject Matter)	<ul style="list-style-type: none"> • Lecture on safety, Tool Part ID, Teacher Demo, Student participation with each tool • Band Saw, Drill Press, Belt/Disc Sander, Reciprocating Drum sander • Tape Measure, Center Punch • Oven Tool Project
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • <i>{WORK.9-12.4}</i> Demonstrate occupational health and safety skills related to industry-specific activities. • <i>{WORK.9-12.9.1.12 B.3}</i> Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings. • <i>{WORK.9-12.9.2.12 F.4}</i> Practice the safe use of tools and equipment. • <i>{WORK.9-12.9.2.12 F.5}</i> Implement safety procedures in the classroom and workplace, where appropriate.
Materials and Resources	Rulers, Tape measures, Drill Bits, Center Punch, Hammer, Band Saw, Drill Press, Belt/Disc Sander, Reciprocating Drum Sander

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Grade: 9-12 Subject: Construction I and II	Unit 3: Shop Equipment and Tools B
Big Idea/Rationale	<ul style="list-style-type: none"> • This unit will assist students in choice of the correct tools as they work on their project. It will also make them know and understand how these tools are still essential in industry today for the production of high end furniture. • Students will get insight as to how a factory or custom piece of furniture is finished. It will increase their sense of craftsmanship and give them a deeper appreciation for the term “Quality Finish”.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • What is meant by, and what are the considerations which define, quality and craftsmanship? • How do we approach simple furniture design and construction in a way which displays practical thinking, while using required tools and machinery safely?
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What are our common layout tools and where are they used? • What are our common planning tools and where are they used? • What are our common cutting tools and where are they used? • What are common driving tools and what is their use? • How do you use the following Hand Tools safely and properly? • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • How do you use the following Power Tools safely and properly? • Planer, Miter Saw, Table Saw, Palm Sander • How do you use the following materials safely and properly? • Wood Glue, Wood Stain, Polyurethane • What is the difference between a Dado and a Rabbit? • What abrasives are best used for finish preparation? • What are common areas of attention prior to applying finish? • What are 4 different finishes/applications we use?
Content (Subject Matter)	<ul style="list-style-type: none"> • Lecture on safety, Tool Part ID, Teacher Demo, Student participation with each tool • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • Planer, Miter Saw, Table Saw, Palm Sander • Wood Glue, Wood Stain, Polyurethane • Basic Box Project

Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • {WORK.9-12.4} Demonstrate occupational health and safety skills related to industry-specific activities. • {WORK.9-12.9.1.12 B.3} Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings. • {WORK.9-12.9.2.12 F.4} Practice the safe use of tools and equipment. • {WORK.9-12.9.2.12 F.5} Implement safety procedures in the classroom and workplace, where appropriate.
Materials and Resources	<ul style="list-style-type: none"> • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • Planer, Miter Saw, Table Saw, Palm Sander • Wood Glue, Wood Stain, Polyurethane
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Grade: 9-12 Subject: Construction I and II	Unit 4: Shop Equipment and Tools C
Big Idea/Rationale	<ul style="list-style-type: none"> • To introduce students to the basic machinery used in product development. Students will use this machinery displaying safety and accuracy as they produce a required project and continue to work throughout the course. • Students will get insight as to how a factory or custom piece of furniture is finished. It will increase their sense of craftsmanship and give them a deeper appreciation for the term “Quality Finish”.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • What is meant by, and what are the considerations which define, quality and craftsmanship? • How do we approach simple furniture design and construction in a way which displays practical thinking, while using required tools and machinery safely?
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What are our common layout tools and where are they used? • What are our common planing tools and where are they used? • What are our common cutting tools and where are they used? • What are common driving tools and what is their use? • What is the most appropriate machine to use under different applications? • How do I assure myself of using all machines safely? • How has modern technology improved machinery and the quality of results? • How do you use the following Hand Tools safely and properly? • Miter Guide, Heavy Duty Wood Clamps, Wood Chisel, Hammer • How do you use the following Power Tools safely and properly? • Lathe, Portable Belt Sander, Scroll Saw, Hand Drill
Content (Subject Matter)	<ul style="list-style-type: none"> • Lecture on safety, Tool Part ID, Teacher Demo, Student participation with each tool • Miter Guide, Heavy Duty Wood Clamps, Wood Chisel, Hammer • Lathe, Portable Belt Sander, Scroll Saw, Hand Drill • 5 Projects all students need to do: • Cutting Board • Wooden Whistle • Trivet • Step Stool

