

**FREEHOLD REGIONAL HIGH SCHOOL DISTRICT**

**OFFICE OF CURRICULUM AND INSTRUCTION**

**TECHNOLOGY EDUCATION DEPARTMENT**

# **INTRODUCTION TO WOODWORKING**

Grade Level: 9-12

Credits: 5

**BOARD OF EDUCATION ADOPTION DATE:**

**AUGUST 30, 2010**

[SUPPORTING RESOURCES AVAILABLE IN DISTRICT RESOURCE SHARING](#)

APPENDIX A: ACCOMMODATIONS AND MODIFICATIONS

APPENDIX B: ASSESSMENT EVIDENCE

APPENDIX C: INTERDISCIPLINARY CONNECTIONS

# **FREEHOLD REGIONAL HIGH SCHOOL DISTRICT**

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## **Course Philosophy**

The Introduction to Woodworking course is an introductory hands-on course dealing with construction methods, materials, and safety regulations. All skills and techniques acquired within the Introduction to Woodworking course are considered by industry professionals to be the fundamental knowledge for students pursuing advanced woodworking course work. The 21<sup>st</sup> century work force skills in presentation, communication, mathematics, science, leadership, collaboration, and problem solving are emphasized and assessed in Introduction to Woodworking course work.

## **Course Description**

Introduction to Woodworking is designed as a basic exploratory woodworking course. Students learn craftsmanship through established industry standards including the latest technological techniques. The students experience the use of all available hand tools in addition to basic machinery and operations.

The properties of wood, construction methods, and finishing procedures are the fundamental units of study. All technical skills, woodworking techniques, consumer knowledge, environmentally sound practices, and safety regulations act as the foundational basis for post-secondary education and/or employment.

**Freehold Regional High School District  
Curriculum Map**

**Introduction to Woodworking**

Relevant Standards <sup>1</sup>	Enduring Understandings	Essential Questions	Assessments		
			Diagnostic (before)	Formative (during)	Summative (after)
9.4.12.B.40-46, 9.2.12.F.1 -5, 9.4.12.M.33-43, 9.4.12.M(6).1 – 5	Following safety procedures and using personal protection equipment will reduce the risk of injury.	What are the safety concerns to be considered when working in a lab setting in school or on the job? What protection can be used in a laboratory environment? What should be part of an effective safety program? What characteristics are essential to a functional team? What are the benefits of working in a team environment as opposed to individually?	Pretest Student Survey Oral Questions/ Discussion Anticipatory Set Questions Signed Safety Contracts.	Journals Quizzes Written Assignments Oral Presentations Observations Participatory Rubrics Role Play Research Assignments Interviews	Projects Mid Terms Final Exam
8.1.12.A.1, 8.2.12.A.1, 8.2.12.B.1-3, 8.2.12.C.2-3, 9.4.12.B(1).9, 9.4.12.B.18,20-23 9.4.12.B.72 – 75	Planning is an essential component to design, construction, material usage, and efficiency.	Why is planning an important aspect to project work? How does planning influence efficiency? Why is planning vital to material usage and construction? How is the design of a product influenced by planning?	Discussion Anticipatory set questions	Bill of materials Plan of Procedure Sheet Goods Layout Model demonstrated behavior	Final project
8.2.12.F2	The basis for all woodworking materials are found in nature.	What are forest materials? How are forest materials produced? What are the methods of drying lumber? What is the difference between nominal and actual size specifications? Why specific forest products are more suited to certain applications than others? Why forest products are considered a sustained industry?	Pretest Discussion Anticipatory set questions	Quizzes Research	Final Project Final Exam
9.4.12.B(2).17, 9.4.B.59,61,64,75, 9.4.12.C.46, 9.4.12.M(3).3 – 9,	Tools and machinery have specific functions and methods for usage.	What hand tools and machines are used for cutting? What hand tools and machines are used for drilling and boring? What hand tools and machines are used for planing and jointing? What hand tools and machines are used for measuring and drawing? What hand tools and machines are used for sanding?	Pre written assessment	Performance test Safety assessment Model demonstrated task	Final project Final written test Final exam

