



**Grades 9–12**

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

**Students who demonstrate understanding can** *evaluate a technological innovation that was met with societal resistance impacting its development.*

**Clarifying Statement:** Throughout history, societies have made moral, ethical, and political decisions impacting the development of technological solutions and innovations. Sometimes those decisions are controversial and multifaceted. Societies differ in their norms and methods for resolving the problems that arise when conflicting values preclude consensus. For example, Germany made the decision to phase out all use of nuclear power due to public opposition to this energy source.

**Assessment Boundary:** N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Technology and Engineering Practices (TEP)
<p><b>Obtaining, Evaluating, and Communicating Information</b></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"> <li>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.</li> </ul>	<p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them.</li> </ul>	<p><b>Critical Thinking</b></p> <ul style="list-style-type: none"> <li>Uses evidence to better understand and solve problems in technology and engineering, including applying computational thinking.</li> </ul>

**Pennsylvania Context:** N/A

**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><b>PA Core Standards: Reading and Writing in Science and Technical Areas</b></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><b>PA Core Standards: Reading and Writing in Science and Technical Areas (continued)</b></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><b>PA Core Standards and Practices: Math</b></p>	<p>MP.7: Look for and make use of structure.</p>
<p><b>Integrated Standards for Science, Environment &amp; Ecology, and Technology &amp; Engineering Standards Grades K–12</b></p>	<p>N/A</p>