	<ul style="list-style-type: none"> • Name Plate
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • <i>{WORK.9-12.4}</i> Demonstrate occupational health and safety skills related to industry-specific activities. • <i>{WORK.9-12.9.1.12 B.3}</i> Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings. • <i>{WORK.9-12.9.2.12 F.4}</i> Practice the safe use of tools and equipment. • <i>{WORK.9-12.9.2.12 F.5}</i> Implement safety procedures in the classroom and workplace, where appropriate.
Materials and Resources	<ul style="list-style-type: none"> • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • Band Saw, Belt Disc Sander, Drill Press, Recip Drum sander • Miter Guide, Heavy Duty Wood Clamps, Wood Chisel, Hammer • Lathe, Portable Belt Sander, Scroll Saw, Hand Drill • Planer, Miter Saw, Table Saw, Palm Sander • Wood Glue, Wood Stain, Polyurethane
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Grade: 9-12 Subject: Construction I and II	Unit 5: Birdhouse
Big Idea/Rationale	<ul style="list-style-type: none"> • Most people do not have table saws and band saws at home. In this unit, students will be required to create a birdhouse from plans. They will not be allowed to use the stationary equipment, only the jig saw or Circular saw for cutting and the portable sanders for sanding. • Students will get insight as to how a homeowner with typical tools can still create quality products.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • Stationary power tools are powerful and extremely helpful. Though, it is not practical for your typical homeowner to have one. Thus, circular saws and jig saws are adequate replacements. • How do we approach simple design and construction in a way which displays practical thinking, while using required tools and machinery safely?
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What are our common layout tools and where are they used? • What are our common cutting tools and where are they used? • What are common driving tools and what is their use? • How do you use the following Hand Tools safely and properly? • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • How do you use the following Power Tools safely and properly? • Circular Saw, Jig Saw, Power Drill, Screw Gun, Palm Sander
Content (Subject Matter)	<ul style="list-style-type: none"> • Lecture on safety, Tool Part ID, Teacher Demo, Student participation with each tool - Circular Saw, Jig Saw, Power Drill, Screw Gun • Birdhouse Project
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • <i>{WORK.9-12.4}</i> Demonstrate occupational health and safety skills related to industry-specific activities. • <i>{WORK.9-12.9.1.12 B.3}</i> Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings. • <i>{WORK.9-12.9.2.12 F.4}</i> Practice the safe use of tools and equipment. • <i>{WORK.9-12.9.2.12 F.5}</i> Implement safety procedures in the classroom and workplace, where appropriate.
Materials and Resources	<ul style="list-style-type: none"> • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • Palm Sander, Jig Saw, Circular Saw, Drill, Screw Gun • Wood Glue, Paint
Notes	

