WGSD Curriculum
Industrial Technology Department

Course: Industrial Technology
Grade Level: 7 - 8
LG 1 Woodworking

High Priority Standards

Missouri Carpentry Instructional Framework
Introductory Craft Skills
Module 00103-09 – Introduction to Hand Tools

1. Recognize and identify some of the basic hand tools and their proper uses in the construction trade.
2. Visually inspect hand tools to determine if they are safe to use.
3. Safely use hand tools.

Module 00104-09 – Introduction to Power Tools

1. Identify power tools commonly used in the construction trades.
2. Use power tools safely.
3. Explain how to maintain power tools properly.

Learning Goal	Proficiency Scale
Students will be able to make a finished wood product from raw materials.	Level 4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. Level 3: Student demonstrates mastery with the learning goal as evidenced by: • Utilizing designated machinery and tools to cut and shape wood. • Applying gluing, shaping, and polishing techniques. Level 2: Student demonstrates he/she is nearing proficiency by: • Recognizing and recalling specific vocabulary, such as: tape measure, rule, try-

	square, pencil, paper, handsaw, cross cut, rip cut, band saw, scroll saw, disk/belt sander, BOSS sander, palm sander, sanding block, drill press, twist bit, spur bit, speed bit, center punch, nail set, claw hammer, mallet, abrasive paper, glue, clamps, screwdriver, stain, clear finish, paint brush, wax paste, steel wool. • Performing processes such as: o Identifying a project to be completed. o Measuring material length, width, and thickness with accuracy using English Standard Measurement (inches). o Locating the different parts of a board. (End, Edge, and Face) o Cross-cutting material to rough length. o Preparing wood surfaces for staining/finishing by using proper abrasives. (60-grit, 80-grit, etc.) o Choosing equipment for appropriate tasks in order to complete projects. o Applying stain and/or finish to project. o Assembling project for completion Level 1: Student demonstrates a limited understanding or skill with the learning goal.

WGSD Curriculum
Industrial Technology Department

Course: Industrial Technology
Grade Level: 7 - 8
LG 2 Metal Working

High Priority Standards

Missouri HVAC Instructional Framework
Introductory Craft Skills
Module 03213-07 – Sheet Metal Duct Systems

1. Identify and describe the basic types of sheet metal.
2. Describe a basic layout method and perform proper cutting.
3. Join sheet metal duct sections using proper seams and connectors.

Learning Goal	Proficiency Scale
Student will be able to create a metal product from raw materials.	Level 4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. Level 3: Student demonstrates mastery with the learning goal as evidenced by: • Utilizing designated machinery and tools to cut and shape metal. • Applying gluing, shaping, and polishing techniques. Level 2: Student demonstrates he/she is nearing proficiency by: • Recognizing and recalling specific vocabulary, such as: Sheet Metal, try-square, ruler, tape measure, hems, folds, tabs, pencil, sharpie, scratch awl, tin snips, vise grips, spot welder, flat metal file, emery cloth, spray paint, box and pan break, squaring shear. • Performing processes such as: o Cutting material to length and width using the Squaring Shear

	○ Laying-out hems, tabs, and holds using appropriate tools in the lab. ○ Cutting project to final size using Tin Snips. ○ Folding Hems, Folds, and Tabs in proper sequence using the Box and Pan Break. ○ Using Appropriate hand tools to assist with bending process of project. ○ Using Spot Welder to fuse their project together. ○ Preparing surface for completion/painting using appropriate methods. Level 1: Student demonstrates a limited understanding or skill with the learning goal.

WGSD Curriculum
Industrial Technology Department

Course: Industrial Technology
Grade Level: 7 - 8
LG 3 Plastics

High Priority Standards

Missouri Carpentry Instructional Framework
Introductory Craft Skills
Module 00103-09 – Introduction to Hand Tools

1. Recognize and identify some of the basic hand tools and their proper uses in the construction trade.
2. Visually inspect hand tools to determine if they are safe to use.
3. Safely use hand tools.

Module 27102-06 – Building Materials, Fasteners, and Adhesives
8. Describe the fasteners, anchors, and adhesives used in construction work and explain their uses.

Learning Goal	**Proficiency Scale**
Students will be able to create a plastics product from raw materials.	Level 4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. **Level 3**: Student demonstrates mastery with the learning goal as evidenced by: • Utilizing designated machinery and tools to cut and shape plastic. • Applying gluing, shaping, and polishing techniques. **Level 2**: Student demonstrates he/she is nearing proficiency by: • Recognizing and recalling specific vocabulary, such as: Transparent Acrylic Plastic, Translucent Acrylic Plastic, scroll saw, band saw, disk/belt sander, abrasive paper, flat file, half-round file, round file, square file, triangle file, file card & brush, vise, buffer, drill press, twist bit, bullet effect, c-clamp

	• Performing processes such as:
	  o Choosing a color scheme for a project.
	  o Identifying types of plastics.
	  o Identifying a project to be completed.
	  o Identifying specific parts of machinery in order to perform simple maintenance and troubleshooting.
	  o Following a plan sheet for assembly.
	
	Level 1: Student demonstrates a limited understanding or skill with the learning goal.

WGSD Curriculum
Industrial Technology Department

Course: Industrial Technology
Grade Level: 7 - 8
LG 4 Drafting

<table>
<tr><th colspan="2">High Priority Standards</th></tr>
<tr><td colspan="2">Missouri Carpentry Instructional Framework
Introductory Craft Skills
Module 00105-09 – Introduction to Construction Drawings
1. Recognize and identify basic construction drawing terms, components, and symbols.
4. Interpret and use drawing dimensions.</td></tr>
<tr><th>Learning Goal</th><th>Proficiency Scale</th></tr>
<tr><td>Students will be able to create and interpret working drawings.</td><td>Level 4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal.

