

# **Woodworking**

## **COURSE OF STUDY**

Technology Department

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This course is designed to increase technological literacy through the development of knowledge in woodworking. Students will learn to apply proper procedure and techniques to develop and build wood working projects. Problem solving and the systematic approach to solving these problems are emphasized. This course will teach and reinforce science, history, math, communication, and hands-on skills.

### **1. Mechanical Drawing and Measuring**

Comprehend and develop free hand sketching techniques. Interpret and apply orthographic orientation, interpretation and application of measuring skills.

(Activities - orthographic and isometric drawings, various measuring activities)

**2. Wood Science and Processing.** Students will learn about the origin, types and characteristics of wood. Students will learn to identify multiple types of wood and manufactured wood products. Students will learn the steps of material processing from tree to finished project.

**3. Safety.** Students learn basic safe shop practices, along with specific tool and machine safety presentations, and demonstrations including written and manual student safety testing.

**4. Project Planning.** Students will learn to plan a project, calculate board foot and material costs, create a bill of materials, and create an order of operations before a project begins.

**5. Tool Identification and Knowledge.** Students will learn to identify use and care for hand tools. Students will build a small project using hand tools only.

**6. Machines and Power Tools.** Students will learn how to safely operate, adjust, maintain, and care for machines and blades in the shop.

**7. Joinery.** Students learn and identify multiple types of wood joints. Students will apply simple and advanced wood joinery to a project.

**8. Fasteners and Hardware.** Students will learn about the many types of fastening systems. Students will apply an appropriate fastening system to a project.

**9. Finishing Process.** Students will learn about the many finishing options available. Students will learn to prepare wood for the finishing process and apply a finish system to a project.

## **Course Expectations and Skills**

1. Keep and maintain a woodworking notebook.
2. Document daily activities in the notebook.
3. Practice proper attitude and safe discipline.
4. Develop an acceptable degree of craftsmanship in each activity.
5. Participate and contribute equally to a group generated projects and solutions.
6. Apply and analyze science and math related concepts of woodworking.
6. Prepare students to be successful in high school, higher level technology courses, trade school, and college.

## **Resources**

Text Books: “Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.



# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title:  <b>Woodworking</b>   <b>Basic Mechanical Drawing and Measuring</b></p>	<p>This course is designed to increase technological literacy through the development of knowledge in woodworking. Students will learn to apply proper procedure and techniques to develop and build wood working projects. Problem solving and the systematic approach to solving these problems are emphasized. This course will teach and reinforce science, history, math, communication, and hands-on skills.</p> <p>Unit Summary:</p> <ul style="list-style-type: none"> <li>• Class procedures and expectations</li> <li>• Measurement skills (fractional inches)</li> <li>• Basic sketching, orthographic and isometric drawing</li> </ul>
<p>Grade Level(s):            9-12</p>	
<p>Essential Question(s):</p> <ul style="list-style-type: none"> <li>• What are class procedures and rules?</li> <li>• How do we measure accurately?</li> <li>• How can we sketch an idea on paper?</li> <li>• How do we read a set of plans?</li> <li>• How do we make plans?</li> </ul>	<p>Enduring Understanding(s):</p> <ul style="list-style-type: none"> <li>• Identify and read divisions of a ruler and measure accurately to within 1/16 inch</li> <li>• Represent (draw) a 3D object with orthographic and isometric views following proper techniques</li> <li>• Understanding how to read and follow a set of plans through examination and application.</li> </ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

<u>Learning Target</u>	<u>NJCCCS or CCS</u>
<ol style="list-style-type: none"><li>1. Understand and observe classroom rules, requirements, emergency, and general procedures</li><li>2. Understand the differences in the fractional and metric systems of measurement.</li><li>3. Demonstrate accurate measurement skills (fractional inch) to read a ruler to 1/32<sup>nd</sup> of an inch.</li><li>4. Students will be able to identify and use multiple different measuring devices (rulers, tape measures, folding rules)</li><li>5. Identify and read ruler divisions and transfer divisions to construct a wooden ruler.</li><li>6. Demonstrate basic sketching, orthographic drawing, isometric drawing, and proper dimensioning of various 3D objects</li><li>7. Understand the location and relationship of the different drawing views</li><li>8. Read, examine, and make a bill of materials for a set of plans.</li></ol>	<ol style="list-style-type: none"><li>1. TEC.9-12</li><li>2. TEC.9-12.8.2.12</li><li>3. MA.K-12.4.5.C.4</li><li>4. SCI.8.5.3.8 B.A</li><li>5. MA.K-12.4.5.C.3</li><li>6. MA.K-12.4.5.F.1</li><li>7. WORK.K-12.9.1</li></ol>

### Inter-Disciplinary Connections:

MATH - Fractional inch, fractions, measurement, geometric principles.

