

***Geneva CUSD 304***  
***Content-Area Curriculum Frameworks***  
***Grades 6-12***  
**Industrial Technology**

<b><i>Mission Statement</i></b>	<p>As an Industrial Technology department our mission is:</p> <p>To motivate all students to develop problem solving skills That will promote creative thinking. Encourage exploration of the technical world around them and create a safe working environment.</p> <p>To teach all students the proper and safe way to use tools and equipment. To learn and use practical life skills through a variety of hands on activities and to educate students about the world of technology and all the opportunities it may have to offer.</p>
<b><i>Course Sequence</i></b> (Grades 6-12)	<p>Computer Aided Drafting I: Open to all students 9 - 12<sup>th</sup> grade students.</p> <p>Computer Aided Drafting II: Open to all 9 - 12<sup>th</sup> grade students who successfully complete CAD I.</p> <p>Computer Aided Drafting III: Open to 10 - 12<sup>th</sup> grade students who successfully complete CAD II.</p> <p>Computer Aided Drafting IV: Open to 10 - 12<sup>th</sup> grade students who successfully complete CAD III.</p> <p>Architectural Drafting: Open to all 9-12<sup>th</sup> grade students who successfully complete CAD I.</p> <p>Woods I: Open to all 9 - 12<sup>th</sup> grade students.</p> <p>Woods II: Open to all 9 – 12<sup>th</sup> grade students who successfully complete Woods I.</p> <p>Woods III: Open to all 10 –12<sup>th</sup> grade students who successfully complete Woods II and have a pre-approved project from the instructor.</p> <p>Woods IV: Open to all 10 – 12<sup>th</sup> grade students who successfully complete Woods II and have a pre-approved project from the instructor.</p> <p>Industrial Technology: Open to all 9 – 12<sup>th</sup> grade students</p>

## *Course Framework*

<b>Course Title</b> <b>Grade Level</b> <b>Semesters (1-2-3-4)</b> <b>Prerequisite</b>	<b>Woods I</b>  9-12  None
<b>Course Description</b>	Students in Woods I train in the safe use and care of common woodworking tools and power equipment. The class completes projects designed to develop the student's ability to use all of these tools safely. The course is useful for future homeowners, hobbyists, and people interested in woodworking as a career. Individual project fees are charged to help defray the cost of materials. (Valees # I106)
<b>District-approved Materials and/or Resources</b>	Wood – Technology & Processes Feirer Glencoe / McGraw-Hill 2006

## *Unit Frameworks*

<b>Unit of Study</b>	<b>Working with Wood</b>	Resources that will support instruction: Handouts 1,2, and 3 Career opportunities handout Safety worksheets PowerPoint on safety
<b>Illinois Learning Standards</b>	<p>1.B.4a Preview reading materials, clarify meaning, analyze overall themes and coherence, and relate reading with information from other sources.</p> <p>1.B.3d Read age-appropriate material with fluency and accuracy.</p> <p>4.A.4b Apply listening skills in practical settings</p> <p>4.A.1c Follow oral instructions accurately.</p> <p>4.A.4c Follow complex oral instructions.</p> <p>4.B.4a Deliver planned informative and persuasive oral presentations using visual aids and contemporary technology as individuals and members of a group; demonstrate organization, clarity, vocabulary, credible and accurate supporting evidence.</p> <p>6.B.2 Solve one- and two-step problems involving whole numbers, fractions and decimals using addition, subtraction, multiplication and division.</p> <p>6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.</p> <p>7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments</p> <p>7.C.5b Determine how changes in one measure may affect other measures</p>	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>○ Discuss the commercial importance of wood.</li> <li>○ Explain how wood is harvested and processed</li> <li>○ Describe the different classifications for wood and wood materials.</li> <li>○ Understand and apply the problem-solving process</li> <li>○ Describe several woodworking careers.</li> <li>○ Discuss ways in which to find and keep a job.</li> <li>○ Tell why safety is an attitude.</li> <li>○ Discuss common woodshop hazards and how to prevent problems.</li> <li>○ Tell how to set up a safe workshop.</li> <li>○ Discuss the use of first aid common workshop injuries.</li> </ul>	
<b>Assessments</b>	Performance Tasks  Chapter 1 test Chapter 2 test	Other Evidence

