Physics Department's Project Egg Drop
October 18, 2002

Objective: Develop a device that will safely transport a raw egg from the second floor balcony to the first floor lobby in the Copley Science Center.

Description: A raw egg, provided by the physics department, is to survive a 5-meter, free-fall drop. You are to design a vessel that will safely transport your egg onto the lobby floor from the second floor balcony.

Design Restrictions: No parachutes and the length must not exceed 35 cm in any direction. The design may not consist primarily of commercial packing materials, however commercial packing materials may be one component of the overall design.

Budget: The vehicle that you design must have an intrinsic value of no more than $5. This includes all old and new materials. With any funded proposal, there is a limit to the cash resources. Government and private agencies are looking for good ideas that can be done for a relatively small amount of money. They are after projects that are "faster-better-cheaper" than current designs. This forces a scientist (you) to be creative in his or her approach to problems. NASA scientists are always confronted with the dilemma of staying on the cutting-edge of technology without spending millions of dollars to do it.

Proposal: A one-page description of your vehicle is due on October 9. This document will contain a diagram of your vehicle, a list of materials to be used in its construction, and a paragraph describing how it is to work. In your discussion comment on your methods to slow or speed-up the egg's rate of descent, your design to lessen or increase the force of impact, and any other reasons for your special design. The physics faculty will read your proposal, and you will be given notification on whether or not your proposal was accepted. If it was rejected, you have until October 16 to submit a revised draft.

Experiment: On October 18 you will bring your egg dropping apparatus to Copley 206. It is to be built according to the accepted design. A raw egg will be provided to each student by the physics department, inserted into his or her vessel, and dropped from the balcony. The egg will then be retrieved and examined.

Report: A two-page written report will be due on October 28. This report will cover the success or failure, any design or material changes for a future test, and a discussion of the reasons behind the success or failure of his or her apparatus. Use your knowledge of mechanics obtained through the first semester of physics to produce a qualitative discussion regarding the motion of your egg encased in your transport vehicle. You will be graded on your writing ability and the correct usage of physics vocabulary. This project will count as one lab grade.