English - An engineering notebook including written documentation of the technological design process

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

Classroom rules will be introduced and students will write them in their notebooks (see Classroom Safety Rules Sheet).

Students will be given a lesson on reading a ruler along with guided practice in using a ruler. Students will construct their own ruler from a paint stick

Students will use tape measures and folding rules to measure large and odd shaped objects and projects

Students will read and draw orthographic and isometric sketches( L Block, C block, T block, Step Block)

Students will analyze a real set of woodworking plans and make a bill of materials for it.

#### **Materials and supplies**

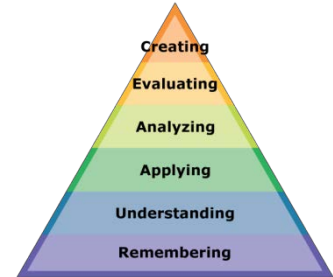
Rulers,  $\frac{1}{4}$  grid graph paper, isometric paper, wooden or plastic ruler slab, try squares, pencils, woodworking plans, orthographic and isometric block worksheets and examples.



## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.**

**IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

**Accurate use of measuring devices through teacher observation and answer checkpoints**

**Students will follow classroom procedures as provided in teacher lecture and written in woodworking notebook:**

**Direct teacher observation by teacher for safe working habit**

### **Accommodations/Modifications:**

**Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.**

**Allow students to get their work checked frequently as the assessments are build-ups.**

### **Summative Assessments:**

**Orthographic and Isometric drawings assignments will be graded for accuracy and neatness.**

**Creation of orthographic drawings from isometric will be grades for accuracy and neatness.**

**Bill of materials will be graded or neatness and accuracy**

**Measuring test**

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Orthographic and isometric sketching

Wooden ruler construction

Making of a Bill of materials

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: <b>Woodworking</b></p> <p><b>Wood Science and Processing</b></p>	<p>Unit Summary:</p> <ul style="list-style-type: none"><li>• This unit will give students the basic knowledge of the science of wood. Students will learn where wood come from, the various types and species of wood and their uses. Students will learn about the environmental impacts of wood as a renewable and non-renewable resource. Students will learn how the wood is processed from forest to furniture.</li></ul>
<p>Grade Level(s): 9-12</p>	
<p>Essential Question(s):</p> <ul style="list-style-type: none"><li>• What is wood?</li><li>• Where does wood come from?</li><li>• How does the diversity of wood affect its uses?</li><li>• How can wood be managed to maintain it as a renewable resource?</li></ul>	<p>Enduring Understanding(s):</p> <ul style="list-style-type: none"><li>• Students will understand what wood is, and which trees different types of wood come from.</li><li>• Students will understand the journey that wood makes as it is processed from a forest to a piece of furniture.</li><li>• Students will learn about the many types of wooden manufactured materials ( ex. Plywood, Masonite)</li><li>• Students will be aware of the environmental impacts of modern society and the management of forests, trees, and wood.</li></ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

<u>Learning Target</u>	<u>NJCCCS or CCS</u>
1. Students will be able to explain what wood is and the scientific structure of a tree.	1. TEC.9-12.8.2.12.G.1
2. Students will be able to identify the main different types of wood and the origin tree of that wood.	2. TEC.9-12.8.2.12.F.2
3. Students will be able to apply the proper type of wood to the intended best use.	3. TEC.9-12.8.2.12.B
4. Students will become environmentally aware of the threats to the global resources including wood and forests.	4. TEC.K-12.8.2.A.1
5. Students will be able to identify the order of operations in the system of wood extraction from a forest and to a finished product.	5. TEC.K-12.8.2.C.2
	6. SCI.8.5.4.8 A.A
	7. SCI.8.5.5.8 B.1
	8. SCI.8.5.5.8 B.2
	9. SCI.8.5.10.8 B.a
	10. LA.9-12.3.4