Grade: 9-12 Subject: Construction I and II	Unit 6: Charging Station
Big Idea/Rationale	To extend students knowledge of the equipment needed to successfully complete a piece of furniture satisfactorily to highest standards and most important use this equipment safely and proficiently.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • Students will have a greater understanding of plan development including a wider use of joinery, selecting their own lumber and doing an accurate assessment of layout and plan. • How do we approach simple furniture design and construction in a way which displays practical thinking, while using required tools and machinery safely?
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What are our common layout tools and where are they used? • What are our common planing tools and where are they used? • What are our common cutting tools and where are they used? • What are common driving tools and what is their use? • What is the most appropriate machine to use under different applications? • How do I assure myself of using all machines safely? • How has modern technology improved machinery and the quality of results? • How do we identify a piece of furniture that meets our needs, is constructed of proper materials, as well as a premium joinery. • What areas do I need to assure project fastening and joinery are at a premium level.
Content (Subject Matter)	<ul style="list-style-type: none"> • All students will build a wooden charging station for small electronic devices. • Plan reading (review) • Preparing cut list • Selecting lumber • Finalizing Bill of materials • Cutting and Shaping of parts • Assembly of parts • Sanding and Finishing
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • <i>{WORK.9-12.4}</i> Demonstrate occupational health and safety skills related to industry-specific activities. • <i>{WORK.9-12.9.1.12 B.3}</i> Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings. • <i>{WORK.9-12.9.2.12 F.4}</i> Practice the safe use of tools and equipment. • <i>{WORK.9-12.9.2.12 F.5}</i> Implement safety procedures in the classroom

	and workplace, where appropriate.
Materials and Resources	<ul style="list-style-type: none"> • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • Band Saw, Belt Disc Sander, Drill Press, Recip Drum sander • Miter Guide, Heavy Duty Wood Clamps, Wood Chisel, Hammer • Lathe, Portable Belt Sander, Scroll Saw, Hand Drill • Planer, Miter Saw, Table Saw, Palm Sander • Wood Glue, Wood Stain, Polyurethane
Notes	<ul style="list-style-type: none"> • Charging Station Project Plans for each student to choose from

Grade: 9-12 Subject: Construction I and II	Unit 7: Marking Period Project
Big Idea/Rationale	To extend students knowledge of the equipment needed to successfully complete a piece of furniture satisfactorily to highest standards and most important use this equipment safely and proficiently.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • Students will have a greater understanding of plan development including a wider use of joinery, selecting their own lumber and doing an accurate assessment of layout and plan. • How do we approach simple furniture design and construction in a way which displays practical thinking, while using required tools and machinery safely?
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What are our common layout tools and where are they used? • What are our common planning tools and where are they used? • What are our common cutting tools and where are they used? • What are common driving tools and what is their use? • What is the most appropriate machine to use under different applications? • How do I assure myself of using all machines safely? • How has modern technology improved machinery and the quality of results? • How do we identify a piece of furniture that meets our needs, is constructed of proper materials, as well as a premium joinery. • What areas do I need to assure project fastening and joinery are at a premium level.
Content (Subject Matter)	<ul style="list-style-type: none"> • Students to select a intermediate Woodworking Project and follow the plans from start to finish. Project must take approximately 9 weeks to complete to assure that they will be done on time. • Plan reading (review) • Preparing cut list • Selecting lumber • Finalizing Bill of materials • Cutting and Shaping of parts • Assembly of parts • Sanding and Finishing
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • <i>{WORK.9-12.4}</i> Demonstrate occupational health and safety skills related to industry-specific activities. • <i>{WORK.9-12.9.1.12 B.3}</i> Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings. • <i>{WORK.9-12.9.2.12 F.4}</i> Practice the safe use of tools and equipment.

	<ul style="list-style-type: none"> • <i>{WORK.9-12.9.2.12 F.5}</i> Implement safety procedures in the classroom and workplace, where appropriate.
Materials and Resources	<ul style="list-style-type: none"> • Tape Measure, Try Square, Sand Paper, Vise, Quick Clamps • Band Saw, Belt Disc Sander, Drill Press, Recip Drum sander • Miter Guide, Heavy Duty Wood Clamps, Wood Chisel, Hammer • Lathe, Portable Belt Sander, Scroll Saw, Hand Drill • Planer, Miter Saw, Table Saw, Palm Sander • Wood Glue, Wood Stain, Polyurethane
Notes	<ul style="list-style-type: none"> • Wood Magazine Plans for each student to choose