

Technology Education ELOs:

7th – 8th Grade

Students will:

- Recognize and demonstrate shop safety during lab activities.
- Identify and explain the difference from Construction, Manufacturing, Transportation and Communication.
- Identify and properly use basic manufacturing equipment and tools.
- Properly square a board.
- Understand each project's connection to one of the 4 areas of technology and engineering and its function, purpose, and demand.
- Use and apply proper measuring tools for any given project.
- Use various blueprints and drawings to create wood and metal manufacturing products.
- Identify the differences between 2D and 3D drawings, including the different types of 3D drawings.

Home Repair

Students will:

- Use all tools and equipment in Woods Lab safely.
- Understand the uses for each tool and piece of equipment in the Woods Lab.
- Use precision measurement tools.
- Design a basic home layout and develop a plan of procedure for all floors, walls, and roof in the system.
- Develop a bill of materials and calculate the cost of the materials.
- Build a scale wall section.
- Wire a switch, light, and outlet in a wall section.
- Lay sheetrock on a scale wall section and use proper mudding, taping, sanding, and painting techniques.
- Put together a plumbing project using PVC, Copper, Steel, and PEX tubing.

Woodworking

Students will:

- Use all tools and equipment in Woods Lab safely.
- Understand the uses for each tool and piece of equipment in the Woods Lab.
- Use precision measurement tools.
- Design wood projects and develop a plan of procedure.
- Develop a bill of materials and calculate board feet.
- Sand and apply a finish to wood.
- Identify physical properties of different wood species.
- Design a project on their own including plans and a step-by-step outline.
- Build a cutting board using the board squaring process, correct gluing applications, routing and sanding of the project and apply food grade finish.

Computer Aided Design & Drafting

Students will:

- Use all tools and equipment in the CADD lab, and maintain the equipment used.
- Use precision measurement tools.
- Follow a working drawing to create a part or assembly on Solidworks CADD program.
- Develop a bill of materials and calculate cost for materials.
- Identify physical properties of different types of material and identify strengths and weakness of each.
- Design a project on their own including plans and a step-by-step outline.
- Use the CADD programs to design and build parts, assemblies, and drawings of the projects.
- Use the 3-D printer to build projects that they design and fix flaws in any parts from an inspection.

Small Engines

Students will:

- Identify a four-stroke engine.
- Identify and explain the function of the parts of a four-stroke engine.
- List and explain the four strokes of a four-stroke engine.
- Identify a two-stroke engine.
- Compare and contrast a two- and four-stroke engine.
- Assess and troubleshoot a small engine.
- Perform maintenance on small engines.
- Complete teardown of an engine and inspect the parts and put it back together using a repair manual and correct specifications.
- Repair damage to an engine using engine hones, valve lappers and other engine resurfacing tools and techniques.

Introduction to Metals & Fabrication

Students will:

- Use all tools and equipment in Metals Lab safely.
- Understand the uses for each tool and piece of equipment in the Metals lab.
- Use precision measurement tools.
- Develop a bill of materials and cost of projects.
- Prepare metal for finishing, sanding, buffing, and heat treatment.
- Identify physical properties of different metals.
- Follow a blueprint for correct layout and tooling, and complete the project given for each machine/practice.
- Change required tooling and use the correct feeds and speeds on the tool and material being used.
- Design a project and decide the correct tools and procedure to complete the project.
- Complete the required weld joints on all four types of welding applications.
- Clean and inspect welds and test the procedures used to make their product.

Manufacturing

Students will:

- Identify all tools and equipment in the Woods Lab.
- Understand the uses for each tool and piece of equipment in the Woods Lab.
- Use all tools and pieces of equipment safely.
- Read and use measurement tools.
- Square a board.
- Sand and apply finish to wood.
- Identify wood species and understand their different uses and applications.
- Identify and apply use to all different types of adhesives and fasteners.
- Understand the manufacturing process.
- Identify and apply manufacturing processes.
- Identify and apply different manufacturing materials.
- Identify careers in the manufacturing industry.
- use new technologies such as laser engravers, 3-D printers, and CNC plasma equipment for use in projects.

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