Egg Drop Project 2005-06

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 balcony in the gym, or the ceiling or the lab table.

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

A – Egg survives the fall from the balcony intact 1st try
B+/A- – Egg survives the fall from the balcony intact 2nd try
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
1 foot of duct tape

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.
- You do not have to use all of the paper or tape.
- Holes can be cut in the jug to allow you to put the egg in the vessel. Cutting it in half is also allowed.
- I must be able to watch you place the egg in the vessel and remove it after the collision for inspection.
- The vessel must not exceed 13" in any direction and be at least 8" high at any point during the drop.
- **If you build the lightest design that survives the drop from the balcony 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.

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