

	<u>CURRICULUM</u> <i>End Product of Learning, “What” You Teach</i>			<u>INSTRUCTION</u> <i>Means to the End Product, “How” You Teach</i>	<u>ASSESSMENT</u> <i>Validation to Revise Curriculum & Instruction</i>
TIME FRAME [By Date/Week/ Month]	STANDARD OR BENCHMARK	CONTENT: What we want students to “KNOW”.	SKILL: What we want students to “DO”.	Varied Teaching/Learning Strategies Resources/Comments	Varied Classroom Assessment Strategies
	Lesson 1 What is Engineering? Standard 1 : Student will develop an understanding of the characteristics and scope of technology. BM F: New products and systems can be developed to solve problems or help do things that could not be done without the help of technology BM G: The development of technology is a human activity and is the result of individual or corporate needs and the ability to be creative BM H: Technology is closely linked to creativity, which has resulted in innovation BM L: Inventions and innovations are the result of specific, goal directed research Standard 3: Students will develop an understanding of the relationships among technologies and the connection between technology and other fields of study. BM D: Technology systems interact with one another BM F: Knowledge gained	It is expected that students will: - assemble an engineering notebook - Explain the relationship between science, technology, engineering and mathematics - Distinguish between invention and innovation - 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	It is expected that students will: - use their engineering notebooks for notes and sketches - discuss the relationship between science, technology, engineering, and mathematics in real world settings - discuss invention and innovation in real world settings - tell how engineers participate in the processes of invention and innovation in real world products - describe how technology has impacted our world	Project Lead the Way curriculum Decision and Design Matrix Laptops computers w/ internet access Engineers Can Do Anything video PLTW powerpoints Smartboard Technology Y-tube Did you know	In class assignments Projects Effort and Participation

Project Lead The Way		Curriculum Map			Grade 7
	<p>from other fields of study has a direct effect on the development of technological products and systems</p> <p>BM H: Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other field</p> <p>Standard 6: Students will develop an understanding of the role of society in development and use of technology</p> <p>BM D: Throughout history, new technologies have resulted from the demands, values, and interests of individuals, businesses, industries, and societies</p> <p>BM E: The use of inventions and innovations have led to changes in society and the creation of wants and needs</p>				
	<p>Lesson 2 Sketching & Dimensioning</p> <p>Standard 11: Students will develop abilities to apply the design process.</p> <p>BMJ: Make two dimensional and three dimensional representations of the design solution.</p> <p>Standard 17: Students will develop an understanding of and be able to select and use information and communication technologies.</p>	<p>It is expected that students will:</p> <ul style="list-style-type: none"> - sketch as a communication tool - be able to visualization, spatial reasoning, and geometric shapes to sketch 2 and 3 dimensional shapes - Recognize thumbnail, perspective, isometric, and orthographic sketches 	<p>It is expected that students will:</p> <ul style="list-style-type: none"> - Use sketching as a communication tool in real life situations - Use visualization, spatial reasoning, and geometric shapes to sketch 2 and 3 dimensional shapes - use thumbnail, perspective, isometric, and orthographic sketches for information 	<p>Project Lead the Way curriculum</p> <p>Engineering notebooks</p> <p>Laptops computers w/ internet access</p> <p>PLTW powerpoints</p> <p>Smartboard Technology</p>	<p>In class assignments</p> <p>Effort and Participation</p>

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	<p>BM K: The use of symbols, measurements, and drawings promotes clear communication by providing a common language to express ideas.</p> <p>Lesson 3 Beginning Inventor</p> <p>Standard 8: Students will develop an understanding of the attributes of design.</p> <p>BM G: Requirements for a design are made up of criteria and constraints.</p> <p>BM I: Design problems are seldom presented in a clearly defined form.</p> <p>Standard 9: Students will develop an understanding of engineering design.</p> <p>BM F: Design involves a set of steps, which can be performed in different sequences and repeated as needed.</p> <p>Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.</p> <p>BM F: Troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system.</p>	<p>It is expected that students will:</p> <ul style="list-style-type: none"> -draw basic shapes using technology -create 3-dimensional objects from 2-dimensional shapes -combine more than one 3-dimensional object create a different object -construct objects with specific dimensions 	<p>It is expected that students will:</p> <ul style="list-style-type: none"> - use basic shapes with technology - use shapes to create objects - use more than one shape to create a different object - use specific dimensional to construct an exact shape or object 	<p>Engineering notebooks</p> <p>Laptops computers w/ internet access and inventor program</p> <p>PLTW powerpoints</p> <p>Smartboard Project Lead the Way curriculum Technology</p>	<p>In class assignments</p> <p>Effort and Participation</p>

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	<p>Standard 11: Students will develop abilities to apply the design process.</p> <p>BM K: Test and evaluate the design in relation to pre-established requirements such as criteria and constraints, and refine as needed.</p> <p>Lesson 4 Automation & Robotics</p> <p>Standard 1: Students will develop an understanding of the characteristics and scope of technology.</p> <p>BM F: New products and systems can be developed to solve problems or to help do things that could not be done without the help of technology.</p> <p>BM H: Technology is closely linked to creativity, which has resulted in innovation.</p> <p>Standard 6: Students will develop an understanding of the role of society in the development and use of technology.</p> <p>BM E: The use of inventions and innovations has led to changes in society and the creation of new needs and wants.</p>	<p>It is expected that students will:</p> <p>Understand how robotics are being used currently</p> <p>Understand how automation and robotics fit together</p>	<p>It is expected that students will:</p> <p>Explain how robots are being used in real world situations</p> <p>Explain how automation and robotics fit together in real world situations</p>	<p>Project Lead the Way curriculum</p> <p>Engineering notebooks</p> <p>Laptops computers w/ Inventor program</p> <p>PLTW powerpoints</p> <p>Smartboard Technology</p>	<p>In class assignments</p> <p>Effort and Participation</p>

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	<p>Lesson 5 Beginning Robotics</p> <p>Standard 2: Students will develop an understanding of the core concepts of technology.</p> <p>BM M: Technological systems include input, processes, output, and at times feedback.</p> <p>Standard 8: Students will develop an understanding of the attributes of design.</p> <p>BM E: Design is a creative planning process that leads to useful products and systems.</p> <p>BM G: Requirements for a design are made up of criteria and constraints.</p>	<p>It is expected that students will:</p> <p>Be able to copy a basic robot construction using Vex materials</p> <p>Be able to copy coded language to communicate movement to their robot</p> <p>Understand how to delegate and accept responsibility as part of a group</p>	<p>It is expected that students will:</p> <p>Use the Vex materials to construct a robot</p> <p>Use RobotC language to communicate simple movements to their robot</p> <p>Be able to work in a group cooperatively to achieve a goal</p>	<p>Project Lead the Way curriculum</p> <p>Engineering notebooks</p> <p>Laptops computers w/ Inventor program & RobotC</p> <p>PLTW powerpoints</p> <p>Smartboard Technology</p>	<p>In class assignments</p> <p>Project</p> <p>Effort and Participation</p>