Egg Bungee Jump

In this activity students will create a device that will safely hold a raw egg during a 6 foot bungee jump. They will try to get the egg as close to the ground as possible without having it crack.

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<th>Grade Level</th>
<th>Grades 5 - 12</th>
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<tr>
<td>Activity Time</td>
<td>30 minutes</td>
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<tr>
<td>Preparation Time</td>
<td>10 minutes</td>
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<tr>
<td>Grouping</td>
<td>2 – 3 students per group</td>
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Objective

As a result of this activity students will be able to:

- Work effectively with a team on a problem-solving task
- Experience the design process used by scientists and engineers
- Maximize the use of limited resources

Materials

Per Pair:

- 1 pair nylon stockings
- 4 rubber bands
- 4 balloons
- 5 feet of yarn
- 30 Pennies
- Plastic sandwich bag
- Scissors
- Tape

In order to test the bungee devices, you will need:

- As many eggs as there are teams (and a few extra in case some break)
- Newspaper to lay underneath the bungee jump area
- A yardstick
- A pole or apparatus that the students can hang their bungee cords from
- Butcher paper that has been marked from the bottom up by every inch
- Optional: a scale for students to measure the weight of their egg
Egg Bungee Jump

Directions

1. Ask students what types of things bungee jump designers need to keep in mind in order to create the best bungee jumps possible (i.e., balancing the thrill factor vs. the safety factor).

2. Tell students that their challenge today is to design a bungee jump for an egg. The egg will be released from a height of 6 feet from the bungee apparatus and the students need to get their egg as close to the floor as possible without cracking/breaking their egg. The winning design will get their egg closest to the ground while still keeping it completely safe.

3. Break the class up into groups. Each group will receive a baggie with the various bungee construction materials inside.

4. Hand each group an egg. This is their egg and they can draw designs/faces on the egg as they see fit.

5. Have the students use the pennies to test their apparatus – they should not try their device with the egg until the bungee jumping competition.

6. After 20 minutes, have all the students get their bungee launchers ready and hold a competition to see whose egg gets closest to the ground without cracking/breaking. Make sure to lay newspaper underneath the bungee jumping apparatus in case any eggs end up with a fatal finish. Set up the bungee jumping apparatus and tape the lined butcher paper behind it so there is some reference for how close the egg got to the ground. For groups who are waiting their turn, encourage them to get down on the ground (at eye level with where the egg is most likely to drop) in order to make careful observations/measurements for the other groups.

7. Have a recorder write down the results from each launch. When the competition is finished, celebrate all egg bungee creations and turn to the discussion questions.

Discussion Questions

- What are some of the strategies you used to design your device?
- What were some of the challenges and constraints that you faced?
- Were any of the design ideas that you came up with extremely varied or different from one another?
- What ideas did you have to abandon and which ideas did you go with? Why?
- Were there any material constraints that you faced? How important are these constraints when working in design engineering?

At the end, make sure to point out that there is no single way to get the task done – there are many methods that will work.

*Adapted from ZOOM into Engineering on the pbskids.org/zoom website*