### Inter-Disciplinary Connections:

**MATH** - Fractional inch, measurements, geometric principles.

**English** - An woodworking notebook including written documentation of the technological design process

**Science** – Biological Plant structure, tree identification, physical properties analysis, environmental study

**Social Studies** – The socio-economic impact that forestry and modern woodworking have on global populations

### Students will engage with the following textbook

**“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.**

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

**Students will write notes, essays, and posters on where wood come from.**

### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

**Students will uncover content through lessons about the science of wood.**

**Students will read and analyze articles about the global impacts of forestry.**

**Students will watch videos about the extraction of lumber from a forest.**

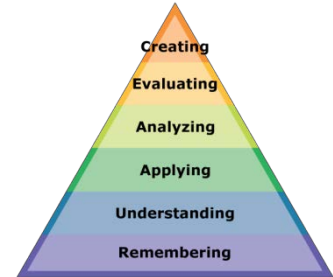
**Students will get to feel and see the different types of wood and the corresponding trees.**

#### **Materials and supplies**

**Wood examples, tree pictures and examples, lumberjack videos, wood identification poster board, worksheets with tree part identification.**

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.  
IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

Engagement in lessons after reading assignments.  
Analytical writing about the life and journey of a piece of wood from tree to furniture.  
Notes on videos and lessons

Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).

### **Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

### **Summative Assessments:**

Wood Identification test  
Tree part identification test

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Students must apply wood knowledge to a real piece of wood or branch.

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.



# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: <b>Woodworking</b></p> <p><b>Safety</b></p>	<p><b>Unit Summary:</b> This unit is designed to facilitate the attitude and maturity necessary in students for shop safety. Students will learn all elements of safety including</p> <ul style="list-style-type: none"><li>• <b>Shop procedures and expectations</b></li><li>• <b>General Shop Safety</b></li><li>• <b>Hand tool safety</b></li><li>• <b>Machine safety</b></li></ul>
<p>Grade Level(s): 9-12</p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>What are class/shop procedures and rules?</b></li><li>• <b>Why do people get injured?</b></li><li>• <b>How can one avoid hand tool injury?</b></li><li>• <b>How do you avoid machine injury?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>It is important to be aware of and follow organizational and safety procedures.</b></li><li>• <b>The main causes of injury in general and how to avoid these causes</b></li><li>• <b>Processes and techniques to keep safe with hand tools</b></li><li>• <b>Processes and techniques to keep safe with individual power tools.</b></li><li>• <b>Responsibility and Awareness</b></li></ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
1. Understand and observe classroom rules, requirements, emergency, and general procedures	1. <i>TEC.9-12</i> 2. <i>WORK.9-12.9.2.12F3</i> 3. <i>WORK.9-12.9.2.12F4</i>
2. Students will learn to identify all the safety risks in any situation or procedure	4. <i>TEC.9-12.8.2.12</i> 5. <i>WORK.9-12.9.1.12</i> B.4.d
3. Students will learn shop safety rules.	6. <i>LA.9-12.3.4</i>
4. Students will learn to predict and prevent possible injury with hand tools by using proper focus, procedures, techniques and hand placement.	
5. Students will learn to predict and prevent possible injury with power tools and machines by using proper focus, procedures, techniques and hand placement.	
6. Students will learn the basics of fire safety and fire prevention.	

**Inter-Disciplinary Connections:**

**MATH - fractional inch, fractions, measurement, geometric principles, blade speeds (rpms)**

**English - A woodworking notebook including written documentation of the technological design process**

**Science – Physics behind tasks that cause injury**

**Social Studies –**

**Students will engage with the following textbook**

**“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.**

**Periodicals to include but not limited to newspapers, magazine articles, internet web pages.**

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

**Students will write safety notes**

### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

#### **DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

Lessons will be given on each safety topic. Students will take notes, watch videos, fill out accompanying worksheets and assignments. Students will participate in safety discussions and make predictions and think critically about safety. Students will be given live demonstrations on all proper procedures and techniques on all equipment. Students will be closely watched and guided through their first experiences on any procedure tool or machine. Students must take handwritten tests on each machine and procedure to demonstrate the knowledge required to perform the task. Students must also perform manipulative hands on test demonstrating proper procedures, focus, and techniques.

#### **Lessons include**

**General shop rules**

**Shop safety**

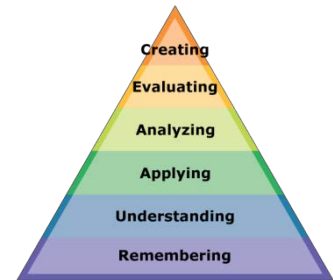
**Hand tool safety**

**Individual machine safety lessons on each machine available**

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.**

**IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

Safe work practice with hand tools as outlines in the lesson: direct teacher observation and guided practice.

Students will follow classroom procedures as provided in teacher lecture and written in woodworking notebook:

Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).

