

Building a Kinetic Sculpture

Description:

Students will design and build a kinetic sculpture.

Objective(s):

Students will design and build a sculpture that moves using input from its environment.

ISTE/NGSS Standards:

4a: Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

4c: Students develop, test and refine prototypes as part of a cyclical design process.

5c: Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

MS-ETS-1.1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS-1.2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

Teq Lesson Plan Activity

Essential Question(s):

1. How can the environment be considered in the design of a sculpture?
2. How can you use the properties of energy to make a sculpture move?

Materials:

- Cardboard
- Paper
- Scissors
- Straws
- Popsicle sticks
- Toothpicks
- Tape
- Glue
- EDP Graphic Organizer

<https://docs.google.com/document/d/1UYqqzT3aMgdNVb6-zog02Q4mY686WuM-2iHSEfsyLps/edit>

Do Now:

Have you ever seen a sculpture that moves?

Lesson:

1. Divide students into groups and distribute the materials.
2. Students should build a sculpture that moves. Remind students that the sculpture does not necessarily need to complete a task, but it does need to move.
3. Groups should consider:
 - What environmental input does their sculpture require (wind, water, light, human motion, etc.)?
 - What does the sculpture need to stand up to the environmental input?
 - How can they make their sculpture move with the environmental input?
4. Encourage students to draft a plan for their sculpture before building and revise their plan as they build according to issues that come up in the building process.
5. Students clean up their workspaces and present their projects.

Teq™ Lesson Plan Activity

Closure:

Students will complete the reflection in the EDP graphic organizer.

Extension:

Students can redesign their kinetic sculpture to respond to a different environmental input.