Relevant Standards <sup>1</sup>	Enduring Understandings	Essential Questions	Assessments		
			Diagnostic (before)	Formative (during)	Summative (after)
9.4.12.B(2).17, 9.4.12.M(1).7, 9.4.12.M(2).3 – 4,	Wood products use a variety of joinery techniques and fastening methods in their assembly.	What are joinery techniques? What types of mechanical fasteners are used in wood product construction? What types of glues and adhesives are used in wood product construction?	Pre written assessment Discussion	Quizzes Research Performance test Model Demonstrated behavior	Final Project Final Exam
9.4.12.B(2).17, 9.4.12.M(2).3 – 4,	The type of finish on a wood product will determine its durability and application.	What types of finishes would be used for an interior type project? What type of finishes would be used for a project exposed to the weather outside? What are the types of solvents used in the various finishes? Explain the techniques for applying finish to a product. What are the procedures for cleaning up after applying finish to a project?	Discussion Pre written assessment Student survey Anticipatory set questions	Model demonstrated behavior Quizzes Performance test	Final Project Final Exam
9.4.12.B(2).17, 9.4.12.M(1).7, 9.4.12.M(2).3 – 4,	Methods of construction and assembly determine the difference in strength and quality.	What are the methods of construction and assembly for doors? What are the methods of construction and assembly for table tops? What are the methods of construction and assembly for a wall display cabinet?	Discussion Student Survey Pre written assessment Anticipatory set questions	Model demonstrated behavior Quizzes Performance test	Final Project

**Freehold Regional High School District  
Course Proficiencies and Pacing**

**Introduction to Woodworking**

<b>Unit Title</b>	<b>Unit Understandings and Goals</b>	<b>Recommended Duration</b>
Unit #1: Safety	<p>Following safety procedures and using personal protective equipment will reduce the risk of injury.</p> <ul style="list-style-type: none"> <li>• Students will be able to identify and implement proper safety in a work environment, including working as a team.</li> </ul>	3 weeks
Unit #2: Materials	<p>The basis for all woodworking materials are found in nature.</p> <ul style="list-style-type: none"> <li>• Students will be able to identify and select appropriate materials for their desired product.</li> </ul>	3 weeks
Unit #3: Planning	<p>Planning is an essential component to design, construction, material usage, and efficiency.</p> <ul style="list-style-type: none"> <li>• Students will be able to successfully complete a bill of materials, a plan of procedure and select appropriate materials for each of their projects.</li> </ul>	2 weeks
Unit #4: Hand tools	<p>Tools and machinery have specific functions and methods for usage.</p> <ul style="list-style-type: none"> <li>• Students will be able to properly select and utilize the appropriate hand tools for the necessary task.</li> </ul>	8 weeks
Unit #5: Joinery/Fasteners	<p>Wood products use a variety of joinery techniques and fastening methods in their assembly</p> <ul style="list-style-type: none"> <li>• Students will be able to identify and utilize a variety of joinery techniques using a variety of mechanical fasteners.</li> </ul>	3 weeks
Unit #6: Power Tools/ Machinery	<p>Tools and machinery have specific functions and methods for usage.</p> <ul style="list-style-type: none"> <li>• Students will be able to properly select and safely utilize the appropriate portable power tool or machine for the task at hand.</li> </ul>	9 weeks
Unit #7: Assembly	<p>Methods of construction and assembly determine the difference in strength and quality.</p> <ul style="list-style-type: none"> <li>• Students will be able to properly assemble their pieces into a project using appropriate methodology.</li> </ul>	3 weeks
Unit #8: Finishing	<p>The type of finish on a wood product will determine its durability and application.</p> <ul style="list-style-type: none"> <li>• Students will be able to properly select, apply, and cleanup stains and finishes required enhancing and protecting their project according to its intended use.</li> </ul>	3 weeks

**Freehold Regional High School District  
Introduction to Woodworking**

**Unit #1: Safety, Class and Self Management, Class Orientation**

**Enduring Understanding:** Following safety procedures and using personal protection equipment will reduce the risk of injury.

