



# 2020-2021 EGG DROP GUIDELINES

## **GENERAL:**

Teams shall design and build a shipping container that will prevent an uncooked chicken egg (Grade A Large) from breaking when dropped from the first landing inside the Student Union at an initial height of about 11.5 ft (measured from the top of the railing). At the discretion of the judges, surviving eggs will then be taken to the second landing of the Student Union (about 28 ft) and dropped a second time. The container must be less than 1200 cm<sup>3</sup> in volume with no single dimension longer than 25 cm. The maximum weight of the device cannot exceed 1,000 grams. Contestants must be able to remove the egg without damage. Contestants have a maximum of 30 seconds to place the egg in the container and remove it to examine for any cracks/breaks.

## **MATERIALS:**

Any material may be used in the design, as long as the structure meets the design and contest rules as outlined below.

## **DESIGN AND CONTEST RULES:**

1. Teams will consist of 1-3 students. At least one team member must be present to compete. (If only one student is present and assistance is needed with loading, dropping, or checking the container, a SECME volunteer will be on-hand to assist. Parents, teachers, and students not on the egg drop team will not be permitted to touch the container.)
2. No kits or pre-made designs may be used. The structure must be the individual's invention. (Tupperware is fine as its primary design is not to provide shock absorption.)
3. The structure must be completely released (no strings or other attachments)  
**NO PARACHUTES!**
4. The structure must land in a designated target area.
5. No propulsion systems will be allowed.
6. No gases (i.e. helium) other than air can be present in the structure when it is weighed.
7. Volume will be calculated based on the shape of the container (inside air volume/space will not be subtracted out).

## JUDGING:

1. Grade A Large eggs will be supplied at the competition. You cannot bring your own egg.
2. All containers will be inspected by judges before they are dropped.
3. Once an egg is weighed-in with the structure, that egg cannot be exchanged with another.
4. The egg must be placed into the container on-site. A maximum of 30 seconds will be allowed to place the egg into the container and remove it. Exceeding these time limits will lead to a 1-point deduction in the total score.
5. If the egg is damaged during placement in the container, a second egg will be provided with no penalty. However, the 30 second maximum clock will not be reset.
6. The egg must be undamaged after the drop for the score to be recorded.
7. The score will be based on the following equation:

$$S_{\text{Final}} = \frac{75S}{(W + L^2 + V)} - \text{any point deductions}$$

Where:

- a) S = the success factor with values equal: S = 100 if egg survives both drops; S = 20 if egg survives first drop only; S = 1 if egg does not survive first drop
- b) W = weight of container with egg (grams)  
cannot exceed 1,000 grams)
- c) L = Longest dimension (cm) (no dimension longer than 25 cm)
- d) V = Volume (cm<sup>3</sup>) (cannot exceed 1200 cm<sup>3</sup>)

$S_{\text{Final}}$  = total points

8. The containers will be dropped from an initial height of about 11.5 ft. Eggs that survive the first drop will move to the second and final drop from the second landing (about 28 ft). Only two drops will be made.
9. The winner will be determined from the group of contestants that successfully make it to the second drop and achieve the greatest total score. If no teams make it to the second drop, the winner will be determined from the greatest total score after the first drop.

Note: Containers must meet volume and mass requirements to compete.

# EGG DROP COMPETITION

## Evaluation Worksheet

School Name: \_\_\_\_\_

SECME Coordinator Name: \_\_\_\_\_

Team Name: \_\_\_\_\_

Student Name: \_\_\_\_\_

Student Name: \_\_\_\_\_

Student Name: \_\_\_\_\_

Judge Name(s): \_\_\_\_\_

Date: \_\_\_\_\_

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### THIS SECTION TO BE COMPLETED ONLY BY THE JUDGES

L = Longest Dimension (centimeters)

V = Volume (cm<sup>3</sup>)

W = Weight (grams)

S = 100 points if egg survives both drops; 20 points if egg survives first drop only; 1 point if egg does not survive first drop

Point deductions for exceeding time limits: \_\_\_\_ (1 pt)

$$S_{\text{Final}} = \frac{75S}{(W + L^2 + V)} - \text{any point deductions}$$

$$S_{\text{Final}} =$$

Drop #1

Survival:      Yes      No

Drop #2

Survival:      Yes      No