

FABRICATION WITH WOOD AND METAL

9-12

Applied Natural Science

Curriculum Standard: The student will relate the importance of a safe shop experience.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to recognize the importance of safe operation of tools and equipment.</p>	<p>A. Can the student relate correct operation of major power tools?</p> <p>B. Can the student demonstrate correct operation of hand tools?</p> <p>C. Can the student identify all major safety precautions?</p>	<ul style="list-style-type: none"> • The student will develop the 10 most important safety rules to follow in a laboratory setting. • The student will pass a safety test to a 100% accuracy. • The student will demonstrate and share with lab group partners correct operation of tools and equipment.

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Curriculum Standard: The student will be able to relate the importance of tool sharpening and fitting and identification.

Performance Objective	Critical Attributes	Benchmarks/Assessment
1. The student will be able to describe the various mediums, tools, and equipment used in the Agriculture Mechanics Industry.	A. Can the student demonstrate tool care sharpening and fitting?	<ul style="list-style-type: none">• The student will complete a test where one hundred pieces of Agriculture Mechanics equipment will be set out for a matching identification test.

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Curriculum Standard: The student will apply measurement to their shop projects and daily life.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to demonstrate an understanding of tape measures and guides for measurement purposes.</p>	<p>A. Can the student read a tape measure to a 1/8 inch.</p> <p>B. Can the student differentiate between the English System and The System Internationale?</p> <p>C. Can the student adjust tools to vary measuring devices using guides.</p>	<ul style="list-style-type: none"> • The student will construct a paper tape devising their own system of measurement. • The student will record measurements in both the metric and the English system. • The student will adjust guides on equipment modifying cutting depths on projects.

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Curriculum Standard: The student will apply ropework to their daily life in the agriculture industry.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<ol style="list-style-type: none"> 1. The student will be able to recognize the importance of ropework in agriculture. 2. The student will be able to demonstrate knowledge of proper ropework techniques. 	<ol style="list-style-type: none"> A. Can the student distinguish between right and wrong ropework techniques? A. Can the student construct a diagram or model of a rope halter? 	<ul style="list-style-type: none"> • The student will be able to demonstrate 2 different types of knots. • The student will make a rope halter.

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Curriculum Standard: The student will apply the art of woodworking to actual application.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to apply the different wood working techniques to the construction of various wood projects.</p> <p>2. The student will be able to discuss why in some instances different types of woods are preferred.</p>	<p>A. Can the student list the steps in proper woodworking techniques?</p> <p>A. Can the student list 8 types of hardwoods?</p>	<ul style="list-style-type: none">• The student will design and create an actual wood project. • The student will be able to determine the difference between hard and soft wood.

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Curriculum Standard: The student will demonstrate a knowledge of mechanical drawing through reading and drawing blueprints.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will apply their knowledge of mechanical drawing to construct a drafting project.</p> <p>2. The student will recognize the difference between symbols involved in reading a blueprint.</p>	<p>A. Can the student list important tools involved in mechanical drawing?</p> <p>A. Can the student list the steps involved in producing a blueprint?</p>	<ul style="list-style-type: none"> • The student will identify the tools laid out for identification. • The student will be able to draw and produce a blueprint.

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Curriculum Standard: The student will demonstrate a knowledge of plumbing procedures and repairs.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to identify plumbing equipment, materials, and tools.</p> <p>2. The student will be able to problem solve plumbing difficulties.</p> <p>3. The student will be able to relate advantages and disadvantages of various plumbing materials.</p>	<p>A. Can the student identify common plumbing tools, equipment, and components?</p> <p>A. Can the student trouble shoot plumbing difficulties arriving at potential solutions?</p> <p>A. Can the student install an irrigation system?</p> <p>B. Can the student determine the correct materials to use in a variety of settings?</p>	<ul style="list-style-type: none"> • Given the tools, equipment, and a key, the student will match up all key components. • Presented with a plumbing problem, the student will resolve the situation. • The student will draft an irrigation system. • The student will list the advantages and disadvantages of various plumbing materials to a variety of scenarios.

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***Curriculum Standard:* The student will understand the basics in arc and oxyacetylene welding.**

Performance Objective	Critical Attributes	Benchmarks/Assessment
1. The student will be able to recognize the importance of proper equipment use.	A. Can the student identify 10 pieces of welding equipment?	<ul style="list-style-type: none"> • Given equipment pieces and a key, the student will match items.
2. The student will be able to compare and contrast running a bead of arc and oxyacetylene welding.	A. Can the student demonstrate running a bead in both oxyacetylene and arc welding?	<ul style="list-style-type: none"> • The student will run a 3 inch bead of each welding type.
3. The student will be able to discuss different brazing techniques.	A. Can the student list the benefits of brazing on a plowshear?	<ul style="list-style-type: none"> • The student will list benefits of brazing on plows.
4. The student will be able to identify different welding positions.	A. Can the student demonstrate five welding positions?	<ul style="list-style-type: none"> • The student will use five welding positions.

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Curriculum Standard: The student will be able to practice sound cold metal operational skills.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to identify cold metal tools and equipment.</p> <p>2. The student will be able to design metal projects.</p> <p>3. The student will be able to utilize metal of a raw product and relate its properties.</p>	<p>A. Can the student identify metal working tools and equipment?</p> <p>A. Can the student operate metal working equipment?</p> <p>A. Can the student utilize metal as a project medium?</p> <p>B. Can the student relate the properties of metal?</p>	<ul style="list-style-type: none"> • The student will identify 20 tools and equipment pieces used in cold metal manufacture/repair. • The student will construct a metal project. • The student relate the various properties of metal in its cold form.

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Curriculum Standard: The student will understand basic electrical concepts.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to identify the tools involved in electricity.</p> <p>2. The student will be able to identify electrical terms and codes.</p> <p>3. The student will be able to discuss common electrical procedures.</p>	<p>A. Can the student apply the knowledge on electricity to diagram a correct electrical circuit?</p> <p>A. Can the student identify 2 electrical terms and 8 codes?</p> <p>A. Can the student apply the common electrical procedures to wire a light socket?</p>	<ul style="list-style-type: none"> • The student will design a proper electrical circuit. • Given 10 different codes, the student will properly match them with the correct names. • The student will trouble shoot basic electrical problems.

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Curriculum Standard: The student will understand the operation of small gas engines.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will be able to identify the tools utilized in small engine repair.</p> <p>2. The student will understand the operation of small engines.</p> <p>3. The student will be able to trouble shoot engine difficulties.</p>	<p>A. Can the student identify major tools and engine components seen on small gas engines?</p> <p>A. Can the student explain and diagram engine operation?</p> <p>A. Can the student problem solve engine repairs?</p>	<ul style="list-style-type: none"> • Given an identification test, the student will be able to match items. • The student will be able to complete an engine diagram on operation. • Within a scenario of an inoperable engine, the student will be able to identify the problem and repair the engine.