

Morton 709 Standards Driven Classrooms

Principles of Engineering



Curriculum Materials

PLTW Principles of Engineering Curriculum
Vex V5

STEL 1 - Nature and Characteristics

1N - Explain how the world around them guides technological development and engineering design

1O - Assess how similarities and differences among scientific, mathematics, engineering, and technological knowledge and skills contributed to the design of a product or system,

1P - Analyze the rate of technological development and predict future diffusion and adoption of new technologies

1Q - Conduct research to inform intentional inventions and innovations that address specific needs and wants

1R - Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system

STEL 2 - Core Concepts

2T - Demonstrate the use of conceptual, graphical, virtual, mathematical, and physical modeling to identify conflicting considerations before the entire system is developed and to aid in design decision making

2V - Analyze the stability of a technological system and how it is influenced by all of the components in the system, especially those in the feedback loop

2W - Select resources that involve tradeoffs between competing values, such as availability, cost, desirability, and waste while solving problems

2X - Cite examples of the criteria and constraints of a product or system and how they affect final design

2Y - Implement quality control as a planned process to ensure that a product, service, or system meets established criteria

2Z - Use management processes in planning, organizing, and controlling work

STEL 4 - Impact of Technology

4P - Evaluate ways that technology can impact individuals, society, and the environment

4Q - Critique whether existing and proposed technologies use resources sustainably

4R - Assess a technology that minimizes resource use and resulting waste to achieve a goal

STEL 5 - Influence of Society

5H - Evaluate a technological innovation that arose from a specific society's unique need or want

STEL 6 - History of Technology

6F - Relate how technological development has been evolutionary, often the result of a series of refinements to basic inventions or technological knowledge

STEL 7 - Design in TEE

7W - Determine the best approach by evaluating the purpose of the design

7X - Document trade-offs in the technology and engineering design process to produce the optimal design

7Y - Optimize a design by addressing desired qualities within criteria and constraints

7AA - Illustrate principles, elements and factors of design

7BB - Implement the best possible solution to a design

7CC - Apply a broad range of design skills to their design process

7DD - Apply a broad range of making skills to their design process

STEL 8 -Apply, Maintain, Assess

8N - Use various approaches to communicate processes and procedures for using, maintaining, and assessing

technological products and systems
8P - Apply appropriate methods to diagnose, adjust and repair systems to ensure precise, safe and proper functionality
8Q - Synthesize data and analyze trends to make decisions about technological products, systems or processes