

Unit: Testing, Evaluating, and Refining Multimedia	Concept: Optimization
<p><b>Standard</b></p> <ul style="list-style-type: none"> <li>3.5-9-12.W Optimize a design by addressing desired qualities within criteria and constraints while considering trade-offs.</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 do criteria and constraints drive design?</li> </ul>	
<p><b>Key Vocabulary</b></p> <ul style="list-style-type: none"> <li>Making, Criteria, Constraints, Optimal, Optimize, Approach, Solution, and Trade-off</li> </ul>	
<p><b>Learning Experience</b></p> <ul style="list-style-type: none"> <li>Students who demonstrate understanding can optimize a design by addressing desired qualities within criteria and constraints while considering trade-offs.</li> <li>Clarifying Statement: Students evaluate criteria and constraints in the technology and engineering design process to select optimal approaches for their design solutions. Students at this level should be able to articulate a rationale (e.g., design matrix) for their decisions in the design, construction, and implementation of their solution.</li> </ul>	
<p><b>(Big Idea) Technology &amp; Engineering Curriculum Framework Big Ideas</b></p> <ul style="list-style-type: none"> <li>Design optimization is driven by criteria and constraints.</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>Optimism - Shows persistence in addressing technological problems and finding solutions to those problems.</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