



Grades 9–12

3.5.9-12.GG Technology and Engineering: Nature and Characteristics of Technology and Engineering

Students who demonstrate understanding can *evaluate how technology and engineering have been powerful forces in reshaping the social, cultural, political, and economic landscapes throughout history.*

Clarifying Statement: Communication, agriculture, and transportation, for example, have evolved out of the political, economic, and social interests and values of the times.

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"> Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions and/or to obtain scientific and/or technical information to summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. 	<p>ETS1.A: Defining & Delimiting Engineering Problems</p> <ul style="list-style-type: none"> Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed through engineering. These global challenges also may have manifestations in local communities. 	<p>Making and Doing</p> <ul style="list-style-type: none"> Demonstrates the ability to regulate and improve making and doing skills. <p>Attention to Ethics</p> <ul style="list-style-type: none"> Assesses technological products, systems, and processes through critical analysis of their impacts and outcomes.

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

Pennsylvania Career Ready Skills: Evaluate how societal conventions may influence the perspectives of individuals.

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.</p>
<p>PA Core Standards: Reading and Writing in Science and Technical Areas (continued)</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>
<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>3.3.9-12.O: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p>