



Grades 9–12

3.5.9-12.F Technology and Engineering: Applying, Maintaining, Assessing, and Evaluating Technological Products and Systems

Students who demonstrate understanding can *evaluate a technological innovation that arose from a specific society's unique need or want.*

Clarifying Statement: As engineers modify technological systems, materials are often chosen based on local environmental factors, locally available materials, and cost. Modes of transportation differ depending upon population density, availability, safety, speed, geography, and cost. Energy sources are chosen based on considerations such as proximity to source, cost-effectiveness, and environmental impact.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Technology and Engineering Practices (TEP)
<p>Obtaining, Evaluating, and Communicating Information</p> <p>Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs.</p> <ul style="list-style-type: none"> Compare, integrate and evaluate sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a scientific question or solve a problem. 	<p>NAEP T.12.1</p> <ul style="list-style-type: none"> The decision to develop a new technology is influenced by societal opinions and demands. These driving forces differ from culture to culture. 	<p>Optimism</p> <ul style="list-style-type: none"> Shows persistence in addressing technological problems and finding solutions to those problems.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to Pennsylvania’s manufacturing businesses and industries.

Pennsylvania Career Ready Skills: Situate self in any social context as a means to determine a response.

Connections to Other Standards Content and Practices



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
<p>PA Core Standards: Reading and Writing in Science and Technical Areas</p>	<p>CC.1.2.3.G: Use information gained from text features to demonstrate understanding of a text. 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. 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. CC.1.4.3.V: Conduct short research projects that build knowledge about a topic. CC.1.4.4.V: Conduct short research projects that build knowledge through investigation of different aspects of a topic. CC.1.4.5.V: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. 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. 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. 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>
<p>PA Core Standards and Practices: Math</p>	<p>N/A</p>
<p>Integrated Standards for Science, Environment & Ecology, and Technology & Engineering Standards Grades K-12</p>	<p>N/A</p>