

Parachute Straw Egg Drop – (In Person - 45 Minutes)

Description: Each pair of students will make a device out of paper straws and masking tape, supplied on-site by the event supervisor, to hold a large raw egg. The device containing the egg will be dropped from a fixed height to a target. **This event has a written test on the possible topics of eggs, parts of a parachute, and related vocabulary.**

Participation: 2 students per registered team.

Teams must bring: Safety Goggles and Scissors. Optionally they may bring a plumb line.

- **Teams may not bring any notes or resources of any type.**

Safety Requirements

- **Indirect-vent Goggles Required**
- **Because this is an event that uses liquids, all competitors must wear their eye protection at all times.**
- **If a team does not have the required eye protection, they will be given the opportunity to obtain it, time allowing, but will not receive extra time.**
- **If a team is unable to obtain eye protection, the team will not compete and will receive a no-show score.**



Materials provided at the event:

- 20 paper, non-flexible straws
- One meter of 2.54 cm masking tape
- Scissors
- One raw egg
- Material to use as a parachute

The Competition:

- Team members will have 25 minutes to construct a device with a parachute to cushion an egg and prevent it from cracking or breaking when dropped from a height between 2 and 5 meters.
- Teams will estimate the distance their device will land from the center of the target to use in case of a tie.
- No tape may be attached to the egg.
- Each team will have 2 minutes to drop the device from onto a target.
- There will be **ONE** drop per team from the chosen height. All teams will drop from the same height.
- Plumb lines will be allowed.
- A team whose egg is broken before their drop may request a second egg but will be penalized 100% of the distance from the target (e.g., a measurement of 20cm from the target will be scored as 40cm.) and receive a tier 2 placement.
- A team breaking a second egg will be again penalized 100% of the distance from the target (e.g., a measurement of 20cm from the target will be scored as 40cm.) will receive a tier 3 placement but will still compete with an empty device.
- The distance from the center of the target to the **FARTHEST** point on the container (or the farthest point of any piece of the container if it breaks during the fall) where it first hits the target area. (There is no penalty for the container bouncing, rolling, or breaking on impact, other than the broken egg penalty, if applicable.)

- At the end of their drop the competitors will open their device so the supervisor may check the egg.
- A broken egg is one that when rolled upon a paper towel will leave a damp spot.

Scoring:

Teams will receive two rankings. The rankings will be averaged to determine the team placements. They will be ranked based on:

- The score on the written test.

And

Teams will be tiered in three separate groups.

- Tier 1: Teams whose egg does not break during the drop will be ranked by distance from the target (including the "second egg" penalty, if appropriate) to the farthest point of their container or farthest piece of their container.
- Tier 2: Teams whose egg breaks during the drop will be ranked behind Tier 1, in order of distance from the target, again taking any "second egg" penalty into account.
- Tier 3: Teams that drop empty containers will be ranked behind Tier 2, in order of distance from the target.

Tiebreaker:

- The Event Supervisor will collect estimates before the team drops their egg and then will measure to the nearest millimeter the distance from the furthest point of the device to the center of the target.

Possible Resources:

Division A will not release previous tests, or the exact resources used by the Event Supervisor or test writer for any events. The listed resources are meant as a starting point. It is up to the competitor to research further.

- [Playtime with Parachutes | Physics for Kids](#)
- [All about egg sizes, types, grades and more](#)