

Middle School CTE Engineering Standards

6th - Engineering Design (Invention and Innovation of the Designed World, TE012YD)

1. Describe new products and systems that have been developed to solve problems. Identify new products and systems that cannot be done without the help of technology.
2. Explain that the development of technology is a human activity and is the result of individual or collective needs and the ability to be creative.
3. Explain how technology is closely linked to creativity. Discuss how creativity has resulted in innovations to technology.
4. Recognize the design process as a creative planning process. Demonstrate the steps of the technological design process to design a product or system.
5. Create, using the design process, an original device or system from their own ideas and imagination. Create, using the design process, an innovation to an existing product or system to improve it.
6. Develop a series of experiments to solve a technological problem.

7th - Computer Science (Technology and Society, TE012YF)

1. Compare technological decisions about products or systems that have had both desirable and undesirable consequences.
2. Identify the ethical issues related to the development and use of technology. Defend the ethical issues related to the development and use of technology.
3. Identify economic, political and cultural issues that are influenced by the development and use of technology. Support an economic, political or cultural issue that is influenced by the development and use of technology.
4. Describe a technology that is used to repair damage caused by natural disasters. Describe a technology that is used to break down waste from the use of a product or system.
5. Identify examples of decisions to develop and use technology that puts environmental and economic concerns in direct competition with one another. Support an environmental or economic concern resulting from the development and use of technology that places them in direct competition with one another.
6. Identify recent innovations to products or systems that have led to changes in society. Describe inventions or innovations that changed society and created new needs and wants.
7. Select a technological device and analyze the social and cultural priorities and values reflected by that device.
8. Examine societal expectations that have boosted the acceptance and use of a product system.

9. Examine the slow, methodical processes of tests and refinements as they relate to the evolution of inventions and innovations.
10. Design a technological improvement for a device that has a highly specialized function.
11. Identify an invention or innovation that was developed without the knowledge of science.
12. Examine collected data to analyze and interpret trends in order to identify positive and negative effects of a technology.
13. Describe government regulations that influence the design and operation of transportation systems.

8th - Applied Technological Systems (Robotics Focused) (Technological Systems: How They Work, TE022YA)

1. Design a product or system to solve a problem or help to do things that could not be done without the help of technology.
2. Interpret input, processes, output and feedback as related to a technological system.
3. Choose a technological system, and then report the relationship of its parts.
4. Defend the meaning of an open-loop system as having no feedback and requiring human intervention and a closed-loop system that uses feedback.
5. Identify requirements that are placed on the development of a system.
6. Illustrate how the design and construction of structures for service or convenience have evolved from the development of techniques for measurement, controlling systems, and the understanding of spatial relationships.
7. Differentiate invention as a process of turning ideas and imagination into devices and systems. Differentiate innovation as the process of modifying an existing product or system to improve it.