**Essential Questions:** What are the safety concerns to be considered when working in a lab setting in school or on the job?  
 What protection can be used in a laboratory environment?  
 What should be part of an effective safety program?  
 What characteristics are essential to a functional team?  
 What are the benefits of working in a team environment as opposed to individually?

**Unit Goal:** Students will be able to identify and implement proper safety in a work environment, including working as a team.

**Duration of Unit: 3 weeks**

**NJCCS:** 9.4.12.B.40-46, 9.2.12.F.1 -5, 9.4.12.M.33-43, 9.4.12.M (6).1 – 5

<b>Guiding / Topical Questions</b>	<b>Content, Themes, Concepts, and Skills</b>	<b>Instructional Resources and Materials</b>	<b>Teaching Strategies</b>	<b>Assessment Strategies</b>
What are the governing bodies that set safety laws?  What is personal protective equipment?  What is chemical safety?  What is fire safety?	Safe use of tools, equipment, and machinery.  Safety signage  Maximizing personal productivity	Lecture  PowerPoint presentation on classroom and occupational safety procedures, PPE, and hazardous signage.  Research  Computer, projector with screen  School emergency guidelines packet  MSDS safety sheet	Lecture and class discussion.  PowerPoint presentation on classroom and occupational safety procedures, PPE, and hazardous signage  OSHA virtual field trip Practice safe use of tools, equipment, and machinery  Implement safety procedures in the classroom.  Identify safety signage and the hazard the symbol is warning against.	Safety Test  Signed safety contracts.  Student self-assessment of safety procedures  Performance test to include safety scenarios and emergency situations  Create safety posters to be hung around classroom
What are some key characteristics of teamwork?  What are the advantages of working in groups?	Model methods for maximizing personal productivity in a safe environment.	Notes from previous lesson.	Model methods for maximizing personal productivity in a safe environment.  Small group project competition	Informal, ongoing, observations of students following safety procedures

**Suggestions on how to differentiate in this unit:**

- Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.
- A wide variety of assessments and strategies complement the individual learning experience.
- A hands-on approach to assignments and projects is recommended as the most effective method of learning and assessment.
- Provide time for revision of work when students show need.
- Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.

**Freehold Regional High School District  
Introduction to Woodworking**

**Unit #2: Materials**

**Enduring Understandings:** The basis for all woodworking materials are found in nature.

- Essential Questions:**
- What are forest materials?
  - How are forest materials produced?
  - What are the methods of drying lumber?
  - What is the difference between nominal and actual size specifications?
  - What are engineered lumber products?
  - Why specific forest products are more suited to certain applications than others?
  - Why forest products are considered a sustained industry?

**Unit Goal:** Students will be able to identify and select appropriate materials for their desired product.

**Duration of Unit:** 3 weeks

**NJCCS:** 8.2.12.F2

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
What are engineered lumber products?  How is particle board produced?  How is cabinet grade plywood produced and graded?	Applications of various sheet goods  Characteristics used in lumber and plywood grading systems  The use of engineered lumber products	Lecture  Pieces of lumber, plywood, particleboard, Homasote, Masonite etc  Streaming video clips, virtual fieldtrip  Computer, projector with screen	Lecture and class discussion Demonstration Virtual fieldtrip to lumber mill, forest research lab  Streaming video of process of creating sheet goods, veneers, and lumber from logs.  Analyze applications of various sheet goods	Student self assessment  Written test  Mid term exam  Final exam  Performance test of material selection for desired purpose
How is lumber graded for a particular use?  How do we identify different types of lumber?  What is the process of creating usable lumber from logs?	Lumber production  Hardwoods and softwoods  Lumber and plywood grading systems		Identify characteristics used in lumber and plywood grading systems  Identify and analyze the use of engineered lumber products to their individual projects  Identify process of lumber production  Differentiate between hardwoods and softwoods  Identify characteristics used in lumber and plywood grading systems	Final project

