

Egg Drop Challenge



Big Idea: Using engineering to plan, test, and refine an idea.

Problem Statement:

How can you use engineering to safely drop an egg.

Essential Question: How would you build a structure that you can use to drop an egg a distance of at least 10 feet.

Constraints: You must choose 5 of the following materials to create your structure:

- Plastic straws
- Popsicle sticks
- Tape
- Paper
- Glue
- Plastic bags
- Cardboard
- Sock
- Balloon

Deliverables: Students must create a structure made of the listed materials that can help absorb the impact of a drop of various heights.

Activity 1 – Introduction to the project

You are challenged with coming up with a vessel to place an egg in that will have to withstand a drop of at least 10 foot (could be higher depending on what you have available to you).

You will have the entire day to plan including choosing your materials and how you will use them, then you must take these materials and construct your vessel. Finally you will test your device and make changes to it to improve the chances of your egg of surviving without breaking.

Examples of egg drop challenges:

<https://www.youtube.com/watch?v=vMDtiYhoymc&t=15s>

https://www.youtube.com/watch?v=vTQZKo_OxF4

You must choose 5 of the following materials to create your structure:

5 each

- Plastic straws
- Popsicle sticks
- Paper

1 each

- Plastic bags
- Cardboard
- Balloon
- Sock
- Tape (one 16 inch strip)
- Glue (one small bottle)

Names _____

5 choices

1. _____

2. _____

3. _____

4. _____

5. _____

Hints on Creating Design



- Start with a sloppy copy
- Use proper drawing tools (i.e. ruler, compass or circles) for the final version
- Show how you will incorporate all of the materials
- Label the different parts of the design, writing clearly in print
- Make the design recognizable enough for others to work from

Activity 2 – Testing your device

Each team is going to be given a golf ball and will test their vessel, standing on a chair to drop it.

You are looking for patterns trends that are successful and ones that are not. You want to improve your device in order to ensure success. What do you learn from each time you drop it?

Questions the team needs to be discussing and answering:

- Was there a hard impact?
- Would it survive from a higher drop?
- What is not needed that can be removed?
- Is there anything that needs to be added within the materials you have?
- Are there changes to the vessel that need to be made?
- Are there any materials you wish you had chosen but did not?

Debrief

The essential question the team should discuss in the debriefing is how much did the vessel change throughout the stages of:

- Design
- First model
- Improved model
- Testing model