

Physics in the Universe Egg Drop Contest

The objective of the competition is to design a device that will protect a large grade-A egg from breaking when it is dropped. Students will compete to develop the least massive, smallest device that will protect the egg from two drops and land accurately in the drop zone target.

Rules:

- 1) The device may be constructed from ONLY disposable chopsticks and size 33 or smaller, rubber bands, or it is **disqualified**.
- 2) The mass of the device will be taken on the day of the drop but before the egg is placed within. The longest dimension of the device will also be measured and recorded; it must be between 30 and 50 cm, or it is **disqualified**.
- 3) Eggs will be provided the day of the drop. One egg per student. Don't bring any eggs.
- 4) The egg will be placed in a small plastic bag and then the student will have one minute to arrange the egg in the vehicle to prepare for the drop.
- 5) The vehicle will be dropped from the second-floor balcony. The entire device must be above the drop plane (even with the top of the railing) when released.
- 6) The vehicle must come to rest completely in the 1 m diameter circle to earn a 5, completely in the 2 m diameter circle to earn a 4, completely in the 3 m diameter circle to earn a 2. Outside of the drop zone earns a 0.
- 7) The egg will be extracted and inspected for cracks. If there are no cracks, then the egg has survived drop number 1.
- 8) Surviving eggs and vehicles may proceed to the third-floor balcony. No repairs will be allowed between drops.
- 9) The vehicle will be dropped from the third-floor balcony from the drop plane. The drop zone will be recorded. The egg will be extracted and inspected for cracks. If there are no cracks, then the egg has survived drop number 2 for a bonus 10 points.

Scoring:

Device Evaluation: (50 points)

Score

- Longest dimension 30-50 cm _____/5
- Use of proper materials _____/5
- Mass is < 100 g (without egg) _____/5
- Video of practice drop, sent by email _____/10
- Description of physics criteria that led to your design, sent by email _____/5

Egg loaded in 60 s _____/5

Device lands in 1 m circle _____/5

Egg survives drop from 2nd floor _____/10

Video and Description Due Date: _____

Egg Drop Date: _____