

Mount Pleasant Central School District

6th Grade Design, STEM



We believe students should have a rich, well-balanced technology environment to maximize their learning. Our vision is to provide students with real-world opportunities in technology. We are committed to developing creative thinkers, effective communicators, collaborators, problem solvers and students who can critically evaluate information and media.

How does the Engineering Design Process improve our ability to solve problems? This course will challenge all students to apply practical and creative thinking skills to solve design problems, explore the role of design in both historical and contemporary contexts, and consider their responsibilities when making design decisions and taking action. At the 6th grade level, STEM focuses on the whole design process rather than final products and solutions. Students will think about their process as much as their products. Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs. Assessment will primarily be through design challenges.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
Engineering Design	September	- Engineering Design Cycle	- iterative - Design Cycle	1. Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.	Follow a set of steps to guide the thinking process.	The engineering design cycle is an iterative process.	Poster Project
Measurement	September	- Imperial system of measurement - Metric system	- metric system - Imperial system - precision	1. Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.	Develop plans, including drawings with measurements	Proper measurements lead to a more precise product.	Air Skimmer Project
3D Printing	October	- TinkerCAD	- prism - diameter	3. Computers, as tools for design, modeling, information processing, communication,	- 3d modeling - 3d printing	3D printing is for the purpose of creating	Candle Holder project

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			Solid	and system control, have greatly increased human productivity and knowledge.		quick prototypes of an idea or solution.	
Workshop Safety	October	- Safe and proper practices with tools in the workshop	- PPE	2. Technological tools, materials, and other resources should be selected on the basis of safety, cost, availability, appropriateness, and environmental impact; technological processes change energy, information, and material resources into more useful forms.	- Be able to work safely in a workshop environment	Safety is everyone's responsibility.	Safety quiz
Woodworking	November	- hand tools -scroll saw	- grain	2. Technological tools, materials, and other	- Become familiar with basic hand and	Woodworking is one method of production	Wooden Whistle project

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		-band saw -belt sander -drill press		resources should be selected on the basis of safety, cost, availability, appropriateness, and environmental impact; technological processes change energy, information, and material resources into more useful forms.	power tools.	in industry.	
Engineering Design Challenges	December - January	- Engineering Design cycle -Use of hand and power tools	- iterative	1. Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.	- follow the engineering design cycle -practice with basic hand and power tools.	Following the Engineering Design Cycle will lead to a more refined product.	Maglev Project, Zipline Racer Project

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