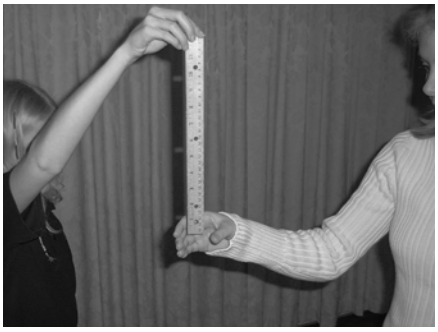
Physics 151 Class Exercise: Reaction Time



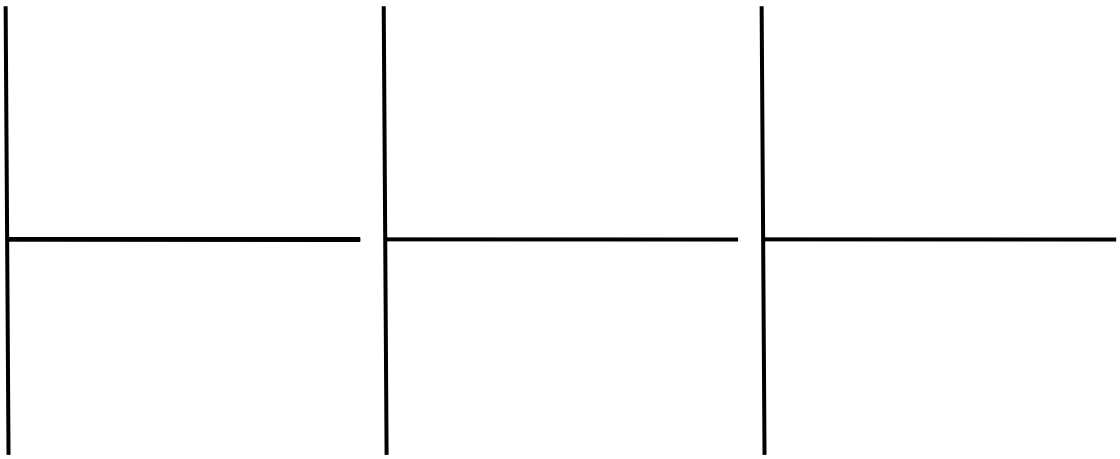
Devise a procedure for measuring the reaction time of a student by dropping a ruler between their fingers. You should take into account the variations among students and the inconsistencies in one student's reaction time. Your procedure should not allow anticipation of the ruler drop.

1) Record your position measurements in the table below.

Student	Trial #1	Trial #2	Trial #3	Trial #4	Trial #5	Average
Student #1						
Student #2						
Student #3						
Student #4						
Final Value						

2) Determine the average reaction time of a student. Clearly illustrate the freefall equations you are using.

3) Draw and label the position, velocity, and acceleration vs. time graphs for the falling ruler. Be sure to describe your coordinate system -- location of the origin and the positive direction.



4) Application: You are driving on a country road 52.0 mph. A deer runs out onto the road and stops in your path 65 m ahead. When you slam on the breaks the car decelerates at a rate of 4.20 m/s^2. Can you react and stop in time?

Clearly show all of your work and assumptions.