

Part 1: What is your Reaction Time?

The average human reaction time for a visual stimulus is estimated to be about one-fourth of a second. Let's see if your reaction time is quicker than that of the average person!

Using only a ruler, the acceleration due to gravity on earth, and your constant acceleration kinematics equations, devise an experiment that allows you to determine your reaction time.

Questions to consider:

1. What quantity can you measure with a ruler?

2. What is the acceleration due to gravity on earth?

3. How do these two things relate to time, using constant acceleration kinematics equations?

Be sure to take note of what you are keeping constant!

Extension Activity: Repeat your experiment, but focus on your phone. See how much your reaction time increases when you are distracted. How does this impact you as a new driver?

Part 2: What is your Hang Time?

Scientists believe the upper limit of human hang time to be one second. When Michael Jordan completed his famous free throw line dunk at the 1987 NBA Slam Dunk Championship, his hang time was 0.93 seconds. Based on this, what do you think your hang time will be?

Thankfully, you do not have to guess your hang time because you can calculate it using physics! Much like what you did in part one of this lab, you will determine your hang time using just a ruler and the acceleration due to gravity on earth.

Questions to consider:

1. What quantity can you measure with a ruler?

2. What is the acceleration due to gravity on earth?

3. What are you doing at the top of your flight?

4. How do these three things relate to time, using constant acceleration kinematics equations?

Be sure to take note of what you are keeping constant!