

SUBJECT: PLTW Design and Modeling		GRADE: 8	
Unit Title: Design and build a prototype.		Time Frame: 20 Days	
UNIT OVERVIEW			
Within this unit students will learn about the design process and about arriving at a solution in many ways. By the end of this unit, students will have completed multiple 3D models.			
LRG SKILLS AND DISPOSITIONS		PA STANDARDS	
Critical Thinking & Problem Solving: Experiment with different design ideas. (S4B) Digital Literacy & Technological Proficiency: Utilize new 3D Software. (K4DLT1B1) Continual Learning & Growth Mindset: Design a Puzzle Cube. (D2B)		3.5.6-8.N 3.5.6-8.M 3.5.6-8.P 3.5.6-8.J 3.5.6-8.V 3.5.6-8.X 3.5.6-KK 3.5.6-8LL	
COMPETENCIES		LEARNING TARGETS	
Nature and Characteristics of Technology and Engineering		- I can explain how technology and engineering are closely linked to creativity, which can result in both intended and unintended innovations. (K1TEB1I3) - I can apply creative problem-solving strategies to the improvement of existing devices or processes or the development of new approaches. (K1TEB1I4)	
Core Concepts of Technology and Engineering		- I can predict outcomes of a future product or system at the beginning of the design process. (K1TEB2I5) - I can compare how different technologies involve different sets of processes. (K1TEB2I6) - I can defend decisions related to a design problem. (K1TEB2I7)	

SUBJECT: PLTW Design and Modeling		GRADE: 8	
Unit Title: 3D Drawing and Design		Time Frame: 20 Days	
UNIT OVERVIEW			
Within this unit students will learn the basics of how to draw and model in various modes, such as: Isometric, 3-Vew and CAD. By the end of this unit students will have completed: Drawings in a variety of different modalities.			
LRG SKILLS AND DISPOSITIONS		PA STANDARDS	
Critical Thinking and Problem Solving: Autodesk 123D 3D Drawing (S4B) Resilience and Grit: Isometric and 3 View Drawings (D4B)		3.5.6-8.M 3.5.6-8.N 3.5.6-8.P 3.5.6-8.Q 3.5.6-8.U 3.5.6-8LL	
COMPETENCIES		LEARNING TARGETS	
Core Concepts of Technology and Engineering		- I can compare how different technologies involve different sets of processes. (K1TEB2I6) - I can compare how different technologies involve different sets of processes.	
Nature and Characteristics of Technology and Engineering		- I can explain how technology and engineering are closely linked to creativity, which can result in both intended and unintended innovations. (K1TEB1I3) - I can apply creative problem-solving strategies to the improvement of existing devices or processes or the development of new approaches. (K1TEB1I4)	

SUBJECT: PLTW Design and Modeling		GRADE: 8	
Unit Title: Manufacturing		Time Frame: 10 Days	
UNIT OVERVIEW			
Within this unit students will learn how to use tools, materials, and processes in order to create a manufactured item. Students will also use the VCarve software to create a 3D image that will then be placed on the manufactured project using the CNC milling machine. By the end of this unit, students will have completed a manufactured project.			
LRG SKILLS AND DISPOSITIONS		PA STANDARDS	
Creativity and Innovation: Add graphic to Wood Design. (S3B) Adaptability and Flexibility: Learn to use New Tools. (D1B) Continual Learning and Growth Mindset: Build a Wood Project. (D2B)		3.5.6-8.D 3.5.6-8.J 3.5.6-8.M 3.5.6-8.S 3.5.6-8.T 3.5.6-8.LL	
COMPETENCIES		LEARNING TARGETS	
Impacts of Technology.		- I can devise strategies for reducing, reusing, and recycling waste caused from the creation and use of technology. (K1TEB4I3) - I can analyze examples of technologies that have changed the way people think, interact, and communicate. (K1TEB4I4)	
History of Technology		I can verify how specialization of function has been at the heart of many technological improvements. (K1TEB6I3)	
Design in Technology and Engineering Education		- I can assess design quality based upon established principles and elements of design. (K1TEB7I5) - I can improve essential skills necessary to successfully design. (K1TEB7I7)	

