



Grades 6–8

3.5.6-8.KK Technology and Engineering: Nature and Characteristics of Technology and Engineering

Students who demonstrate understanding can *explain how technology and engineering are closely linked to creativity, which can result in both intended and unintended innovations.*

Clarifying Statement: Creativity requires an individual to use knowledge and experience from different subjects to create something new or to use something in a new way. Many inventions are inspired by perceived needs and wants—the toothbrush, for example. At other times, inventions emerge in unexpected ways. For example, Stephanie Kwolek was working to find a replacement for steel cords in tires when she inadvertently invented Kevlar. Creatively exploring new ideas is often key to improvement of technological products and systems.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Technology and Engineering Practices (TEP)
Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods. <ul style="list-style-type: none"> Communicate scientific and/or technical information (e.g., about a proposed object, tool, process, system) in writing and/or through oral presentations. 	Nature of Technology <ul style="list-style-type: none"> Technology advances through the processes of innovation and invention. Sometimes a technology developed for one purpose is adapted to serve other purposes. 	Critical Thinking <ul style="list-style-type: none"> Defends technological decisions based on evidence. Making and Doing <ul style="list-style-type: none"> Exhibits safe, effective ways of producing technological products, systems, and processes.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to Pennsylvania's inventors and inventions.

Pennsylvania Career Ready Skills: Explain to others one's own strengths, needs, and preferences specific to a context.

Connections to Other Standards Content and Practices



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards: Reading and Writing in Science and Technical Areas	<p>CC.1.2.3.G: Use information gained from text features to demonstrate understanding of a text.</p> <p>CC.1.2.4.G: Interpret various presentations of information within a text or digital source and explain how the information contributes to an understanding of text in which it appears.</p> <p>CC.1.2.5.G: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p> <p>CC.1.4.3.V: Conduct short research projects that build knowledge about a topic.</p> <p>CC.1.4.4.V: Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p>CC.1.4.5.V: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</p> <p>CC.1.4.3.W: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.</p> <p>CC.1.4.4.W: Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <p>CC.1.4.5.W: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p>
PA Core Standards and Practices: Math	<p>MP.2: Reason abstractly and quantitatively.</p> <p>MP.7: Look for and make use of structure.</p>
Integrated Standards for Science, Environment & Ecology, and Technology & Engineering Standards Grades K–12	<p>N/A</p>