**Suggestions on how to differentiate in this unit:**

- Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.
- A wide variety of assessments and strategies complement the individual learning experience.
- A hands-on approach to assignments and projects is recommended as the most effective method of learning.
- Provide time for revision of work when students show need.
- Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.



**Freehold Regional High School District**  
**Introduction to Woodworking**  
**Unit #3: Planning**

**Enduring Understandings:** Planning is an essential component to design, construction, material usage, and efficiency.

**Essential Questions:** Why is planning an important aspect to project work?  
 How does planning influence efficiency?  
 Why is planning vital to material usage and construction?  
 How is the design of a product influenced by planning?

**Unit Goal:** Students will be able to successfully complete a bill of materials, a plan of procedure, and select appropriate materials for their project.

**Duration of Unit: 2 weeks**

**NJCCS:** 8.1.12.A.1, 8.2.12.A.1, 8.2.12.B.1-3, 8.2.12.C.2-3, 9.4.12.B (1).9, 9.4.12.B.18,20-23, 9.4.12.B.72 – 75

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
How does the size of a project influence its design and construction?  When planning the project, does the size influence the choice of materials being used?  How does planning the steps necessary for completion of the project help maintain efficiency?	Measurement of objects linearly, 2 dimensionally and 3 dimensionally  Planning the steps for completion of the project.  Working drawing	Lecture  Bill of materials sheet  Plan of Procedure sheet(s)  Sheet stock optimizing paper  Calculator, ruler, measurement sheets	Lecture  Class discussion  Demonstration  Large group guided instruction on form usage  Station and group work on Measurement of objects linearly, 2 dimensionally and 3 dimensionally  Reading a working drawing to attain necessary information for forms	Student self assessment  Unit test  Performance test of material selection for desired purpose  Plan of procedure, Bill of Material, and sheet stock optimization forms  Final project

**Suggestions on how to differentiate in this unit:**

- Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.
- A wide variety of assessments and strategies complement the individual learning experience.
- A hands-on approach to assignments and projects is recommended as the most effective method of learning.
- Provide time for revision of work when students show need.
- Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.

**Freehold Regional High School District**  
**Introduction to Woodworking**  
**Unit #4: Hand Tools**

**Enduring Understandings:** Tools and machinery have specific functions and methods for usage

- Essential Questions:**
- What hand tools are used for cutting?
  - What hand tools are used for drilling and boring?
  - What hand tools are used for planing and jointing?
  - What hand tools are used for measuring and drawing?
  - What hand tools are used for sanding?

**Unit Goal:** Students will be able to properly select and utilize the appropriate hand tools for the necessary task.

**Duration of Unit: 8 weeks**

**NJCCS:** 9.4.12.B (2).17, 9.4.B.59, 61, 64, 75, 9.4.12.C.46, 9.4.12.M (3).3 – 9

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
Which tools are used for layout and measurement work?	<p>Safe use of tools</p> <p>Adjust tool when necessary for higher quality work</p>	<p>Lecture/ Demonstration</p> <p>Various tools and scrap lumber for demonstration of techniques</p> <p>Current textbook</p> <p>Streaming video clips</p> <p>T square, Try square, speed square, framing square, bench ruler, tape measure, marking gauge, pencil, awl</p> <p>Computer, projector with screen</p>	<p>Lecture and class discussion</p> <p>Reading assignment on hand tool usage and safety</p> <p>Practice safe use of tools</p> <p>Demonstration of proper usage of hand tools.</p> <p>Models of various styles of hand tools from pioneer days to modern day hand tools</p> <p>Select appropriate tool for task at hand Including: variety of squares, variety of planes, variety of saws, drills and bits, and variety of sanders.</p> <p>Streaming video</p> <p>Virtual fieldtrip to Mercer Museum</p>	<p>Student self assessment</p> <p>Safety Test on hand tool usage</p> <p>Performance test of material selection for desired purpose</p> <p>Performance test on tool selection and proper usage</p> <p>Safety rules for hand tool usage in notebook</p> <p>Final project</p>

