

Unit: Testing, Evaluating, and Refining	Concept: Refinement
<p><b>Standard</b></p> <ul style="list-style-type: none"> <li>3.5.9-12.KK Relate how technological and engineering developments have been evolutionary, often the result of a series of refinements to basic inventions or technological knowledge.</li> </ul>	
<p><b>Key Learning</b></p> <ul style="list-style-type: none"> <li>(LTTG) Students will be able to investigate better solutions through a belief that opportunities can be found in every challenge.</li> </ul>	<p><b>Unit Essential Question</b></p> <ul style="list-style-type: none"> <li>How can I investigate better solutions through a belief that opportunities can be found in every challenge?</li> </ul>
<p><b>Essential Question</b></p> <ul style="list-style-type: none"> <li>How has technology both created and solved problems?</li> </ul>	
<p><b>Key Vocabulary</b></p> <ul style="list-style-type: none"> <li>Evolutionary, Refinement, Invention, Innovation, Engineer, Designer, Technician, Technique, and Process</li> </ul>	
<p><b>Learning Experience</b></p> <ul style="list-style-type: none"> <li>Students who demonstrate understanding can relate how technological and engineering developments have been evolutionary, often the result of a series of refinements to basic inventions or technological knowledge.</li> <li>Clarifying Statement: For example, the development of the pencil was a long and tedious process. Engineers, designers, and technicians developed many different techniques and processes and used a variety of materials in order to develop the best pencil possible. Agricultural techniques were developed to improve the cultivation of food and its supply. Other developments include better ways to communicate through the development of paper, ink, and the alphabet; to navigate with boats; to understand human anatomy; and to provide access to clean drinking water.</li> </ul>	
<p><b>(Big Idea) Technology &amp; Engineering Curriculum Framework Big Ideas</b></p> <ul style="list-style-type: none"> <li>Historically, technology has both created and solved problems.</li> </ul>	
<p><b>(SEP) Science and Engineering Practices</b></p> <ul style="list-style-type: none"> <li>Obtaining, Evaluating, and Communicating Information - Compare, integrate and evaluate sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a scientific question or solve a problem.</li> </ul>	
<p><b>(DCI) Disciplinary Core Ideas</b></p> <ul style="list-style-type: none"> <li>NAEP T.12.2 - Changes caused by the introduction and use of a new technology can range from gradual to rapid and from subtle to obvious, and can change over time. These changes may vary from society to society as a result of differences in a society's economy, politics, and culture.</li> </ul>	
<p><b>(TEP) Technology and Engineering Practices</b></p>	

- Making and Doing - Demonstrates the ability to regulate and improve making and doing skills.

**Terms**

- (ETS) Engineering, Technology, and Applications of Science – Standards applicable across the Science, Environmental Literacy & Sustainability, and Technology & Engineering content areas.
- (LTTG) PDE Technology & Engineering Long Term Transfer Goals
- (Learning Experience) A learning experience refers to any interaction, activity, or other experience in which students acquire new understanding, knowledge, behaviors, or skills.
- (Big Idea #) PDE Technology & Engineering Curriculum Framework Big Ideas
- (SEP) PDE Science and Engineering Practices
- (DCI) PDE Disciplinary Core Ideas
- (TEP) PDE Technology and Engineering Practices