

EVENT 4: EGG THROW

(rev 11/1/22)

OBJECTIVE: To design and build a device that protects a chicken egg inside of it from breaking when thrown at a wall, resulting in the greatest bounce distance from the wall.

RULES:

1. The team will design, construct and bring to the event a device that will protect an uncooked large-sized chicken egg.
2. The device must be constructed so that the egg can be placed inside of it at the time of the event, and opened to examine the egg after the throw.
 - a. Note– the egg must be placed inside a small sealable plastic bag before placing it inside of the device.
 - b. The egg may NOT be modified in any way.
 - c. Egg and bag will be provided at the competition.
3. The device must be constructed entirely by the entrants from household materials or materials available from hardware stores or from art/hobby supply stores.
 - a. No 3-D printing.
4. The mass of the device may not exceed 1.0 kilogram, not counting the egg.
5. No dimensions of the device may exceed 20 centimeters.
6. The device will be thrown towards a wall 2.4 meters (~ 8 feet) away.
 - a. The wall target area will be covered with plywood or particleboard to protect the wall.
7. The device must bounce off the wall a minimum of 60 cm (~ 2 feet).

COMPETITION:

8. The judges will record the mass of the device without the egg, in grams.
9. The team members will be given an uncooked chicken egg and small sealable plastic bag. They will have up to 5 minutes to place the egg inside the sealed bag, which is then placed inside their device, and close up the device. Nothing else may be placed in the bag with the egg, and no modifications to the device may be made. The egg and plastic bag will be provided at the competition.
10. One team member will throw the device from behind a 2.4 meters starting line, towards the wall.
 - a. The device must be thrown from a standing position – no running throws, no hitting the device (at any time).
 - b. The thrower's hand may not pass the starting line.
 - c. The team member throwing the device may move out of the way as it bounces off the wall.

11. In case of a “misthrow” (misthrow = device does not hit the wall), the team may re-throw their device.
 - a. The team will be given 10 minutes to check their egg and replace it if needed.
12. The judges will measure the straight-line distance (cm) from the wall to the first landing spot of the device. This is the device’s bounce distance (cm).
13. After the distance is measured, the team members will open their device, remove the bag/egg, and allow the judge(s) to inspect the egg.
 - a. A disqualification score will be given if:
 - i. the egg breaks or cracks during the throw or breaks while the device is being opened.
 - ii. the bounce distance is less than 60 cm.
14. The device with the greatest bounce distance wins.
15. Teams may dispose of egg/bag in trash, but device must be taken home.

SCORING:

The Team’s Final Score (out of 100) for a device that hits the wall and bounces will be calculated as follows:

$$\text{Team Final Score} = \frac{\text{Team's Bounce Distance, cm}}{\text{Winning Bounce Distance, cm}} \times 100$$

Tiebreaker for top scores: the lower mass device will win the tie.

Disqualification Score: If a participating team builds a device according to the rules but it fails to meet the objective as specified in the rules above, a minimum Disqualifying Score (greater than zero) will be applied by the judges.

Failure to follow Rules: If a team violates the rules, they may be assigned a Disqualification Score of “zero”, at the discretion of the judges.

*It is the team’s responsibility to periodically check in or inquire about changes and clarifications to the rules.
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