## *Unit Frameworks*

<b>Unit of Study:</b>	<b>Basic Tools and Operations</b>	Resources that will support instruction Woodworking handouts Safety handout.
<b>Illinois Learning Standards</b>	<p>1.B.4a Preview reading materials, clarify meaning, analyze overall themes and coherence, and relate reading with information from other sources.</p> <p>1.B.3d Read age-appropriate material with fluency and accuracy.</p> <p>4.A.4b Apply listening skills in practical settings</p> <p>4.A.1c Follow oral instructions accurately.</p> <p>4.A.4c Follow complex oral instructions.</p> <p>4.B.4a Deliver planned informative and persuasive oral presentations using visual aids and contemporary technology as individuals and members of a group; demonstrate organization, clarity, vocabulary, credible and accurate supporting evidence.</p> <p>6.B.2 Solve one- and two-step problems involving whole numbers, fractions and decimals using addition, subtraction, multiplication and division.</p> <p>6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.</p> <p>7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments</p> <p>7.C.5b Determine how changes in one measure may affect other measures</p>	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>○ List the three keys to a good design</li> <li>○ Describe a least three basic principles of design</li> <li>○ Name the views shown in a three view working drawing</li> <li>○ Correctly read drawings in order to layout materials</li> <li>○ List the three basic steps in planning a project.</li> <li>○ Make a bill of materials.</li> <li>○ Use a formula for calculating board feet to figure lumber needs</li> <li>○ List the main steps in designing, planning, and completing a woodworking project.</li> <li>○ Accurately read measurements on a customary rule and a metric rule.</li> <li>○ Select and use the correct measuring tool for a specific measuring task.</li> <li>○ Correctly measure and mark stock for cutting.</li> <li>○ Name the basic types of cuts made with saws.</li> <li>○ Identify different types of nails.</li> <li>○ Demonstrate the correct technique for driving nails into wood.</li> <li>○ Describe the technique of toenailing</li> <li>○ Drill Holes with a variety of hand tools as well as with a power drill.</li> <li>○ Describe the qualities needed in a power drill for woodworking.</li> <li>○ Identify several accessories available for power drills and explain how they are used in woodworking.</li> <li>○ Plane the surface of a piece of stock using proper planning techniques.</li> </ul>	

	<ul style="list-style-type: none"> <li>○ Use a chisel correctly, observing all safety rules.</li> <li>○ Sand the surface of a piece of stock, using proper sanding techniques.</li> <li>○ Operate a portable belt sander, using proper sanding techniques and observing all safety rules.</li> </ul>	
<b>Assessments</b>	<b>Performance Tasks</b>  Chapter 3 test Chapter 4 test Chapter 5 test Chapter 6 test Chapter 7 test	<b>Other Evidence</b>

## *Unit Frameworks*

<b>Unit of Study:</b>	<b>Joinery and Assembly</b>	Resources that will support instruction  Woodworking handouts Safety handout.
<b>Illinois Learning Standards</b>	<p>1.B.4a Preview reading materials, clarify meaning, analyze overall themes and coherence, and relate reading with information from other sources.</p> <p>1.B.3d Read age-appropriate material with fluency and accuracy.</p> <p>4.A.4b Apply listening skills in practical settings</p> <p>4.A.1c Follow oral instructions accurately.</p> <p>4.A.4c Follow complex oral instructions.</p> <p>4.B.4a Deliver planned informative and persuasive oral presentations using visual aids and contemporary technology as individuals and members of a group; demonstrate organization, clarity, vocabulary, credible and accurate supporting evidence.</p> <p>6.B.2 Solve one- and two-step problems involving whole numbers, fractions and decimals using addition, subtraction, multiplication and division.</p> <p>6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.</p> <p>7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments</p> <p>7.C.5b Determine how changes in one measure may affect other measures</p>	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>○ Identify the types of butt joints and tell how a butt joint can be strengthened.</li> <li>○ Make an edge biscuit joint.</li> <li>○ Make an edge dowel joint.</li> <li>○ List the steps in making a dowel joint on a frame.</li> <li>○ Layout a rabbet joint.</li> <li>○ Make a rabbet joint using hand tools.</li> <li>○ List power tools that can be used to cut rabbets.</li> <li>○ Make a rabbet joint using power tools.</li> <li>○ Assemble a rabbet joint.</li> <li>○ Layout and cut a dado.</li> <li>○ Make a blind dado joint.</li> <li>○ Make a rabbet-and-dado joint.</li> <li>○ Explain how to cut dadoses with power tools.</li> <li>○ Explain the importance of accuracy when cutting miter joints.</li> <li>○ Layout, cut, and assemble miter joints</li> </ul>	

	<ul style="list-style-type: none"> <li>○ Make a dovetail joint using a dovetail jig and a router with dovetail bit.</li> <li>○ Build a project using simple casework construction.</li> <li>○ List five methods of installing shelves within a bookcase. Construct a drawer</li> <li>○ Make a paneled door.</li> <li>○ Discuss tips and guidelines to be followed when working with screwdrivers a</li> <li>○ Explain how a clearance hole should be drilled.</li> <li>○ Describe the process of countersinking for flathead screws.</li> <li>○ Demonstrate how to drive a wood screw.</li> <li>○ Select the correct adhesive for specific gluing jobs.</li> <li>○ Select appropriate clamps for holding glued parts.</li> <li>○ Correctly glue up and clamp an edge joint.</li> <li>○ Prepare a laminate for a wood project.</li> <li>○ List the advantages of making a trial assembly.</li> <li>○ Name and give examples of the two basic types of hardware needed to build a project.</li> <li>○ Select an appropriate type of hinge to serve a specific purpose.</li> <li>○ Install drawer knobs or pulls.</li> <li>○ Select and install the appropriate type of repair plate for a specific purpose.</li> </ul>	
<b>Assessments</b>	Performance Tasks  Chapter tests 8 - 17	Other Evidence

