

2018 Jr. High Guys Night Egg Drop Rules

Goal:

Construct a “package” containing one (1) raw egg which when dropped from the roof of NSC is able to keep the egg from breaking or cracking. Each participant shall make their own egg drop package and bring it to the NSC guys night on Monday Nov. 5 where a leader will drop the package from the roof.

Preparation:

- You do not need to bring an egg, eggs will be provided. They will be raw eggs and not hard boiled.
- Once you are given your egg you will be provided time to insert your egg into your package.
- If you need any tools/devices to insert your egg, you must bring them yourself.

Rules:

1. All judgements made by the NSC youth leaders are irrefutable.
2. Any egg that breaks or cracks between the time which it is put into the package and when it is inspected after reaching the ground shall be deemed “broken”. No points will be given to participants whose eggs have broken.
3. Eggs must remain in a raw state until they reach the ground. To this point, no location in the package may be above 40°C at any point in time after the egg is inserted into it and before the egg reaches the ground.
4. Packages cannot contain batteries of any type.
5. Gases which are lighter than air may be used provided that they are not flammable.
6. External energy may be used provided that it does not violate any other rules.
7. Dimensions and weight of the package will be measured in the form which the package is in when dropped. The weight of the egg is not included in the weight of the package.
8. Parachute areas will be estimated by the youth leaders to the best of their ability. Parachutes which are not solid will have the area of the holes subtracted from them, but estimates may be used if complex shapes are used.

Scoring:

- Participants whose eggs break shall receive zero (0) points.
- Participants whose eggs do not break or crack shall receive points based on the overall dimensions, parachute size (if applicable) and weight of their package.
- You can see the formula below if you wish. But in general packages that are heavier, smaller, and having a small or no parachute will score the highest provided they still provide enough protection to keep the egg from cracking.

Scoring Formula

$$\text{Score} = \frac{1280 * \text{package mass}}{(52 * \sqrt{\text{length} * \text{width} * \text{height}}) + (13 * \text{ParachuteArea})}$$

Where mass is measured in grams (g), and dimensions are measured in centimeters (cm).

If the parachute is circular it will be calculated using the formula πr^2 where r is the radius.

There is also an [excel score calculator](#) available online.