### **Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

### **Summative Assessments:**

Written safety tests and quizzes

Lesson worksheets

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Manipulative Safety tests  
Application of proper procedures, focus and techniques

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: <b>Woodworking</b></p> <p><b>Project Planning</b></p>	<p><b>Unit Summary:</b> Students will learn the process procedures and skills necessary to take an idea and turn it into a project in an efficient manner.</p> <ul style="list-style-type: none"><li>• <b>Planning a project – Making and finding plans</b></li><li>• <b>Making a Bill of Materials</b></li><li>• <b>Calculating Board foot, and material costs</b></li><li>• <b>Creating an Order of Operations</b></li><li>• <b>Wood selection and efficient layout</b></li></ul>
<p>Grade Level(s): 9-12</p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>How do we read a set of plans?</b></li><li>• <b>How do we make plans?</b></li><li>• <b>How do we know how much material to buy?</b></li><li>• <b>What do we start?</b></li><li>• <b>How can this be done efficiently?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>Planning a project is the first step to success</b></li><li>• <b>One must have plans on any project</b></li><li>• <b>Board foot is how wood is priced</b></li><li>• <b>Organization is key to efficiency</b></li><li>• <b>Efficient and calculated material usage is very important</b></li></ul>



## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
1. Students will learn about the many sources of plans.	1. TEC.9-12 2. TEC.9-12.8.2.12
2. Students will apply the mechanical drawing unit information to make plans	3. MA.K-12.4.5.C.4 4. TEC.9-12.8.2.12.G.1
3. Students will make a bill of materials	5. TEC.K-12.8.2.B.b
4. Students will calculate board feet and project cost	6. TEC.K-12.8.2.B.2
5. Students will create an order of operations to build on information from the wood science unit.	7. TEC.K-12.8.2.C.b
6. Students will solve the wood layout puzzle and find the most efficient way to layout a project on the selected material.	8. MA.K-12.4.5 9. WORK.9-12.9.2.12 B.2
	10. WORK.9-12.9.1.12 B.3
	11. WORK.9-12.9.1.12 B.4.

### Inter-Disciplinary Connections:

MATH - fractional inch, fractions, measurement, geometric principles, board foot calculations  
English - An woodworking notebook including written documentation of the technological design process  
Science -  
Social Studies –

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

**Students will write a Bill of Materials**

**Students will write an Order of Operations List**

### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

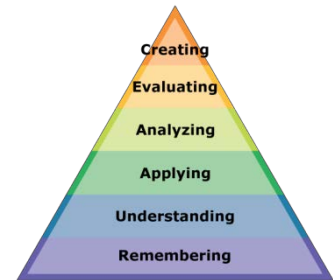
**How will students uncover content and build skills.**

**Students will be introduced to a drawing of a project or an actual project through a lesson**  
**Students will participate in a lesson while we make a Bill of materials for that project**  
**Students will then participate in calculating board ft. of each part and the entire project**  
**Students will calculate the cost of the project with 15 percent waste based on actual wood prices**  
**Students will then participate in a lesson while they make an actual Order of Operations**  
**Students will turn in this set of paperwork which is considered a full set of plans.**  
**Students will then make their own full set of plans on the project intended for their first project.**

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.**

**IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

Students will follow classroom procedures as provided in teacher lecture and written in woodworking notebook:

Accurate Calculations of Board foot

Accurate parts identification in the bill of materials

Review of wood processing unit in order of operation activity

Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).

### **Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

### **Summative Assessments:**

Bill of Materials will be graded for accuracy and neatness

Board foot calculations graded for accuracy

Order of Operations will be graded for neatness and accuracy

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Students will be able to apply the planning steps and process to make their own set of plans for a project.

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p><b>Course/Unit Title:</b> <b>Woodworking</b></p> <p><b>Tool Identification and knowledge</b></p>	<p><b>Unit Summary:</b></p> <ul style="list-style-type: none"><li>• <b>This unit is intended to increase the technological literacy of students through identification, proper application, care, and safety associated with hand tools.</b></li></ul>
<p><b>Grade Level(s):</b> 9-12</p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>Why is it important to use the right tool for the job?</b></li><li>• <b>What benefits to hand tools have over machine tools?</b></li><li>• <b>What are the most common hand tools?</b></li><li>• <b>What can be done to prevent injury with hand tools?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>It is important to be aware of and follow organizational and safety procedures.</b></li><li>• <b>Using each tool for its intended purpose is critical.</b></li><li>• <b>Hand tools are very useful and the proper care and maintenance of these tools is critical.</b></li><li>• <b>Proper procedures, techniques, and focus are necessary for safety.</b></li></ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

