Carpentry/Woods II

Grades 10-12

Prerequisite: Woods I

Credits: 5

Abstract

Cabinetry/Woodworking II is designed as a second level woodworking course. Students learn craftsmanship through established industry standards including the latest technological techniques. The students experience the use of all available hand and power 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.
# MONTVILLE TOWNSHIP PUBLIC SCHOOLS
## Carpentry/Woods II

<table>
<thead>
<tr>
<th>Unit of Study: (Timeframe)</th>
<th>Unit #1</th>
<th>Unit #2</th>
<th>Unit #3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shop Safety/Awareness</td>
<td>Furniture Styles</td>
<td>Designing and Re-designing Working Drawings</td>
</tr>
</tbody>
</table>

## STAGE 1: Desired Results

### Established Goals: NJSLS:


### Enduring Understandings:

1. Following safety procedures and using personal protection equipment will reduce the risk of injury.
2. There are a wide variety of furniture styles that reflect human needs.
3. Construction techniques varies according to furniture style.
4. Planning is an essential component in design, construction, material usage, and efficiency.

### Essential Questions:

1. What are the safety concerns to be considered when working in a lab setting in school or on the job?
2. What protection can be used in a laboratory environment?
3. What should be part of an effective safety program?
4. Why are there various styles of furniture and what are the characteristics of the various styles?
5. How does the style of the furniture influence the construction techniques required?
6. How does the choice of materials used influence the style of furniture?
7. Why is planning an important aspect to project work?
8. How does planning influence efficiency?
9. How does the design of a product influenced the planning?

## STAGE 2: Evidence

### Assessment & Evidence:

<table>
<thead>
<tr>
<th>Safety Test</th>
<th>Signed safety contracts. Student self-assessment of safety procedures Performance test to include safety scenarios and emergency situations</th>
<th>Student self-assessment Unit test Performance test of furniture style selection for desired appearance of individual project Exams, Midterm and Final project</th>
<th>Student self-assessment Unit test Performance test of material selection for desired purpose Plan of procedure, Bill of Material, and sheet stock optimization forms</th>
</tr>
</thead>
</table>

*Note: The table above includes the units of study for Carpentry/Woods II at Montville Township Public Schools.*
<table>
<thead>
<tr>
<th>Learning Activities/Content: (What is the core content of this unit? What performance tasks/activities will students do? What skills will students know?)</th>
<th>Create safety posters to be hung around classroom</th>
<th>Exams and Final project</th>
</tr>
</thead>
</table>
| ● Class discussion  
● Students will view a PowerPoint presentation on classroom and occupational safety procedures, 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 a given symbol is warning against.  
● Model methods for maximizing personal productivity in a safe environment.  
● Students will engage in small group project competition | ● Demonstration and class discussion  
● Large group guided instruction on form usage  
● Reading assignment from current text  
● PowerPoint presentation on furniture styles and periods  
● Create a digital photo montage presentation showing actual furniture pieces  
● Analyze and identify characteristics of Mission style, Shaker, Colonial, Art Deco, and Contemporary furniture by authentic displays and samples. | ● Demonstration and class discussion  
● Practice and station work for measuring of objects linearly, 2 dimensionally and 3 dimensionally  
● Read a working drawing to attain necessary information for forms and construction details  
● Plan the steps for completion of a project  
● Large group guided instruction  
● Large group discussion |

<table>
<thead>
<tr>
<th>Resources:</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| ● Teacher Demonstration and 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 | ● Teacher Demonstration and Lecture  
● Power point lesson  
● Digital photo montage  
● Computer, projector with screen  
● | ● Teacher Demonstration and Lecture  
● Bill of materials sheet  
● Plan of Procedure sheet(s)  
● Sheet stock optimizing paper  
● Calculator, ruler, measurement sheets  
● Video clips  
● Computer, projector, and screen |

| Interdisciplinary Connections: (e.g. writing, literacy, math, science, history, 21st century life and careers, technology) | Mathematics  
Measuring, arithmetic, and geometry.  
English Language Arts | Mathematics  
Measuring, arithmetic, and geometry.  
English Language Arts | Mathematics  
Measuring, arithmetic, and geometry.  
English Language Arts |
**MONTVILLE TOWNSHIP PUBLIC SCHOOLS**

