Egg Drop Challenge and Lab

**Purpose:**

To design and create a landing apparatus that will protect an egg as it is dropped from a height.

**Materials:**

Whatever is available to you

**Design**

The apparatus must be smaller than 30cmX30cmX30cm

**Methodology**

Students must provide a plan/design on paper outlining what they will do for their landing apparatus. They must also provide a rationale explaining why they are designing there apparatus the way they are.

Students must test their design before the competition day and they must list what worked in their design and where they can improve

During competition day, students must record the height of their drop and the time it took for the egg to drop. Then, students must calculate the acceleration of their egg. Then students have to calculate the drag force.

**Due Date:**

Friday, December 4, 2015 a design must be submitted to be approved.

Tuesday, December 8, 2015 students must have an apparatus to test.

Wednesday, December 9, 2015 students must have an apparatus for competition day.

Wednesday, December 9, 2015 students must submit a lab report.

Egg Drop Lab

Data:

Mass of egg and apparatus:

|  |  |  |
| --- | --- | --- |
| Height | Time | Acceleration |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Analysis:**

1. Find the acceleration for your heights.
2. What is the force of gravity on your egg and apparatus?
3. What is the drag force for each of your heights?
4. What do you notice about the drag force if it is changing from height to height? How do you account for this?
5. What sources of error are there in this lab? How would you make it more accurate?

**Conclusion**

What is the average drag force? Did your egg survive?

**To hand in:**

1. A design and rationale
2. 2 Reflection pieces as project progresses
3. A working apparatus
4. Filled in group participation
5. A Lab report containing:
6. Purpose
7. Theory: Force of gravity, terminal velocity, and formulas used in lab.
8. Apparatus: Describe what you used for your experiment, especially the egg apparatus
9. Procedure: How would you tell people to do the lab?
10. Data: Show all of your measurements and data.
11. Analysis: Show your answers to the analysis questions along with your calculations.
12. Conclusion: Contains your answers to the questions in