<u>Learning Target</u>	<u>NJCCCS or CCS</u>
<ol style="list-style-type: none"><li>1. Students will be able to identify the names and uses of the many hand tools available (Handsaws, Japanese handsaws, coping saws, chisels, striking tools, struck tools, planes and scrapers, files).</li><li>2. Students will be able to identify the names and uses of the many layout tools available (chalk line, level, marking devises, compass, marking gauge, punch, squares, sliding bevels, calipers).</li><li>3. Students will be able to apply proper procedures and techniques while safely using various hand tools.</li><li>4. Students will learn to maintain hand tools and properly care for and store them.</li><li>5. Students will be able to use hand tools to complete certain procedures to build a woodworking project.</li></ol>	<ol style="list-style-type: none"><li>1. TEC.9-12</li><li>2. TEC.9-12.8.2.12.B</li><li>3. TEC.K-12.8.2.B.a</li><li>4. TEC.K-12.8.2.B.b</li><li>5. TEC.K-12.8.2.C.b</li><li>6. MA.K-12.4.5.A.2</li><li>7. MA.K-12.4.5.C.3</li><li>8. WORK.9-12.9.1.12 B.5</li><li>9. WORK.9-12.9.2.12 F.4</li><li>10. WORK.9-12.9.2.12 B.3</li><li>11. LA.9-12.3.4</li></ol>

### Inter-Disciplinary Connections:

MATH - Fractional inch, fractions, measurement, geometric principles

English - A woodworking notebook including written documentation of the technological design process

Science – Physics of hand tools and cutting edges.

Social Studies – History of hand tools

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**



## **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

**Students will begin to learn tool identification with a tool scavenger hunt.**

**Students will then learn about the many different hand tools through a series of lessons; these lessons will include presentations, videos, demonstrations, examples, and stations where students will engage with the hand tools in a safe guided manner.**

**Lessons:**

**Edged tools**

**Saws and saw tooth science**

**Chisel use safety and sharpening**

**Planes, Scrapers, rasps, files**

**Layout tools**

**Striking and struck tools**

**Specialty tools**

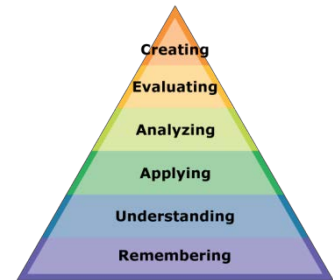
**Students will be tested on tool identification, use and care.**

**Students will apply this knowledge of hand tools by performing specific practice procedures with each tool. This can be accomplished through separate hand tool training stations. Students will ultimately build a project with hand tools.**

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.**

**IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

Safe work practice with hand tools as outlines in the lesson: direct teacher observation and guided practice.

Students will follow classroom procedures as provided in teacher lecture and written in woodworking notebook:

Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).

### **Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

### **Summative Assessments:**

Hand tool identification worksheets

Hand tool identification test

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Application of hand tool procedures during practice station training  
Application of hand tool knowledge during construction of a hand tool project

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p><b>Course/Unit Title:</b> <b>Woodworking</b></p> <p><b>Machines and Power Tools</b></p>	<p><b>Unit Summary:</b></p> <ul style="list-style-type: none"><li>• <b>This unit will safely introduce students to power tools used in modern woods manufacturing. Students will learn machine purpose, safety, procedures, techniques, and maintenance.</b></li></ul>
<p><b>Grade Level(s):</b> 9-12</p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>How can power tools be used to make woodworking more efficient?</b></li><li>• <b>What task does each machine perform?</b></li><li>• <b>What safety concerns to power tools create?</b></li><li>• <b>What are the specific procedures and techniques for safe operation of each machine?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>There are many power tools available to modern woods manufacturing.</b></li><li>• <b>Safe and appropriate use of the machines is essential.</b></li><li>• <b>Care and maintenance of machines is also essential.</b></li><li>• <b>Each machine and process has its own procedure and techniques that must be followed to allow safe manipulation of stock.</b></li></ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
<ol style="list-style-type: none"><li>1. Students will learn to identify general power tool safety concerns</li><li>2. Students will be able to identify the correct operation and purpose for each of the machine. (Drills, drill press, band saw, scroll saw, power miter saw, planer, jointer, lathe, table saw, radial arm saw, saber saws, circular saw, routers and router tables, sanders, mortising machine)</li><li>3. Students will be able to identify all of the parts of each machine.</li><li>4. Students will know the safety considerations with each specific machine.</li><li>5. Students will learn proper procedure and techniques associated with each machine.</li><li>6. Students will learn the general and specific care and maintenance associated with each machine.</li><li>7. Students will practice with each machine to perform safe and solid proficiency in all elements of machine knowledge and control.</li></ol>	<ol style="list-style-type: none"><li>1. TEC.9-12</li><li>2. TEC.K-12.8.2.A.1</li><li>3. TEC.K-12.8.2.B.b</li><li>4. TEC.K-12.8.2.C.2</li><li>5. MA.K-12.4.5.A.2</li><li>6. SCI.8.5.4.8 A.A</li><li>7. WORK.9-12.9.2.12 F</li><li>8. LA.9-12.3.4</li></ol>

