

Cardboard House Challenge

Description:

A grabbag lesson in which students are assigned a different type of house to make out of materials in the makerspace.

Objective(s):

- 1) Students are assigned a different type of house to make out of materials in the Makerspace.
- 2) Students will use drafting and planning to construct a house.

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:

What considerations need to be made when building a structure?

Materials:

- Cardboard
- Scissors
- Glue
- Markers
- Challenge Cards
- Engineering Design Challenge Graphic Organizer

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

Do Now:

Which state would you most like to live in?

Lesson:

- 1) Students will be shown a list of the most desired [home type](#) in each state.
- 2) Students will choose which type of home to build (can work alone or with a partner depending on class dynamics and student needs).
- 3) Students will plan and draft their house, noting required materials and possible challenges.
- 4) Students will access materials in the Makerspace to build their houses.
- 5) Students will work on their houses.
- 6) Students will evaluate their houses and note areas where the structures can be improved.

IF TIME: Students will execute on their improvements.

Closure:

- 1) Students will clean up their space and put all materials back where they belong.
- 2) Students will complete and submit their reflections.



Extension:

Students can decorate their homes using available Makerspace resources.