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
Which hand tools are used for planing the edges and ends of lumber?	<p>Sharpening of single edge tools</p> <p>Safe use of tools</p> <p>Select appropriate tool for task at hand</p> <p>Adjust tool when necessary for higher quality work</p>	<p>Grinding wheel, sharpening stones, oil, rags</p> <p>Block plane, bench plane, jack plane, fore plane, jointer plane</p> <p>Lecture/ Demonstration</p> <p>Scrap lumber for demonstration of techniques</p> <p>Current textbook</p> <p>Computer, projector with screen</p> <p>Streaming video clips</p>	<p>Lecture and class discussion</p> <p>Reading assignment on hand tool usage and safety</p> <p>Practice safe use of tools</p> <p>Demonstration of proper usage of hand tools.</p> <p>Models of various styles of hand tools from pioneer days to modern day hand tools</p>	<p>Student self assessment</p> <p>Safety Test on hand tool usage</p> <p>Performance test of material selection for desired purpose</p> <p>Performance test on tool selection and proper usage</p> <p>Safety rules for hand tool usage in notebook</p> <p>Final project</p>
Which hand tools are used for cutting lumber?	<p>Safe use of tools</p> <p>Select appropriate tool for task at hand</p> <p>Adjust tool when necessary for higher quality work</p>	<p>Rip saw, cross cut saw, back saw, coping saw, key hole saw</p> <p>Lecture/ Demonstration</p> <p>Scrap lumber for demonstration of techniques</p> <p>Current textbook</p> <p>Computer, projector with screen</p> <p>Streaming video clips</p>	<p>Select appropriate tool for task at hand</p> <p>Including: variety of squares, variety of planes, variety of saws, drills and bits, and variety of sanders.</p> <p>Streaming video</p> <p>Virtual fieldtrip to Mercer Museum</p>	
Which hand tools are used for drilling and boring holes in stock?	<p>Practice safe use of tools</p> <p>Select appropriate tool for task at hand</p> <p>Adjust tool when necessary for higher quality work</p>	<p>Auger bit and brace, hand drill and bits, Gimlet</p> <p>Lecture/ Demonstration</p> <p>Scrap lumber for demonstration of techniques</p> <p>Current textbook</p> <p>Computer, projector with screen</p> <p>Streaming video clips</p>		

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
Which hand tool is utilized for sanding the cut and planed pieces?	<p>Practice safe use of tools</p> <p>Select appropriate tool for task at hand</p> <p>Adjust tool when necessary for higher quality work</p>	<p>Sanding block, sandpaper</p> <p>Lecture/ Demonstration</p> <p>Scrap lumber for demonstration of techniques</p> <p>Current textbook</p> <p>Computer, projector with screen</p> <p>Streaming video clips</p>	<p>Lecture and class discussion</p> <p>Reading assignment on hand tool usage and safety</p> <p>Practice safe use of tools</p> <p>Demonstration of proper usage of hand tools.</p> <p>Models of various styles of hand tools from pioneer days to modern day hand tools</p> <p>Select appropriate tool for task at hand Including: variety of squares, variety of planes, variety of saws, drills and bits, and variety of sanders.</p> <p>Streaming video</p> <p>Virtual fieldtrip to Mercer Museum</p>	<p>Student self assessment</p> <p>Safety Test on hand tool usage</p> <p>Performance test of material selection for desired purpose</p> <p>Performance test on tool selection and proper usage</p> <p>Safety rules for hand tool usage in notebook</p> <p>Final project</p>
<p><b>Suggestions on how to differentiate in this unit:</b></p> <ul style="list-style-type: none"> <li>• Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods</li> <li>• A wide variety of assessments and strategies complement the individual learning experience.</li> <li>• A hands-on approach to assignments and projects is recommended as the most effective method of learning</li> <li>• Provide time for revision of work when students show need.</li> <li>• Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit</li> </ul>				

