

YEAR AT A GLANCE: 7th Grade Technology/PLTW

(updated Dec 2022)

	<u>UNIT 1</u>	<u>UNIT 2</u>	<u>UNIT 3</u>	<u>UNIT 4</u>	<u>UNIT 5</u>
Title	Design Process	Energy and and the Environment			
Unit Length <i>(weeks taught)</i>	5	5			
Performance Task <i>(e.g., Persuasive Essay, DBQ, Nutritional Analysis, etc.)</i>	<p>Explain the relationship between science, technology, engineering and math. Describe engineering and explain how engineers participate in or contribute to the invention and innovation of products. Describe impacts that technology has had on society. Distinguish between invention and innovation. Students will create a foot orthosis using the design process to</p>	<p>Students will re-engineer a recyclable item into a useful item that they can use everyday. Students will use alternative energy to build a solar oven or wind turbine to demonstrate the effects of renewable energy.</p>			

	<p>inform their decision making? Assemble an engineering notebook and a portfolio.</p>				
<p>Enduring Understanding (The big ideas, the “why” we include these ideas</p>	<p>Science is the study of the natural world, while technology is the study of how humans develop new products to meet needs and wants.</p> <p>Teams of people can accomplish more than one individual working alone.</p> <p>Technological change is seen through inventions, innovations, and the evolution of technological artifacts, processes, and systems.</p>	<p>In Energy and the Environment (EE) students are challenged to think big and toward the future as they explore sustainable solutions to our energy needs and investigate the impact of energy on our lives and the world. They design and model alternative energy sources and evaluate options for reducing energy consumption.</p>			

Essential Questions (What do we want students to think about)

How are our lives impacted by engineers?

What is the difference between an invention and innovation?
How does the use of technology affect the way that you live?

How is a design process used to effectively develop a design solution that solves a problem or addresses a design opWhy is it important for an engineer to be aware of the criteria and the constraints when designing a project?

How can mathematical modeling help designers understand a design?

Why do you think CO2 emissions have been increasing since the industrial revolution?

If we continue to meet our energy needs with fossil fuels, what might be different about the way we live in 2030 and why?

How is design testing data used to improve design? Why is brainstorming, research, and testing important when creating, modifying, or improving a design solution?