

Unit 6: Engineering Design

Content Area: **Science**
Course(s):
Time Period: **Generic Time Period**
Length: **4 weeks**
Status: **Published**

Disciplinary Core Ideas

A. A situation that people want to change or create can be approached as a problem to be solved through engineering.

- Asking questions, making observations, and gathering information are helpful in thinking about problems.
- Before beginning to design a solution, it is important to clearly understand the problem.

B. Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.

C. Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

SCI.K-2-ETS1-1

Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

SCI.K-2-ETS1

Engineering Design

SCI.K-2-ETS1-2

Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

SCI.K-2-ETS1-3

Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Essential Question

What does an engineer do?

How can we use a design process?

Activity

Introduce vocabulary (problem, solution, engineer, technology, design process, model)

Build an airplane

STEAM activities

Enduring Understanding

Tell how an engineer defines problems and comes up with solutions.

Use a design process to define and solve a problem.

Assessment

1. Student Notebook Activities
2. Writing prompts
3. Participation in Activities
4. Teacher Observation

5. Airplane

Materials & Resources

<https://mysteryscience.com>

Construction paper

Straws

Tape

Accommodations and Modifications

- Large print textbooks
- Additional time for assignments
- Review of directions
- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Adaptive writing utensils
- Support auditory presentations with visuals
- Weekly home-school communication tools (notebook, daily log, phone calls or

email messages)

- Space for movement or breaks
- Extra visual and verbal cues and prompts
- Books on tape
- Graphic organizers
- Quiet corner or room to calm down and relax when anxious
- Preferential seating
- Alteration of the classroom arrangement
- Reduction of distractions
- Answers to be dictated
- Hands-on activities
- Use of Manipulatives
- Follow a routine/schedule
- Alternate quiet and active time
- Teach time management skills
- Rest breaks
- Verbal and visual cues regarding directions and staying on task
- Daily check-in special education teacher
- Visual daily schedule
- Varied reinforcement procedures
- Immediate feedback
- Personalized examples

