	CURRICULUM *End Product of Learning, "What" You Teach*			***INSTRUCTION*** *Means to the End Product, "How" You Teach*	***ASSESSMENT*** *Validation to Revise Curriculum & Instruction*
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

	from other fields of study has a direct effect on the development of technological products and systems BM H: Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other field Standard 6: Students will develop an understanding of the role of society in development and use of technology BM D: Throughout history, new technologies have resulted from the demands, values, and interests of individuals, businesses, industries, and societies BM E: The use of inventions and innovations have led to changes in society and the creation of wants and needs				
	Lesson 2 **Sketching & Dimensioning** Standard 11: Students will develop abilities to apply the design process. BMJ: Make two dimensional and three dimensional representations of the design solution. Standard 17: Students will develop an understanding of and be able to select and use information and communication technologies.	It is expected that students will: - 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	It is expected that students will: - 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	Project Lead the Way curriculum Engineering notebooks Laptops computers w/ internet access PLTW powerpoints Smartboard Technology	In class assignments Effort and Participation

	BM K: The use of symbols, measurements, and drawings promotes clear communication by providing a common language to express ideas. **Lesson 3** **Beginning Inventor** Standard 8: Students will develop an understanding of the attributes of design. BM G: Requirements for a design are made up of criteria and constraints. BM I: Design problems are seldom presented in a clearly defined form. Standard 9: Students will develop an understanding of engineering design. BM F: Design involves a set of steps, which can be performed in different sequences and repeated as needed. Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. BM F: Troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system.	It is expected that students will: -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	It is expected that students will: - 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	Engineering notebooks Laptops computers w/ internet access and inventor program PLTW powerpoints Smartboard Project Lead the Way curriculum Technology	In class assignments Effort and Participation

	Standard 11: Students will develop abilities to apply the design process. BM K: Test and evaluate the design in relation to pre-established requirements such as criteria and constraints, and refine as needed. **Lesson 4** **Automation & Robotics** Standard 1: Students will develop an understanding of the characteristics and scope of technology. 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. BM H: Technology is closely linked to creativity, which has resulted in innovation. Standard 6: Students will develop an understanding of the role of society in the development and use of technology. BM E: The use of inventions and innovations has led to changes in society and the creation of new needs and wants.	It is expected that students will: Understand how robotics are being used currently Understand how automation and robotics fit together	It is expected that students will: Explain how robots are being used in real world situations Explain how automation and robotics fit together in real world situations	Project Lead the Way curriculum Engineering notebooks Laptops computers w/ Inventor program PLTW powerpoints Smartboard Technology	In class assignments Effort and Participation

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