Unit III: Engineering is Elementary

Content Area: **Science**
Course(s): **Science K**
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Enduring Understandings

Engineering is useful.

It helps students demonstrate understanding and 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.

Students can analyze data from tests of an object or tool to determine if it works as intended.

Essential Questions

What is Engineering?

How is engineering useful in our everyday lives?

Content

Internet Resources:

https://www.youtube.com/watch?v=bipTWWHya8A

https://www.youtube.com/watch?v=owHF9iLyxic

Students will familiar themselves with Engineering Unit of Study: Just Passing Through: Designing Model Membranes

Engineering Design Standards K-2

K-2 ETS 1: Students who demonstrate understanding can: 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.

Science and Engineering Practices

- Ask questions based on observations to find more information about the natural and/ or designed world.
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Develop a simple model based on evidence to represent a proposed object or tool (i.e. diagram, drawing, physical replica, diorama, dramatization or story board.)
- Analyze data from tests of an object or tool to determine if it works as intended

NGSS

Disciplinary Core Ideas

- 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.
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for problem's solutions to other people.
- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

Skills

Science and Engineering Practices

- Research a simple problem that can be solved through the development of a new or improved object or tool.
- Ask questions based on observations to find more information about the natural and/ or designed world.
- Create a simple model based on evidence to represent a proposed tool or object
- Develop a simple model based on evidence for example: diagram, drawing, diorama, or story board.
- Analyze data from tests of an object to determine if it works as intended if not make the necessary adjustments as needed.

Standards

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-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
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.