Egg Drop Project 2004-05

Who will build the lightest transport and still survive?

Objective:

This is a project to be done in pairs or alone. You are to build a transport vessel for an egg so that it can survive, (does not crack or break) a drop from the lab table, the ceiling, or the balcony in the gym.

Scoring (50 points in the lab portion of your grade for the drop only)

A – Egg survives the fall from the balcony intact
B – Egg survives the fall from the ceiling intact
C – Egg survives the fall from the desk intact
F – Project not completed or done ***Points will be deducted for rule violations***

Materials

1 gallon plastic milk jug
1 raw jumbo egg
10 sheets of paper
2 feet of tape (you pick the type)

Rules

- The vessel must be made only with the materials provided. You may change them as you see fit except that the main transport must be 1 gallon jug.
- I must be able to place the egg in the vessel and remove it after the collision for inspection.
- **If you build the lightest design that survives all three drops you will receive breakfast or lunch from McDonald's!**

Project Report (20 points)

Fill in the table below by measuring the drop height and drop time. Use the Conservation of Energy, Work-Kinetic Energy theorem, Newton Laws, and the definition of acceleration to help you calculate the values. On a separate sheet explain and show how you arrived at your answers. A separate spreadsheet may be used if so needed. Acceleration is not -9.81 m/s/s.

	Mass	Height	Time	Vf	Force	a - acc	p – mom.
Desk							
Ceiling							
Balcony							

Post Drop Analysis (10 points)

Discuss the success/failure of your drops. What worked in your design and what didn't? Would you make any changes in your design if you had to do this again?

Timeline

We will spend 2-3 class days handing out materials and working on the design. Drop day will be announced at the start of the project. Make sure and clear your design before proceeding so you don't have to start over. This project will most likely require design and testing time outside of the classroom.