Course Guide: Power Standards & Learning Targets

Advanced Manufacturing

Students will select and use manufacturing technologies.	Students will analyze and demonstrate the attributes of design.	Students will analyze and demonstrate the engineering process.	Students will develop abilities to apply the design process.	Students will develop the abilities to use and maintain technological products and systems.

Learning Target Descriptions

- ☐ Level 3 learning targets **demonstrate understanding of foundational and complex knowledge.**
- ☐ Level 2 learning targets **demonstrate understanding of foundational knowledge.**

Power Standard:	Learning Target: Students Will ...
Students will select and use manufacturing technologies.	**Level 3**
	❑ Identify different manufacturing technologies and explain their appropriate uses in production.
	❑ Select the correct manufacturing technology or tool to complete a specific manufacturing task.
	❑ I can evaluate whether the selected manufacturing technology produced the desired outcome and make adjustments if needed.
	Level 2
	❑ I can recognize common manufacturing technologies and tools used in production.
	❑ I can follow basic safety rules when working with manufacturing equipment.
	❑ I can follow step-by-step directions to use a manufacturing technology with teacher guidance.
	❑ I can identify the materials, tools, and technologies needed to complete a basic manufacturing task.
	❑ I can explain why a specific manufacturing technology might be used for a particular product or process with guidance.
Power Standard:	**Learning Target: Students Will ...**
Students will analyze and demonstrate the attributes of design.	**Level 3**
	❑ Analyze a design to identify important attributes such as function, materials, strength, efficiency, and appearance.
	❑ Explain how specific design features affect how well a product works or performs.

Course Guide: Power Standards & Learning Targets

	❑ Demonstrate design attributes by creating or modifying a product, model, or prototype that meets given criteria.
	Level 2
	❑ Recognize common attributes of design such as size, shape, materials, and function.
	❑ Describe the purpose of a design and what the product is intended to do.
	❑ Identify design features that affect how a product looks or works.
	❑ Follow a given design plan or drawing to create a basic model or product with guidance.
	❑ Compare two designs and point out simple differences in their attributes.
Power Standard:	**Learning Target: Students Will ...**
Students will analyze and demonstrate the engineering process.	**Level 3**
	❑ Analyze a problem and identify the criteria and constraints needed to develop a solution.
	❑ Apply the steps of the engineering design process to develop and test a solution to a problem.
	❑ Evaluate a prototype or solution and make improvements based on testing results and feedback.
	Level 2
	❑ Identify the basic steps of the engineering design process
	❑ Describe the problem a design is intended to solve.
	❑ Recognize criteria and constraints in a design challenge with guidance.
	❑ Follow a structured process to build or test a simple design solution with teacher support.
	❑ Describe what worked or did not work in a design after testing.
Power Standard:	**Learning Target: Students Will ...**
Students will develop abilities to apply the design process.	**Level 3**
	❑ Apply the steps of the design process to develop a solution to a given problem.
	❑ Create and test a prototype or model that meets identified design criteria and constraints.
	❑ Revise and improve a design based on testing results, feedback, or identified problems.
	Level 2
	❑ Identify the main steps of the design process.

	❏ Explain the problem that a design is meant to solve.
	❏ Identify criteria and constraints for a design challenge with guidance.
	❏ Follow a basic design plan or set of instructions to create a model or prototype.
	❏ Describe how testing helps improve a design.
Power Standard:	**Learning Target: Students Will ...**
Students will develop the abilities to use and maintain technological products and systems.	**Level 3**
	❏ Safely operate technological products and systems to complete a task or solve a problem.
	❏ Perform basic maintenance and adjustments to keep technological tools or systems working properly.
	❏ Evaluate the performance of a technological product or system and identify when maintenance or repair is needed.
	Level 2
	❏ Identify common technological products and systems and explain their purpose.
	❏ Recognize the basic parts and components of a technological product or system.
	❏ Follow instructions to operate a technological product or system with guidance.
	❏ Identify basic safety practices when using technological tools or systems.
	❏ Describe simple maintenance tasks that help keep technological products working properly.

Notes:

- The number(s) behind the course title indicate the grade(s) the course is offered.
- (L) = Omro Laude Course