



Grades 3–5

3.5.3-5.X Technology and Engineering: Integration of Knowledge, Technologies, and Practices

Students who demonstrate understanding can *explain how various relationships can exist between technology and engineering and other content areas.*

Clarifying Statement: Students can learn how to convert energy from the wind to power a motor or from acidic fruits such as oranges and grapefruits to energize an LED light. This type of project uses information from mathematics, science, and other fields to develop a deeper understanding among students about technology and engineering products and systems.

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 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> Communicate scientific and/or technical information orally and/or in written formats, including various forms of media as well as tables, diagrams, and charts. 	<p>NAEP D.8.1</p> <p>Science is the systematic investigation of the natural world. Technology is any modification of the environment to satisfy people’s needs and wants. Engineering is the process of creating or modifying technologies and is constrained by physical laws and cultural norms, and economic resources.</p>	<p>Collaboration</p> <ul style="list-style-type: none"> Works in small groups to complete design-based projects.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to robotic industries and agriculture industries.

Pennsylvania Career Ready Skills: Explain ways to establish relationships that are positive and supportive of others.



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>MP.2: Reason abstractly and quantitatively. MP.4: Model with mathematics. MP.5: Use appropriate tools strategically.</p>
<p>Science, Technology & Engineering, and Environmental Literacy & Sustainability Academic Standards</p>	<p>3.2.4.C: Ask questions and predict outcomes about the changes in energy that occur when objects collide.</p>