

Martensdale- St. Marys Community School

Grades 9-12 Industrial Arts Curriculum

Standard 1: Students will be able to match the divisions of manufacturing with their functions and describe the history of manufacturing.

Grade Level/Course: Manufacturing/woodworking/metals

<i>Benchmark: The student will:</i>	<i>Course/Grade Level Objectives</i>	<i>Instructional Strategies</i>	<i>Assessments</i>	<i>Instructional Timeline</i>
List the terms related to manufacturing.	Use the terms language related to manufacturing.			
List statements concerning the history of manufacturing.	Research and write about inventors/inventions that change America.			
List the advantages and the disadvantages of manufacturing.	Determine the importance of manufacturing in daily life.			
List the divisions of manufacturing jobs.	Describe manufacturing careers Organize a classroom manufacturing company .			

Standard 2: Students will be able to discuss the major manufacturing systems used employed by industry.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Course/Grade Level Objectives	Instructional Strategies	Assessments	Instructional Timeline
List types of manufacturing systems.	Describe the different type of systems used in manufacturing.			
List types of automated manufacturing.	Describe the types on manufacturing that uses automation.			
List criteria when choosing the right type of manufacturing.	Determine what the needs are when starting a manufacturing company.			
List functions and responsibilities of management.	Determine ways to obtain capital to run a manufacturing company.			
Identify types of ownership	Analyze the type of ownership is used in a small industrial company.			
State attributes that an employer looks for in a employee.	Complete a job application/resume for a manufacturing job.			

Standard 3: Students will be able to distinguish among the type/properties of manufacturing materials used.

Grade Level/Manufacturing/woodworking/metals

<i>Benchmark: The student will:</i>	<i>Grade Level/Course Objectives</i>	<i>Instructional Strategies</i>	<i>Assessments</i>	<i>Instructional Timeline</i>
List common manufacturing materials.	Evaluate the common materials used in manufacturing, looking at cost and ability to purchase the products.			
Identify the types of woods.	Evaluate the common woods testing their properties needed for the job.			
List the characteristic of wood.	Analyze the needs for the job and what their performance will be.			
Identify the types of metal.	Distinguish between hard and soft metals.			
List earth materials.	Describe what earth materials are and how they are being used more today.			
Distinguish between the materials use.	Construct and test a product.			

Standard 4: Students will be able to identify and explain the different types of manufacturing processes.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Compare terms related to manufacturing processes	Explain the different operations on each machine used in manufacturing.			
Classify processes as pre-processing, processing, or post-processing.	Read/write about the processes that go into the building of a product.			
List primary and secondary materials processing.	Describe how lumber is changed into a useable product.			
Describe assembly processes.	Assemble a shop project.			
List major finishing operations	Read/write about the different type of stains, paints, and other finishes are used.			
List safety rules for each process.	Describe the different safety processes that are used for each task in product development.			

Standard 5: Students will be able to describe the activities involved with the planning, production, and marketing of a product.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
List terms related to planning and production.	Write down/list the terms used in the production and marketing a of a class project.			
List key points in mass production.	Write down the steps of building a project, including the machine and hand tools needed to construct it.			
List activities related to marketing.	Market a project that has been developed in the class.			
Use a flow chart in the development of a project.	Design a flow chart in the building of a class project.			

Standard 6: Students will understand planning is important to woodworking and furniture manufacturing.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Explain the three main considerations in the design process.	Read about the areas of design, discussing the important of each.			
Describe some of the popular in and out of doors furniture/style, materials, and construction.	Pick out a style of furniture and write a report where that style came from, who designed it, and is still usable today.			
Sketch clearly working drawings, labeling each part.	Design working drawings to show the different style that are used.			
Complete a plan of procedures.	Read about and design a plan of procedures for a piece of furniture.			
Make out a bill of materials.	Fill out a bill of material related to the project being build.			
Figure board footage.	Figure out board footage problems from a study guild.			
Figure total costs of a project.	Complete a study guild with a bill of materials, plan of procedures, and board footage for the total cost of a project.			