<table>
<thead>
<tr>
<th>Writing/journaling and research.</th>
<th>Writing/journaling and research.</th>
<th>Writing/journaling and research.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>21st Century Life and Careers</strong></td>
<td><strong>21st Century Life and Careers</strong></td>
<td><strong>21st Century Life and Careers</strong></td>
</tr>
<tr>
<td>9.3.12.AC - CST.5 Apply practices and procedures required to maintain jobsite safety.</td>
<td>9.3.12.AC - DES.1 Justify design solutions through the use of research documentation and analysis of data.</td>
<td>9.3.12.AC - DES.2 Use effective communication skills and strategies.</td>
</tr>
<tr>
<td>9.3.12.AC - DES.1 Justify design solutions through the use of research documentation and analysis of data.</td>
<td>9.3.12.AC - DES.2 Use effective communication skills and strategies.</td>
<td>9.3.12.AC - DES.2 Use effective communication skills and strategies.</td>
</tr>
</tbody>
</table>

**Differentiation:** *(What type of differentiated instruction will be used for ELL, SP.ED. and G&T students?)*

- 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.

- 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.

- 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.
# MONTVILLE TOWNSHIP PUBLIC SCHOOLS

## Unit of Study:
(Timeframe)

<table>
<thead>
<tr>
<th>Unit #4</th>
<th>Unit #5</th>
<th>Unit #6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodworking</td>
<td>Tools and Machinery</td>
<td>Fastening and Joinery</td>
</tr>
</tbody>
</table>

## STAGE 1: Desired Results

### Established Goals:
**NJSLS:**
(Standards that are only applicable to the unit; include technology and 21st century standards)

<table>
<thead>
<tr>
<th>Technology</th>
<th>21st Century Life and Careers</th>
<th>21st Century Life and Careers</th>
</tr>
</thead>
</table>

### Enduring Understandings:
(What big ideas will students know?)

- The basis for all woodworking materials can be found in nature.
- Tools and machinery have specific functions and methods for usage.
- Wood products use a variety of joinery techniques and fastening methods in their assembly.
- Each technique has a specific application.

### Essential Questions:
(What questions are open-ended, debatable, global and spark critical thinking?)

1. What are forest materials?
2. How has the usage of materials changed over time?
1. Why do hand tools exist?
2. How have hand tools evolved to suit human needs?
1. Why do joinery techniques exist?
2. As human needs change, do joinery techniques also change?
3. What joinery techniques are used to create different geometric shapes?

## STAGE 2: Evidence

### Assessment & Evidence:
(Through what authentic performance tasks will students demonstrate the desired understandings?)
(By what criteria will performances of understanding be judged?)