### Inter-Disciplinary Connections:

MATH - fractional inch, fractions, measurement, geometric principles

English - A woodworking notebook including written documentation of the technological design process

Science – Physics

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

Lessons on specific machines will include formal presentations which include lecture, video, examples, demonstrations, notes, and machine part identification. Focus will be on safety with each power tool including proper procedure and techniques.

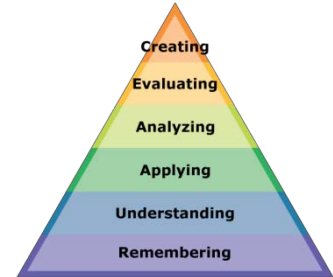
Lessons include: (portable electric hand drills, drill press, band saw, scroll saw, power miter saw, planer, jointer, lathe, table saw, radial arm saw, saber saws, circular saw, routers and router tables, sanders, mortising machine)

Students will be required to pass a use and safety test with each machine. Students must also demonstrate proper procedures and techniques through manipulative tests.

Students will apply appropriate machine knowledge and procedures to a woodworking project.

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.  
IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

**Safe work practice with hand tools as outlines in the lesson: direct teacher observation and guided practice.**

**Machine safety worksheets**

**Machine part identification worksheets**

### **Accommodations/Modifications:**

**Jigs and fixtures to accommodate individual safety concerns**

**Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.**

### **Summative Assessments:**

**Machine Safety Test**

**Machine part identification test**

**Manipulative machine safety test**



**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Students will practice making cuts through manipulative practice  
Students will apply common and advanced joints to a machine woodworking project.

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: <b>Woodworking</b></p> <p><b>Joinery</b></p>	<p><b>Unit Summary:</b></p> <ul style="list-style-type: none"><li>• <b>This unit will introduce students to many of the simple and common joints that are commonly used to build woodworking projects.</b></li></ul>
<p>Grade Level(s): <b>9-12</b></p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>How can we connect parts of a project together?</b></li><li>• <b>What makes a joint strong?</b></li><li>• <b>How to know when to use which joint?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>Students will learn about the many basic and advanced woodworking joints available (butt joints, rabbet joints, dado joints, lap joints, and miter joints)</b></li><li>• <b>Many variables contribute to a joints strength and success in any certain application. (surface preparation, glue application, glue strength, physics)</b></li><li>• <b>Students will learn to safely prepare wood for tight, accurate joints.</b></li></ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
<ol style="list-style-type: none"><li>1. Students will be able to identify many common joints (butt joints, rabbet joints, dado joints, lap joints, and miter joints) used in woodworking.</li><li>2. Students will learn to predict joint strength based on the critical variables that effect a wood joints strength</li><li>3. Students will learn to make a few common and complicated joint examples.</li><li>4. Students will think critically and apply joint knowledge to use appropriate joints for a project.</li></ol>	<ol style="list-style-type: none"><li>1. TEC.9-12</li><li>2. TEC.K-12.8.2.A.1</li><li>3. TEC.K-12.8.2.B.b</li><li>4. TEC.K-12.8.2.C.2</li><li>5. MA.K-12.4.5.A.2</li><li>6. SCI.8.5.4.8 A.A</li><li>7. WORK.9-12.9.2.12 F</li><li>8. LA.9-12.3.4</li></ol>

### Inter-Disciplinary Connections:

MATH - fractional inch, fractions, measurement, geometric principles

English - A woodworking notebook including written documentation of the technological design process

Science – Physics, forces, chemical and physical bonds.

Social Studies – Historical advancement of wood joints

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklichter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

Lessons on wood joinery will be used to teach this unit. These lessons will include examples of the many different joints, demonstrations of making examples of each common joint.

Students will need to read about different joints, predict their strength and draw pictures of the many common joints in a chart that records notes about specifics of each joint.

Students will be required to manufacture small joint examples to be turned in for a project grade.

