



## Grades 3–5

### 3.5.3-5.FF Technology and Engineering: Nature and Characteristics of Technology and Engineering

**Students who demonstrate understanding can** *compare how things found in nature differ from things that are human-made, noting differences and similarities in how they are produced and used.*

**Clarifying Statement:** For example, the essentials for natural plant growth are sunshine (photosynthesis), air, water, and nutrients; whereas human-made items require an idea, resources (e.g., time, money, materials, and machines), and techniques. Things found in nature, such as trees, birds, and wildflowers, require no human intervention. On the other hand, creating human-made products, such as shoes, requires human effort and innovation.

**Assessment Boundary:** N/A

| Science and Engineering Practices (SEP)   | Disciplinary Core Ideas (DCI)   | Technology and Engineering Practices (TEP)  |
|---|---|---|
| <b>Obtaining, Evaluating, and Communicating Information</b><br>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. <ul style="list-style-type: none"> <li>Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.</li> </ul> | <b>Engineering Design</b> <ul style="list-style-type: none"> <li>Engineering design is a systematic and creative process for meeting challenges. Often there are several solutions to a design challenge. Each one might be better in some way than the others. For example, one solution might be safer, while another might cost less.</li> </ul> | <b>Systems Thinking</b> <ul style="list-style-type: none"> <li>Provides examples of how human-designed products are connected.</li> </ul> |

**Pennsylvania Context:** Examples of Pennsylvania context include but are not limited to local examples of Pennsylvania food production, agriculture, urban agriculture, and aquaculture.

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

**Connections to Other Standards Content and Practices** Select and use appropriate digital and network tools and media resources to collect, organize, analyze, and display supporting data to answer questions and test hypotheses.



| Standard Source  | Possible Connections to Other Standard(s) or Practice(s)  |
|--|---|
| <b>PA Core Standards: Reading and Writing in Science and Technical Areas</b>                                     | <p>CC.1.2.3.G: Use information gained from text features to demonstrate understanding of a text.</p> <p>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.</p> <p>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.</p> <p>CC.1.4.3.V: Conduct short research projects that build knowledge about a topic.</p> <p>CC.1.4.4.V: Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p>CC.1.4.5.V: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</p> <p>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.</p> <p>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>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> |
| <b>PA Core Standards and Practices: Math</b>   | <p>MP.2: Reason abstractly and quantitatively.</p> <p>MP.7: Look for and make use of structure.</p>   |
| <b>Science, Technology &amp; Engineering, and Environmental Literacy &amp; Sustainability Academic Standards</b> | <p>N/A</p>  |