Level 3: Student demonstrates mastery with the learning goal as evidenced by:
• Constructing a reproducible drawing using perspective.
• Interpreting an orthographic projection used with a project.

Level 2: Student demonstrates he/she is nearing proficiency by:
Recognizing and recalling specific vocabulary, such as: Pencil, eraser, ruler, isometric view, orthographic view, border line, object line, visible line, leader lines, center line, hidden line, graph paper, lettering, top, right, front, back, left, and bottom.
• Performing processes such as:
o Identifying differences between Isometric and Orthographic views.
o Sketching multi-view drawings.</td></tr>
</table>

WGSD Curriculum
Industrial Technology Department

	Level 1: Student demonstrates a limited understanding or skill with the learning goal.

Learning Targets

Students know how to:

- Identify the difference between Isometric and Orthographic views
- Identify 6 different perspectives of an object (top, bottom, left, right, front, back)
- Draw various lines used in drafting.
- Draw letters/numbers in Block style.
- Draw Orthographic view (top, front, right side) when given an isometric view.
- Draw Isometric view (multi-perspective drawing) when given the orthographic views (8^{th} grade)

WGSD Curriculum
Industrial Technology Department

Course: Industrial Technology
Grade Level: 7 - 8
LG 5 Measurement

<table>
<tr><th colspan="2">High Priority Standards</th></tr>
<tr><td colspan="2">Missouri Carpentry Instructional Framework
Introductory Craft Skills
Module 00102-09 – Introduction to Construction Math
1. Add, subtract, multiply, and divide whole numbers, with and without a calculator.
2. Use a standard ruler, a metric ruler, and a measuring tape to measure.
3. Add, subtract, multiply, and divide fractions.</td></tr>
<tr><th>Learning Goal</th><th>Proficiency Scale</th></tr>
<tr><td>Students will be able to attend to precision when measuring.</td><td>Level 4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal.

Level 3: Student demonstrates mastery with the learning goal as evidenced by:
• Applying measurements, such as sixteenths, eighths, fourths, halves, and whole inches, to a project.
• Reducing fractions to their lowest terms.
• Measuring objects in various graduations of an inch.

Level 2: Student demonstrates he/she is nearing proficiency by:
Recognizing and recalling specific vocabulary, such as: Ruler, Pencil/Pen, paper, reduce fractions, denominator, numerator, fraction, whole number, mixed number, and improper fractions.
• Performing processes such as:
o Identifying measurement increments on a ruler.</td></tr>
</table>

	○ Reading a ruler with accuracy. Level 1: Student demonstrates a limited understanding or skill with the learning goal.

Learning Targets

The student knows how to:

- Measure objects in various graduations of an inch, with the furthest graduation being sixteenths.
- Reduce fractions into lowest terms.
- Write measurements in mixed number form.
- Use 3-steps in reading a ruler.

WGSD Curriculum
Industrial Technology Department

Course: Industrial Technology
Grade Level: 7 - 8
LG 6 Safety

<table>
<tr><th colspan="2">High Priority Standards</th></tr>
<tr><td colspan="2">Missouri Carpentry Instructional Framework
Introductory Craft Skills
Module 00101-09 – Basic Safety

1. Explain the idea of a safety culture and its importance in the construction crafts.
2. Identify causes of accidents and the impact of accident costs.
7. Identify struck-by hazards and demonstrate safe working procedures and requirements.
8. Identify caught-in-between hazards and demonstrate safe working procedures and requirements.</td></tr>
<tr><th>Learning Goal</th><th>Proficiency Scale</th></tr>
<tr><td>Students will be able to operate safely in a shop environment.</td><td>Level 4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal.

Level 3: Student demonstrates mastery with the learning goal as evidenced by:
• Applying safety margins for all equipment, such as closeness of fingers to equipment and holding stock at the right angle.
• Using the correct machinery for the material in hand.

Level 2: Student demonstrates he/she is nearing proficiency by:
• Recognizing and recalling specific vocabulary, such as: Band Saw, Scroll Saw, Drill Press, Disc/Belt Sander, BOSS Sander, Jointer, Surfacer, Router Table, Hand Tools, Hand-held Power Tools, Turn-on Procedure, Turn-off Procedure, safety precautions, blades, abrasive paper, chuck key, push stick, spur bit, spade</td></tr>
</table>

	bit, twist bit, center punch, nail set, pencil, ruler, other hand tools, etc.
	• Performing processes such as:
	  o Identifying different parts on machinery.
	  o Identifying hand tools and miscellaneous equipment.
	  o Identifying different parts on machinery.
	  o Turning machines on and off in the correct sequence.
	
	Level 1: Student demonstrates a limited understanding or skill with the learning goal.

Learning Targets

The student knows how to:

- Turn on/Turn off machines in proper sequence
- Hold stock on work surfaces (machine tables) in a safe matter
- Pass Safety final with a 70% or better.
- Identify different parts on machinery
- Replace blades/abrasive papers on appropriate machines.
- Use proper materials on machines (wood to be used on wood working machines, same with plastics and metalworking.)
- Know safety margin for all equipment (closest fingers can get to moving parts)
- Identify different hand tools, drill bits, and other miscellaneous equipment used in the Industrial Technology Lab.