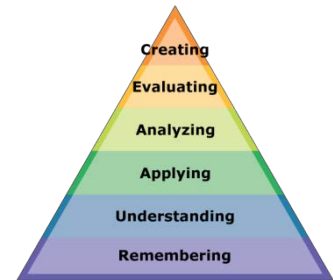
Students will apply appropriate joint knowledge to a complicated woodworking project.

Students will be tested on joint knowledge.

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.**

**IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

Safe work practice with hand tools as outlines in the lesson: direct teacher observation and guided practice.

Joint identification worksheets

Students will follow classroom procedures as provided in teacher lecture and written in woodworking notebook:

Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).

### **Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

### **Summative Assessments:**

Joint identification test

Joint examples collected and graded for neatness, strength and accuracy.

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Students will Practice making example joints by hand and with machines  
Students will apply common and advanced joints to a machine woodworking project.

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p><b>Course/Unit Title:</b> <b>Woodworking</b></p> <p><b>Fasteners and Hardware</b></p>	<p><b>Unit Summary:</b></p> <ul style="list-style-type: none"><li>• <b>This unit will introduce multiple different types of fasteners and hardware. This unit will explore the pros and cons of the many options available. Students will learn proper procedure and techniques involved in using fasteners.</b></li></ul>
<p><b>Grade Level(s):</b> 9-12</p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>What are the most common fasteners?</b></li><li>• <b>What are the pros and cons of different fasteners?</b></li><li>• <b>What safety precautions should be used when using fasteners?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>Students will follow proper safety procedures while learning good techniques with use of fasteners.</b></li><li>• <b>Students will think critically about which fastener is best for certain projects.</b></li></ul>



## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

<u>Learning Target</u>	<u>NJCCCS or CCS</u>
<ol style="list-style-type: none"><li>1. Identify common types of fasteners ( types of nails, types of screws, bolts, nuts, washers, catches, latches handles, knobs, hinges, and hooks)</li><li>2. Learn the proper procedure and techniques for using common fasteners</li><li>3. Students will apply the correct procedure for installing a wood screw</li><li>4. Students will learn to identify the units in which screws and nails are measured and organized.</li><li>5. Students will predict the correct fastener for certain applications</li><li>6. Students will apply this knowledge to a project including fasteners.</li></ol>	<ol style="list-style-type: none"><li>1. TEC.9-12</li><li>2. TEC.K-12.8.2.A.1</li><li>3. TEC.K-12.8.2.B.b</li><li>4. TEC.K-12.8.2.C.2</li><li>5. MA.K-12.4.5.A.2</li><li>6. SCI.8.5.4.8 A.A</li><li>7. WORK.9-12.9.2.12</li></ol> <p>F.4</p> <ol style="list-style-type: none"><li>8. LA.9-12.3.4</li></ol>

### Inter-Disciplinary Connections:

MATH - fractional inch, fractions, measurement, geometric principles,

English - A woodworking notebook including written documentation of the technological design process

Social Studies – Historical styles of hardware

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**

## **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

Students will learn about fasteners through a series of progressive lessons. These lessons will include examples of the many different fasteners, videos, and demonstrations showing proper procedure and techniques installing fasteners.

### **Lessons**

**Common nail and fastener identification – nails and striking and struck tools**

**Demonstration of proper wood screw installation**

**Specialty and advanced fasteners**

Students will be required to learn the proper sizing terminology associated with fasteners through fastener identification activities and worksheets.

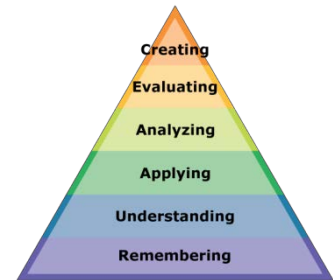
Students will work through station activities to practice using fasteners safely.

Students will do a small screw timeline project to show and label all of the steps of a properly installed wood screw (Layout, punch, predrill, counter sink, counter bore, drive screw, fill/plug the screw).

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.**

**IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

Safe work practice with fasteners and fastener related tools as outlines in the lesson: direct teacher observation and guided practice.

Fastener identification worksheets

Students will follow classroom procedures as provided in teacher lecture and written in woodworking notebook:

Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).

