

11th Grade PHYSICS CLASS EGG DROP CONTEST CONTAINER GUIDELINES

Contest Date: February date to be determined

Goal: Design a container to prevent an egg from breaking when dropped.

Materials: You may use whatever materials you want, but take these guidelines into consideration:

- Container must be designed to reveal whether the egg is broken or not, either by looking at it or by opening it.
- The container will be dropped at increasing heights and you must prove that the egg is not broken after each height. Therefore, the container must not be destroyed by opening it just to prove the egg is not broken.
- You must provide your own materials. It is recommended that they are disposable.
- You will build your container at home. Keep your design a secret from other students.
- The greater the mass of your device, the lower your score.
- You may make very minor repairs to your container between drops.
- Unique designs and/or decorations will receive extra points.
- Use of parachutes and helium is prohibited.
- Extra eggs will be available on the day of the contest.
- We will be outside. Please dress accordingly.

Judging Criteria:

The ranking of your device will be calculated in part by its “efficiency.” The greater the height achieved without cracking or breaking, the greater the efficiency. The smaller the mass of your device, the greater the efficiency. The efficiency of your device will be calculated as follows:

$$e = \frac{\text{Greatest Drop Height (m)}}{\text{mass (kg)}}$$

The total score awarded to your device will be the sum of the following items for which your device qualifies:

- efficiency
- 25 points if the egg does not fully crack after the first drop
- 30 points if the egg does not fully crack after the second drop
- 20 points if the egg shows no signs of any form of cracking

Prizes:

- 1st, 2nd, and 3rd place prizes will be awarded based on total points
- Consolation prizes for everyone (“participation trophies!!!”)
- This project will be graded as a lab activity.