**Freehold Regional High School District**  
**Introduction to Woodworking**  
**Unit #5: Joinery / Fasteners**

**Enduring Understandings:** Wood products use a variety of joinery techniques and fastening methods in their assembly.

**Essential Questions:** What are joinery techniques?

What types of mechanical fasteners are used in wood product construction?

What types of glues and adhesives are used in wood product construction?

**Unit Goal:** Students will be able to identify and utilize a variety of joinery techniques using a variety of mechanical fasteners.

**Duration of Unit:** 3 weeks

**NJCCS:** 9.4.12.B (2).17, 9.4.12.M (1).7, 9.4.12.M (2).3 – 4,

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
What are joinery techniques?	Utilize appropriate joinery depending upon the application.	Lecture  Sample pieces of various joints butt joint, lap joint, dado joint, rabbet joint, miter joint etc  Streaming video clips  Computer, projector with screen	Lecture and class discussion  Demonstration of proper usage, application, and capabilities of various fasteners.  Virtual fieldtrip to cabinet shop to show application and creation of various joinery techniques	Student self assessment  Unit test  Written test  Performance test of material selection for desired purpose  Mid term exam
What types of glues and adhesives are used in wood product construction?	Select and utilize appropriate glues and adhesive depending upon application	Lecture  Sample pieces of various adhesives wood glue, resorcinol glue, polyurethane adhesive, contact cement, hide glue  Streaming video clips  Computer, projector with screen	Streaming video of process of creating and using glues, adhesives and mechanical fasteners to connect project pieces  Utilize appropriate joinery depending upon the application.  Select and utilize appropriate glues and adhesives depending upon application	Performance test of proper joinery technique  Performance test of appropriate glue and adhesive selection and application  Final exam
What types of mechanical fasteners are used in wood product construction?	Select and utilize necessary mechanical fasteners depending upon the application	Lecture  Examples of various mechanical fasteners nails, screws, dowels,  Streaming video clips  Computer, projector with screen	Select and utilize necessary mechanical fasteners depending upon the application	Final project

**Suggestions on how to differentiate in this unit:**

- Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.
- A wide variety of assessments and strategies complement the individual learning experience.
- A hands-on approach to assignments and projects is recommended as the most effective method of learning.
- Provide time for revision of work when students show need.
- Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.

**Freehold Regional High School District**  
**Introduction to Woodworking**  
**Unit #6: Power Tools / Machinery**

**Enduring Understandings:** Tools and machinery have specific functions and methods for usage.

- Essential Questions:**
- What machines are used for cutting?
  - What machines are used for drilling and boring?
  - What portable power tools and machines are used for routing and shaping?
  - What machines are used for planing and jointing?
  - What machines are used for sanding?

**Unit Goal:** Students will be able to properly select and safely utilize the appropriate portable power tool or machine for the task at hand.

