Paper Airplane Race

Join a group of no more than four students for the purpose of designing a paper airplane with the greatest average velocity. One period of the lab will be devoted to designing and testing the plane. The second period will be for the actual competition between entries of all the groups.

The rules governing the competition are as follows: Planes must be constructed from one entire $8\frac{1}{2}$ by 14 inch sheet of paper. The sheet of paper may be cut up and the pieces reattached with tape. No plane may be entered into the competition that is shorter than 8 inches. Each group will be provided with 4 sheets of paper, masking tape, and a stop watch. A group may enter only one plane into the race. The plane with greatest average velocity (not *speed*) will be declared the winner.

Each entry will be given a single trial. It will be the group's responsibility to take measurements of their plane's displacement and elapsed time during the competition, under the scrutiny of the competing groups. The displacement of the plane's flight will be measured from the point of launch to the point where the plane hits an obstruction. Scores of $\vec{v}_{average} = 0$ will be assigned to groups making egregious errors in measuring and calculating the average velocity, or whose entry failed to attain a minimum displacement of four meters.

After the competition, each group will be responsible for collectively submitting a single report consisting of the following elements:

- Aim

- Method

- Assumptions

- Tabulation of data

- Results including statement of uncertainty and percent error

Please be sure to list each group member's name at the beginning of the report. A class presentation by the winning group, outlining their methods and design philosophy, will be held after the reports are graded and returned.