



## Grades 3–5

### 3.5.3-5.B Technology and Engineering: Applying, Maintaining, and Assessing Technological Products and Systems

**Students who demonstrate understanding can** *examine information to assess the trade-offs of using a product or system.*

**Clarifying Statement:** To assess technologies, information such as cost, function, durability, and warranties could be collected on products such as toys, food, games, health products, school supplies, and clothes to assess the costs, benefits, and trade-offs of these products or systems.

**Assessment Boundary:** N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Technology and Engineering Practices (TEP)
<b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. <ul style="list-style-type: none"> <li>Analyze data to refine a problem statement or the design of a proposed object, tool, or process.</li> </ul>	<b>Defining and Delimiting Engineering Problems</b> <ul style="list-style-type: none"> <li>Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.</li> </ul>	<b>Systems Thinking</b> <ul style="list-style-type: none"> <li>Provides examples of how human-designed products are connected.</li> </ul> <b>Attention to Ethics</b> <ul style="list-style-type: none"> <li>Explains ethical dilemmas involving technology, such as tradeoffs.</li> </ul>

**Pennsylvania Context:** Examples of Pennsylvania context include but are not limited to manufacturing businesses.

**Pennsylvania Career Ready Skills:** Identify consequences of a decision to oneself and others prior to action.

## Connections to Other Standards Content and Practices



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.4: Model with mathematics.</p> <p>MP.5: Use appropriate tools strategically.</p>
<b>Science, Technology &amp; Engineering, and Environmental Literacy &amp; Sustainability Academic Standards</b>	<p>N/A</p>