**Duration of Unit: 9 weeks**

**NJCCS:** 9.4.12.B (2).17, 9.4.B.59, 61, 64, 75, 9.4.12.C.46, 9.4.12.M (3).3 – 9

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
Which portable power tools and machines are used for planing the edges, ends and faces of lumber?	Safe use of tools and machines  Machinery purpose Jointer Surfacer  Adjust tool/machine when necessary for higher quality work	Machinery and scrap wood to demonstrate techniques  Portable power tools and scrap wood to demonstrate techniques  Jointer, surfacer  Current textbook  Computer, projector with screen  Streaming video clips	Lecture and class discussion  Reading assignment on portable power tool and machinery usage and safety  Demonstration of various power tools that utilize cutting, drilling, boring, routing, shaping, planing, jointing, and sanding.  Virtual fieldtrip	Student self assessment  Safety test  Performance test of machine/tool selection for desired purpose  Performance test of safe use and operation of tools and machinery
Which portable power tools and machines are used for cutting lumber?	Jig saw, band saw, table saw, radial arm saw  Battery drill, corded drill, drill press, and bits  Router and cutters	Machinery and scrap wood to demonstrate techniques  Portable power tools and scrap wood to demonstrate techniques  Jig saw, band saw, table saw, radial arm saw  Current textbook  Computer, projector with screen  Streaming video clips	Streaming video  Practice safe use of tools and machines  Select appropriate tool/ machine for task at hand  Utilize machinery for intended purpose	Final exam  Final project

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
Which portable power tools and machines are used for drilling and boring holes in stock?	Sanders	Machinery and scrap wood to demonstrate techniques  Portable power tools and scrap wood to demonstrate techniques  Battery drill, corded drill, drill press, and various drills and bits.  Current textbook  Computer, projector with screen  Streaming video clips	Lecture and class discussion  Reading assignment on portable power tool and machinery usage and safety  Demonstration of various power tools that utilize cutting, drilling, boring, routing, shaping, planing, jointing, and sanding.  Virtual fieldtrip  Streaming video	Student self assessment  Safety test  Performance test of machine/tool selection for desired purpose  Performance test of safe use and operation of tools and machinery  Final exam
Which portable power tools and machines are used for adding decorative shapes and curves to the edges and ends of stock?		Machinery and scrap wood to demonstrate techniques  Portable power tools and scrap wood to demonstrate techniques  Routers and assortment of cutters  Current textbook  Computer, projector with screen  Streaming video clips	Practice safe use of tools and machines  Select appropriate tool/ machine for task at hand  Utilize machinery for intended purpose	Final project
Which portable power tools and machines are utilized for sanding the cut and planed pieces?		Lecture  Machinery and scrap wood to demonstrate techniques  Portable power tools and scrap wood to demonstrate techniques  ¼ sheet sander, random orbit sander, spindle sander, belt sander, disc sander, portable belt sander and abrasive papers, discs, drums and belts  Current textbook  Computer, projector with screen  Streaming video clips		

**Suggestions on how to differentiate in this unit:**

- Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.
- A wide variety of assessments and strategies complement the individual learning experience.
- A hands-on approach to assignments and projects is recommended as the most effective method of learning.
- Provide time for revision of work when students show need.
- Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.

**Freehold Regional High School District**  
**Introduction to Woodworking**  
**Unit #7: Assembly**

**Enduring Understandings:** Methods of construction and assembly determine the difference in strength and quality.

**Essential Questions:** What are the methods of construction and assembly for doors?  
 What are the methods of construction and assembly for table tops?  
 What are the methods of construction and assembly for a wall display cabinet?

**Unit Goal:** Students will be able to properly assemble their pieces into a project using appropriate methodology.

**Duration of Unit: 3 weeks**

**NJCCS:** 9.4.12.B (2).17, 9.4.12.M (1).7, 9.4.12.M (2).3 – 4

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
What are the methods of construction and assembly for doors?	Rail and stile construction  Flat panel  Solid doors	Lecture notes  Student handout  Project pieces prepared for assembly  Current textbook  Dowelling jig, dowel pins, battery drill, glue, brush, wet paper towels, bar clamps or pipe clamps  Computer, projector with screen  Streaming video clips	Lecture and class discussion  Reading assignment on methodology of assembling a project  Demonstration of various assembly jobs using rail and stile construction and glued panel construction  Virtual fieldtrip – assembly floor of door/window making company  Streaming video clip	Student self assessment  Written unit test  Mid term exam  Performance test of material selection for desired purpose  Final exam  Final project
What are the methods of construction and assembly for table tops?	Glued panel construction  Plywood panel with solid edges  Tabletop clips and slots in rails  Screw blocks	Lecture notes  Student handout  Project pieces prepared for assembly  Current textbook  Dowelling jig, dowel pins, battery drill, glue, brush, wet paper towels, bar clamps or pipe clamps  Computer, projector with screen  Streaming video clips		



Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
What are the methods of construction and assembly for a wall display cabinet?	Rabbeted back Dadoed shelves Butt joint carcass Rail and stile doweled door frame	Lecture notes Student handout Project pieces prepared for assembly Current textbook Battery drill, drill bits, screws, glue, router and bit, straight edge, tablesaw, dowelling jig , dowel pins, clamps, hinges Computer, projector with screen Streaming video clips	Lecture and class discussion Reading assignment on methodology of assembling a project Demonstration of various assembly jobs using rail and stile construction and glued panel construction Virtual fieldtrip – assembly floor of door/window making company Streaming video clip	Student self assessment Written unit test Mid term exam Performance test of material selection for desired purpose Final exam Final project
<p><b>Suggestions on how to differentiate in this unit:</b></p> <ul style="list-style-type: none"> <li>• Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.</li> <li>• A wide variety of assessments and strategies complement the individual learning experience.</li> <li>• A hands-on approach to assignments and projects is recommended as the most effective method of learning.</li> <li>• Provide time for revision of work when students show need.</li> <li>• Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.</li> </ul>				

**Freehold Regional High School District**  
**Introduction to Woodworking**  
**Unit #8: Finishing**

**Enduring Understandings:** The type of finish on a wood product will determine its durability and application

- Essential Questions:** What types of finishes would be used for an interior type project?  
 What type of finishes would be used for a project exposed to the weather outside?  
 What are the types of solvents used in the various finishes?  
 Explain the techniques for applying finish to a product.  
 What are the procedures for cleaning up after applying finish to a project?

**Unit Goal:** Students will be able to properly select, apply, and cleanup stains and finishes required to enhance and to protect their project according to its intended purpose and use.

**Duration of Unit: 3 weeks**

**NJCCS:** 9.4.12.B (2).17, 9.4.12.M (2).3 – 4

Guiding / Topical Questions	Content, Themes, Concepts, and Skills	Instructional Resources and Materials	Teaching Strategies	Assessment Strategies
What types of finishes would be used for an interior type project?  What type of finishes would be used for a project exposed to the weather outside?  What are the types of solvents used in the various finishes?  Explain the techniques for applying finish to a product.  What are the procedures for cleaning up after applying finish to a project?	Application of stain, clear wood finish, polyurethane, varnish, French polish, paint.  Application and cleanup of finishing materials  Solvents  Safety	Lecture  Current textbook  Stain, rags, gloves  Clear Finish, brush, lacquer thinner  Paint, brush,  Wax, applicator and buffing cloth  Chemical safety handouts, finishing handouts including cleanup directions and application suggestions  Computer, projector with screen  Streaming video clips  MSDS safety sheets	Lecture and class discussion  Question and answer session  Reading assignment on finishes and finishing methodologies  Video clips  Demonstration of proper application of finishing products including stain clear wood finish, polyurethane, varnish, French polish, and paint  Selection of appropriate protective coating per the application	Student self assessment  Unit test  Performance test of material selection, usage and proper cleanup for desired purpose  Final exam  Final project

**Suggestions on how to differentiate in this unit:**

- Students with individual learning styles can be assisted through adjustments in assessment standards, one-to-one teacher support, additional testing time, and use of visual and auditory teaching methods.
- A wide variety of assessments and strategies complement the individual learning experience.
- A hands-on approach to assignments and projects is recommended as the most effective method of learning.
- Provide time for revision of work when students show need.
- Teachers may also provide ancillary materials and re-teaching assignments to students who require additional practice on the content, themes, concepts and skills of this unit.