



Grades 3–5

3.5.3-5.R Technology and Engineering: Design in Technology and Engineering Education

Students who demonstrate understanding can *apply tools, techniques, and materials in a safe manner as part of the design process.*

Clarifying Statement: Students understand that designers practice the making skills necessary to successfully complete a design. Continued opportunities to explore tools, techniques, and materials will result in refining the skills necessary to successfully design. Students can begin to select appropriate tools and materials for an identified purpose.

Assessment Boundary: N/A

| Science and Engineering Practices (SEP) | Disciplinary Core Ideas (DCI) | Technology and Engineering Practices (TEP) |
|--|---|--|
| Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. <ul style="list-style-type: none"> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. | Defining and Delimiting Engineering Problems 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. | Making and Doing <ul style="list-style-type: none"> Safely uses grade-appropriate tools, materials, and processes to build projects. |

Pennsylvania Context: N/A

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) |
|--|---|
| PA Core Standards: Reading and Writing in Science and Technical Areas | <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> |
| PA Core Standards and Practices: Math | <p>MP.2: Reason abstractly and quantitatively.</p> <p>MP.4: Model with mathematics.</p> <p>MP.5: Use appropriate tools strategically.</p> |
| Science, Technology & Engineering, and Environmental Literacy & Sustainability Academic Standards | <p>N/A</p> |