<table>
<thead>
<tr>
<th>Assessment &amp; Evidence</th>
<th>Assessment &amp; Evidence</th>
<th>Assessment &amp; Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student self-assessment</td>
<td>Student self-assessment</td>
<td>Student self-assessment</td>
</tr>
<tr>
<td>Unit test</td>
<td>Unit test</td>
<td>Unit test</td>
</tr>
<tr>
<td>Performance test of material selection for desired purpose</td>
<td>Performance test of material selection for desired purpose</td>
<td>Performance test of material selection for desired purpose</td>
</tr>
<tr>
<td>Final project</td>
<td>Performance test on tool selection and proper usage</td>
<td>Performance test of proper joinery technique</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>Safety rules for hand tool usage in notebook</td>
<td>Performance test of appropriate glue and adhesive selection</td>
</tr>
<tr>
<td>Final exam</td>
<td>Final project</td>
<td>Final project</td>
</tr>
<tr>
<td></td>
<td>Final project</td>
<td>Final exam</td>
</tr>
<tr>
<td>Learning</td>
<td>Activities/Content:</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---------------------</td>
<td></td>
</tr>
<tr>
<td>● Class discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Reading assignment from current textbook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Students will participate in a virtual field trip to lumber harvesting operation, lumber mill, forest research lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Observe video of process of creating sheet goods, veneers, and lumber from logs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Analyze the applications of various sheet goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Identify characteristics used in lumber and plywood grading systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Streaming video of the production of engineered lumber products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● What are engineered lumber products?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● What is the difference between nominal and actual size specifications?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● How are forests materials harvested and processed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Teacher Demonstration and Lecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● PowerPoint presentation on</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning</th>
<th>Activities/Content:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Class discussion</td>
<td></td>
</tr>
<tr>
<td>● Reading assignment on hand tool usage and safety</td>
<td></td>
</tr>
<tr>
<td>● Demonstration</td>
<td></td>
</tr>
<tr>
<td>● Streaming video: Practice safe use of tools</td>
<td></td>
</tr>
<tr>
<td>● Select appropriate tool for task at hand</td>
<td></td>
</tr>
<tr>
<td>● Adjust tool when necessary for higher quality work</td>
<td></td>
</tr>
<tr>
<td>● Demonstrate an understanding of the following:</td>
<td></td>
</tr>
<tr>
<td>○ What hand tools are used in general woodworking?</td>
<td></td>
</tr>
<tr>
<td>○ What hand tools are used for cutting?</td>
<td></td>
</tr>
<tr>
<td>○ What hand tools are used for drilling and boring?</td>
<td></td>
</tr>
<tr>
<td>○ What hand tools are used for planning and jointing?</td>
<td></td>
</tr>
<tr>
<td>○ What hand tools are used for measuring and drawing?</td>
<td></td>
</tr>
<tr>
<td>○ What hand tools are used for sanding?</td>
<td></td>
</tr>
<tr>
<td>Resources:</td>
<td></td>
</tr>
<tr>
<td>● Teacher Demonstration and Lecture</td>
<td></td>
</tr>
<tr>
<td>● Power point lesson</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning</th>
<th>Activities/Content:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Class discussion</td>
<td></td>
</tr>
<tr>
<td>● Reading assignment</td>
<td></td>
</tr>
<tr>
<td>● Teacher and student demonstration</td>
<td></td>
</tr>
<tr>
<td>● Fastening and Joinery Quiz</td>
<td></td>
</tr>
<tr>
<td>● Virtual field trip to cabinet shop to show application and creation of various joinery techniques</td>
<td></td>
</tr>
<tr>
<td>● Students will demonstrate the ability to use:</td>
<td></td>
</tr>
<tr>
<td>○ Butt joint</td>
<td></td>
</tr>
<tr>
<td>○ Rabbet joint</td>
<td></td>
</tr>
<tr>
<td>○ Dado joint</td>
<td></td>
</tr>
<tr>
<td>○ Box or finger joint</td>
<td></td>
</tr>
<tr>
<td>○ Dovetail joint</td>
<td></td>
</tr>
<tr>
<td>● Streaming video of process of creating and using glues, adhesives and mechanical fasteners to connect project pieces</td>
<td></td>
</tr>
<tr>
<td>● Identify what joinery techniques are used to connect lumber products together?</td>
<td></td>
</tr>
<tr>
<td>● Identify what types of mechanical fasteners are used in wood product construction.</td>
<td></td>
</tr>
<tr>
<td>● Determine what types of glues and adhesives are used in wood product construction for interior as well as exterior applications.</td>
<td></td>
</tr>
<tr>
<td>Resources:</td>
<td></td>
</tr>
<tr>
<td>● Teacher Demonstration and Lecture</td>
<td></td>
</tr>
<tr>
<td>● Bill of materials sheet</td>
<td></td>
</tr>
</tbody>
</table>
## Interdisciplinary Connections:
(e.g. writing, literacy, math, science, history, 21st century life and careers, technology)

### Mathematics
Measuring, arithmetic, and geometry.

### English Language Arts
Writing/journaling and research.

### 21st Century Life and Careers

- **9.3.12.AC - CST.5** Apply practices and procedures required to maintain jobsite safety.
- **9.3.12.AC - DES.1** Justify design solutions through the use of research documentation and analysis of data.
- **9.3.12.AC - DES.2** Use effective communication skills and strategies.

### Differentiation:

- 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.

- 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.

- 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.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>● Provide time for revision of work when students show need</td>
<td>● Provide time for revision of work when students show need</td>
<td>● Provide time for revision of work when students show need</td>
</tr>
<tr>
<td>● 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.</td>
<td>● 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.</td>
<td>● 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.</td>
</tr>
</tbody>
</table>