### **Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

### **Summative Assessments:**

Fastener identification test

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Timeline of a screw project  
Application of fasteners to woodworking projects

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

# Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21<sup>ST</sup> CENTURY GLOBAL SKILLS

## PART I: UNIT RATIONALE

### WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: <b>Woodworking</b></p> <p><b>Finishing Process</b></p>	<p><b>Unit Summary:</b></p> <ul style="list-style-type: none"><li>• <b>This unit is intended to introduce students to multiple different finishing techniques. Finish is necessary to protect wood and enhance the woods appearance.</b></li></ul>
<p>Grade Level(s): 9-12</p>	
<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"><li>• <b>Why do we finish wood?</b></li><li>• <b>What types of finishes are available?</b></li><li>• <b>Why chose certain finishes?</b></li><li>• <b>How can finish be applied?</b></li><li>• <b>Why finish preparatory work is essential?</b></li></ul>	<p><b>Enduring Understanding(s):</b></p> <ul style="list-style-type: none"><li>• <b>It is important to be aware of and follow all safety procedures.</b></li><li>• <b>Wood finish is historically significant has been around for over 10 thousand years.</b></li><li>• <b>Wood finish is used to protect wood and also enhance its appearance.</b></li><li>• <b>There are many types of finishing options: constraints and intended uses must be considered when choosing a finish.</b></li><li>• <b>Proper procedures, techniques, and focus are necessary for safety.</b></li></ul>

## PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

### DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
<ol style="list-style-type: none"><li>1. Students will be able to identify the names and characteristics of the many finishing options available (fillers, sealers, stains, natural finishes, chemical finishes).</li><li>2. Students will be able to identify and choose from multiple application methods (wipe, brush, spray)</li><li>3. Students will follow proper safety and clean up procedures with each finish.</li><li>4. Students will be able to apply proper finish application procedures and techniques.</li><li>5. Students will be able to apply different finishes and finishing techniques to build woodworking projects.</li></ol>	<ol style="list-style-type: none"><li>1. TEC.9-12</li><li>2. TEC.K-12.8.2.A.1</li><li>3. TEC.K-12.8.2.B.b</li><li>4. TEC.K-12.8.2.C.2</li><li>5. MA.K-12.4.5.A.2</li><li>6. SCI.8.5.4.8 A.A</li><li>7. WORK.9-12.9.2.12</li><li>F.4</li><li>8. LA.9-12.3.4</li></ol>

### Inter-Disciplinary Connections:

MATH - Fractional inch, fractions, measurement, geometric principles

English - A woodworking notebook including written documentation of the technological design process

Science – Chemically and physically bonding finishes

Social Studies – History of finishes

### Students will engage with the following textbook

“Modern Woodworking, 11th Edition”, By Willis H. Wagner and Clois E. Kicklighter. Published by Goodheart-Willcox 2006.

Periodicals to include but not limited to newspapers, magazine articles, internet web pages.

**Students will write:**

**Students will keep a woodworking notebook to include daily journal entries, notes, research, problems encountered, and dimensions and notes applicable to projects and shop processes.**



### **PART III: TRANSFER OF KNOWLEDGE AND SKILLS**

**DESCRIBE THE LEARNING EXPERIENCE.**

**How will students uncover content and build skills.**

**Students will learn about the many different finishes through a series of lessons; these lessons will include reading, presentations, videos, demonstrations, and examples.**

**Lessons:**

**Preparatory work (sanding, fillers, raising grains)**

**Application methods**

**Natural Finishes (Oils, shellacs)**

**Stains**

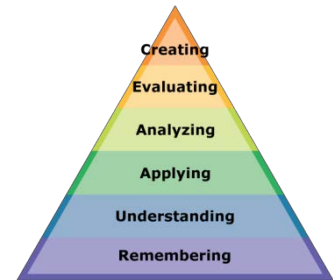
**Synthetic/chemical finishes (Urethanes, lacquer, varnish, epoxy, paints)**

**Students will be tested on finish identification, use and safety.**

**Students will apply this knowledge of finishes by performing specific procedures and ultimately building a project and choosing an appropriate finish.**

## **PART IV: EVIDENCE OF LEARNING**

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL  
DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND  
THEIR ABILITY TO APPLY SKILLS.  
IDENTIFY BLOOM'S LEVELS.**



### **Formative Assessments:**

**Safe work practice with finishes as outlined in the lesson: direct teacher observation and guided practice.**

**Direct teacher observation by teacher for safe working habit (see Class Participation Rubric).**

### **Accommodations/Modifications:**

**Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.**

**Allow students to get their work checked frequently as the assessments are build-ups.**

### **Summative Assessments:**

**Finish knowledge and identification test**

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.

**Performance Assessments:**

Application of finish procedures during finish training  
Application of finish knowledge during construction woodworking project

**Accommodations/Modifications:**

Alternative assignments, additional time for assignments, preferential seating arrangements one on one interaction, after school help, and assistance for organization. Check frequently for student understanding.

Allow students to get their work checked frequently as the assessments are build-ups.