



Grades 6-8

3.5.6-8.D Technology and Engineering: Applying, Maintaining, Assessing, and Evaluating Technological Products and Systems

Students who demonstrate understanding can *analyze how the creation and use of technologies consumes renewable, non-renewable, and inexhaustible resources; creates waste; and may contribute to environmental challenges.*

Clarifying Statement: Building on students’ knowledge about material resources and their growing understanding of sustainable resource use will provide opportunities for learning about methods of accessing resources (e.g., harvesting, mining, drilling) and the by-products of these activities.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Technology and Engineering Practices (TEP)
<p>Engaging in Argument From Evidence</p> <p>Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).</p> <ul style="list-style-type: none"> Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. 	<p>NAEP T.8.7</p> <ul style="list-style-type: none"> Compare the environmental effects of alternative technologies devised to solve the same problem or accomplish the same goal and justify which choice is best, taking into account environmental impacts as well as other relevant factors. <p>NAEP T.8.5</p> <ul style="list-style-type: none"> Some technological decisions involve trade-offs between environmental and economic needs, while others have positive effects for both the economy and environment. 	<p>Attention to Ethics</p> <ul style="list-style-type: none"> Shows an understanding of ways to regulate technologies and the reasons for doing so.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to fracking and the extraction of natural gas and oil.

Pennsylvania Career Ready Skills: Analyze various perspectives on a situation.



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>MP.2: Reason abstractly and quantitatively.</p>
<p>Integrated Standards for Science, Environment & Ecology, and Technology & Engineering Standards Grades K–12</p>	<p>3.3.6-8.M: Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.</p>