## *Unit Frameworks*

<b>Unit of Study: major topics</b>	<b>Using Machines</b>	Resources that will support instruction  Woodworking handouts Safety handout.
<b>Illinois Learning Standards</b>	1.B.4a Preview reading materials, clarify meaning, analyze overall themes and coherence, and relate reading with information from other sources. 1.B.3d Read age-appropriate material with fluency and accuracy. 4.A.4b Apply listening skills in practical settings 4.A.1c Follow oral instructions accurately. 4.A.4c Follow complex oral instructions. 4.B.4a Deliver planned informative and persuasive oral presentations using visual aids and contemporary technology as individuals and members of a group; demonstrate organization, clarity, vocabulary, credible and accurate supporting evidence. 6.B.2 Solve one- and two-step problems involving whole numbers, fractions and decimals using addition, subtraction, multiplication and division. 6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions. 7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments 7.C.5b Determine how changes in one measure may affect other measures	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>○ Identify the major parts of the planer.</li> <li>○ Surface a board to thickness.</li> <li>○ Explain the special procedure for planning thin stock.</li> <li>○ Plane several short boards to the same thickness.</li> <li>○ Identify the main parts of the jointer.</li> <li>○ Describe face planning with a jointer.</li> <li>○ Joint an edge.</li> <li>○ Cut a bevel on a jointer.</li> <li>○ Adjust the jointer to cut a rabbet.</li> <li>○ Change a saw blade.</li> <li>○ Rip wood to width with the table saw.</li> <li>○ Crosscut wood to length with the table saw.</li> <li>○ Make miter, bevel, and chamfer cuts with the table saw.</li> <li>○ Use a dado head cutter on the table saw.</li> <li>○ Cut rabbets and tenons on the table saw.</li> <li>○ Describe the operation of the radial arm saw.</li> <li>○ Make a straight crosscut on the radial-arm saw.</li> <li>○ Make miter, bevel, and dado cuts on the radial-arm saw.</li> <li>○ Perform a ripping operation on the radial-arm saw.</li> </ul>	



- List guidelines that must be followed in cutting with the band saw.
- Demonstrate how to cut simple and compound curves on a band saw.
- Describe how to cut circles on the band saw.
- Explain how to cut several duplicate parts at the same time on a band saw.
- Demonstrate how to change the blade on the band saw.
- Crosscut wood using the sliding compound miter saw.
- Correctly set the sliding compound miter saw for cutting a miter and a bevel.
- Cut a miter, bevel, and compound angle using a sliding compound miter saw.
- Choose the proper scroll saw blade for the project.
- Demonstrate cutting external and internal curves and designs with the scroll saw.
- Explain how to do straight cutting on the scroll saw.
- Use the scroll saw to make simple inlay patterns.
- Describe how to install a scroll saw blade.
- Identify operations that can be performed using the drill press.
- Make adjustments correctly for the operation being performed.
- Select the proper tool for the process being performed on the drill press.
- Operate a drill press correctly, observing all safety rules.
- Install a router bit in a router.
- Operate a router, following all safety rules.
- Use various types of guides as appropriate for different routing operations.
- Install an inlay in a work piece.
- Operate both sanders in a combination belt and-disc sander.
- Set and operate a stationary belt sander correctly, observing all safety rules.
- Change a sanding belt on a stationary belt sander.
- Operate a stationary disc sander correctly, observing all safety rules.
- Identify common turning tools and discuss their use.
- Describe the two basic methods of turning. D Demonstrate both rough turning and finish turning.
- Explain how to cut shoulders, Vs, beads, and coves on the lathe.
- Outline the procedure for faceplate turning.
- Choose the proper finish for a project.
- Correct common defects found in wood projects. o Describe the use of various finishing supplies.
- Choose and care for brushes.
- Outline the basic steps in applying a fine finish.
- Use an oil-based or water-based stain to stain wood.
- Apply a wood sealer.
- Know when a filler is needed and how to apply it.

	<ul style="list-style-type: none"><li>○ Apply clear surface finishes.</li><li>○ Choose from and apply a variety of penetrating finishes.</li></ul>	
<b>Assessments</b>	Performance Tasks  Chapter test 20 - 30	Other Evidence