

# **The Great Egg Drop Experiment**

Alright, you know the drill: you're going to be dropping an egg and trying to see if it can survive the fall with the contraption you create to protect it.

This time, though, there are a few extra things you will be doing:

## **THIS IS THE RULES PART**

1. You may have 2-3 people per group.
2. AT LEAST half of your egg must be visible when placed in your "protective device."
3. Your device must be no more than a foot in diameter (approximately the size of a football helmet).
4. You must prepare a 1-2 page paper that describes your design parameters *before* you may create the protective device.
5. You must prepare a class presentation (using PowerPoint, Google Slides, etc.) that documents your design process, experimentation, and any calculations you made during the project.
6. Oh yeah, and you need to show some PHYSICS!

## **Part 1: Design Paper**

You need to come up with a design that will reflect a sound understanding of the physics that we have learned so far in our studies. You'll write a short paper (2 pages max.) to defend your design. Here's what needs to be shown:

- A verbal summary of the protective device.
- A diagram of the protective device, when attached to the egg.
- Physics concepts that support why you chose this design
- A list of materials needed
- Factors to look for when experimenting on the contraption (you will conduct at least one trial beforehand!)

## **Part 2: Presentation**

Yes, that's right: you will need to work on your presentation *before* you have even started on your design build! You will end up working on parts 2 and 3 simultaneously.

***Your presentation needs to have the following (rubrics to follow):***

- ***The contents of your design paper (see above)***
- ***Documentation of your first prototype, experimentation, and any alterations***
- ***Documentation of the results from your experiments and final challenge***
- ***Evaluation of your design, and possible improvements for future designs***

Make sure your presentation is well-formatted and maintains audience attention. Focus on pictures and demonstrable information, rather than filling your slides with just words!

## **Part 3: Experimentation and Final Challenge!**

This much is easy: design your protective contraption, and test it! You get one free test with an actual egg before the competition; for any other tests, you will have to provide your own egg. You may make any changes to your design you need to as you experiment. Make sure to document your experiments and changes to your design! Proper documentation includes pictures and written summaries.