Standard 7: Students will be able to identify/manipulate safely hand and power tools in the school lab.

Grade Level/Course: Manufacturing/woodworking/metals.

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Demonstrate a working knowledge of the different hand/power tools in the lab.	Safely use the hand and power tools needed to construct a project.			
Describe the use of the tools required by the project.	Write down the list hand and power tools that will be needed to construct the class project.			
Demonstrate safe practices while working with hand/power tools.	Use the tools properly while constructing a class project.			
Test over the different hand/power tools in the lab.	Test over each tools while scoring 85% of each hand and power tool.			
Describe and demonstrate proper handling of hand/power tools.	Construct a project while using each tool correctly.			

Standard 8: Students will be able to identify basic types of joints used in woodworking

Grade Level/Course: Manufacturing/woodworking/metals

Benchmarks: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Demonstrate how to cut several types of wood joints.	Design and construct a woodworking project to sell around the community.			
Identify different types of wood fasteners.	Use the correct fastener to construct their project.			
Identify several types of construction methods used in furniture making.	Build jigs and fixtures that will help with the construction of a common project.			
Explain how plywood or solid stock can be used.	Buying materials that will stand up to the use of the project designed.			

Standard 9: Student will be able to explain procedures for properly finishing a wood project.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Identify several types of sandpapers.	Use the correct sandpaper when finishing the class project.			
Explain the grading of sandpapers.	Write a report on sandpaper is made and the different grades that are sold.			
Identify the different types of stains and oils.	Use proper stain and materials when finishing a project.			
Explain how to prepare the surface of the project for finishing.	prepare the surface of a project that will be sold by the class.			
Demonstrate how to clean a brush.	Clean brushes when done finishing a project.			
Describe or demonstrate spraying a finish.	Spray a clear coat finishing on to a project.			

Standard 10: Students will be able to understand why planning is very important to manufacturing related to metal working.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Explain the three considerations in metal working design.	Draw up a plan for a metal working project using the design model.			
Draw/sketch a metal working plan.	Use the drawing tools and equipment to complete drawing project.			
Describe a plan of procedure.	Write up a plan of procedure for the project that has been drawn.			
Fill out a bill of material for a metal working project.	Write up a bill of materials for a metal project.			
Figure total cost of a metal working project.	Figure the total cost of a project build with metal.			

Standard 11: Students will be able to identify and describe the many different hand and power tools used in the metal shop.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Demonstrate a working knowledge of metal working hand and power tools.	Use the metal cutting tool to perform task related to project construction. Safety test completed over each hand and power tool.			
Will be able to manipulate the required by the project.	Use layout tools properly to layout metal for a project.			
Demonstrate safe practices when using hand and power tools.	Use the hand and power tools needed by project, safely and correctly.			
Describe what make a good metal working tool.	Write about what makes up a quality tool.			

Standard 12: Students will be able to identify basic construction techniques used in metals manufacturing.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Demonstrate the use of equipment to cut several types of metals.	Use the different type of cutting tools to construct a metals project.			
Identify several ways to fasten metal together.	Demonstrate how to fasten metals together with the proper metal fasteners.			
Identify the different types of welding.	Demonstrate proper use of the different welding equipment.			
Explain how different types of metal stocks can be used to build projects.	Use the different types of metal stocks to be a project.			

Standard 13: Students will be able to explain the procedure for finishing a metals project.

Grade Level/Course: Manufacturing/woodworking/metals

Benchmark: The student will:	Grade Level/Course Objectives	Instructional Strategies	Assessments	Instructional Timeline
Identify the different type of abrasive paper/cloths used in metals finishing.	Use the correct type of abrasive paper/cloth when finishing a metals project.			
Describe safe procedures for finishing metals.	Follow safety procedures when finishing a metal working project.			
Identify the different types of paint.	Use the correct paint needed for a project.			
Describe how to properly clean a surface be painting.	Clean the surface of a project before applying a finish.			
Demonstrate proper clean up for painting equipment when done finishing.	Clean up brushes/sprayer when done finishing a project			