

Unit: Technological Design Process	Concept: Design Process Components
<p><b>Standard</b></p> <ul style="list-style-type: none"> <li>3.5.9-12.Y (ETS) Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</li> </ul>	
<p><b>Key Learning</b></p> <ul style="list-style-type: none"> <li>(LTTG) Students will be able to analyze a problem in its entirety while recognizing the subcomponents interacting with human-made and natural environments.</li> </ul>	<p><b>Unit Essential Question</b></p> <ul style="list-style-type: none"> <li>How can I analyze a problem in its entirety while recognizing the subcomponents interacting with human-made and natural environments?</li> </ul>
<p><b>Essential Question</b></p> <ul style="list-style-type: none"> <li>Why is there no single correct solution in design?</li> </ul>	
<p><b>Key Vocabulary</b></p> <ul style="list-style-type: none"> <li>Engineering, Systematically, and Priority</li> </ul>	
<p><b>Learning Experience</b></p> <ul style="list-style-type: none"> <li>Students who demonstrate understanding can design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</li> <li>Clarifying Statement: Criteria may need to be broken down into simpler ones that can be approached systematically, and decisions about the priority of certain criteria over others (trade-offs) may be needed.</li> </ul>	
<p><b>(Big Idea) Technology &amp; Engineering Curriculum Framework Big Ideas</b></p> <ul style="list-style-type: none"> <li>There is no single, best solution as designs can always be improved and refined.</li> </ul>	
<p><b>(SEP) Science and Engineering Practices</b></p> <ul style="list-style-type: none"> <li>Constructing Explanations and Designing Solutions - Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and trade-off considerations.</li> </ul>	
<p><b>(DCI) Disciplinary Core Ideas</b></p> <ul style="list-style-type: none"> <li>ETS1.C: Optimizing the Design Solution - Criteria may need to be broken down into simpler ones that can be approached systematically, and decisions about the priority of certain criteria over others (trade-offs) may be needed.</li> </ul>	
<p><b>(TEP) Technology and Engineering Practices</b></p> <ul style="list-style-type: none"> <li>Systems Thinking - Designs and troubleshoots technological systems in ways that consider the multiple components of the system.</li> <li>Making &amp; Doing - Demonstrates the ability to regulate and improve making and doing skills.</li> </ul>	

**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