### Standard

• 3.5.9-12.U Evaluate and define the purpose of a design.

Key Learning	Unit Essential Question
<ul> <li>(LTTG) Students will be able to apply</li></ul>	<ul> <li>How can I apply investigation, imagination,</li></ul>
investigation, imagination, innovative thinking,	innovative thinking, and physical skills to
and physical skills to accomplish goals.	accomplish goals?

## **Essential Question**

• Why is there no single correct solution in design?

## **Key Vocabulary**

• Trade-off, Resource, Criteria, Constraint, Function, Form, Purpose, Evaluate, and Define

## Learning Experience

- Students who demonstrate understanding can evaluate and define the purpose of a design.
- Clarifying Statement: In order to move forward with the best solution, it is often necessary to determine a design that best fits a number of measures such as trade-offs, resources, criteria, constraints, function, form, etc. A product must be a balance of these measures to best fit the intended use and audience.

## (Big Idea) Technology & Engineering Curriculum Framework Big Ideas

• There is no single, best solution as designs can always be improved and refined.

## (SEP) Science and Engineering Practices

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.

## (DCI) Disciplinary Core Ideas

• NAEP D.12.8 - Meet a sophisticated design challenge by identifying criteria and constraints, predicting how these will affect the solution, researching and generating ideas, and using trade-offs to balance competing values in selecting the best solution.

# (TEP) Technology and Engineering Practices

• Communication - Conveys ideas clearly in constructive, insightful ways, including through written and oral communication and via mathematical and physical models.

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