

1 - Protect the Egg Challenge



Rules:

- The goal of this challenge is to support as much weight as possible under a trash can, without the trash can touching the egg
- Your contraption must allow for a line of sight to the egg during testing
- Your contraption must be contained under the trash can and may not be wider than 21 inches at any cross section

Materials:

- 2 yards of duct tape
- 4 balloons
- 0.5 pound of cardboard
- 30 sheets of paper

Timeline:

- 1 day for initial designs
- 2 days for build time
- 1 day for test and evaluation

Grades:

- Your Initial Designs: Each Initial Design should be on a dedicated page in your notebook. It should include (10 points)
 - A picture
 - Supporting drawings
 - A materials list and where you're going to get those materials
 - A date and time
 - A name for the design
- A Prototype (10 points)
 - This score will be determined based on the percent of build time used appropriately during build days
- An Evaluation & Summary of the results (10 Points)
 - This must be typed, printed, and adhered to your notebook and must follow the format on the next page:

Name:

Date:

Egg Protection Evaluation and Summary:

Questions To Answer Before Testing:

1. How do you plan to place plates into the trash can so you can maximize the weight capacity of your structure?
2. How much weight do you predict your contraption will support?
3. What part of your structure do you predict will be the weakest portion?

Questions To Answer After Testing:

1. How much weight did your structure successfully hold without buckling?
2. Are you happy with the results? Explain?
3. Aside from "Getting it right the first time", how could you have been more efficient with your time?
4. How could you have been more efficient with your materials?
5. In what ways do you feel your structure could be improved were you to do this project again?
6. Weigh all the materials from each group's project and compare it to the last weight it held successfully? Do you notice a trend? Create a graph of this data and include it in your answer? Calculate the line of best fit for this data.
7. How much do you predict a structure that weighs 265 grams will hold using the line of best fit from question 4?
8. How would you change the rules and materials list for this challenge in the future?

