

*It takes a fraction of a second for brain impulses to travel from your eye to your brain and then to your fingers. Reaction times vary from person to person. In this lab, your task will be to determine your reaction time using only a meter stick and a small ruler (no clock or timer will be provided).*

**PART A: DETERMINING REACTION TIME**

1. Hold a meter stick between the thumb and forefinger of your lab partner. The thumb and finger should be spread 5.0 cm apart to insure consistency. Make sure to check this distance, and don't allow cheating! Make the 50 cm mark on the meter stick even with your partner's fingers. Drop the meter stick and have your partner catch it on the way down only by closing the fingers (not by moving the arm down). Do not announce when you are about to drop the meter stick.
2. Measure the distance the stick fell before it was caught. Repeat twice more and get an average distance.
3. Swap places with your partner and repeat to find your own reaction distance. Record only your data on this sheet.

Trial #	Reaction Distance (m)
1	
2	
3	
Average	

4. Which acceleration equation for an object initially at rest will allow you to calculate "t" from "d" and "a"? \_\_\_\_\_

Rearrange this equation to solve for t: \_\_\_\_\_

Since the object is falling, a = \_\_\_\_\_. Use your average d and solve for your reaction time:

\_\_\_\_\_

5. Why was it necessary to record the distance in meters instead of cm?

PART B: THE DOLLAR BILL DROP

1. Measure the length of a dollar bill (in meters). \_\_\_\_\_
2. Calculate how many seconds will it take the dollar bill to fall a distance equal to half its length. Show your work.

\_\_\_\_\_

3. Could you catch the dollar bill and win the bet? \_\_\_\_\_ Explain.
4. The eye-hand reaction time for the average person is 0.15 sec. How far will any object fall in that time? Show your work.

\_\_\_\_\_

Most people (*would, would not*) be able to catch the dollar bill. Explain.

5. Why would it be important to drop the bill vertically rather than at a slight angle?

6. Cite a specific real life example of when reaction time is important.