

Name \_\_\_\_\_  
Regents Physics

Date \_\_\_\_\_

## Velocity and Acceleration Lab

**Directions:** In this experiment you will measure the average velocity and average acceleration of each of the members in your group. We will be going outside for this experiment!

### **Materials**

1. Use the measuring tape to measure out a distance of 10.0 meters – mark the start and end of the “track”
2. Obtain (2) hand timers and a calculator
3. This lab paper and a pencil

### **Part I: Procedure for Average Velocity**

1. Position the first runner at the start of the track
2. Reset hand timers
3. Yell “go” and start the timer – the runner should START BEFORE THE STARTING LINE to get to a constant speed and then run at a constant speed to the end of the 10.0m track
4. Stop the timers as the runner crosses the finish line
5. Each person should make (2) trials and place their own time and distance values in their lab report
6. Calculate the average velocity of your run! (Show your work)

Your Name	Total Distance	Time 1	Time 2	Average time	Average Velocity
	10.0m				
	10.0m				

Work:

## Part II: Procedure for Average Acceleration

1. Position the first runner at the start of the track
2. Reset hand timers – (2) timers at the end of the track
3. Yell “go” and start the timers. The runner should accelerate from rest and continue to accelerate at the same rate until the end of the run.
4. Each runner should place their own time and distance values in their lab report

Your Name	Total Distance	Time 1	Time 2	Average time	Average Velocity	Final Velocity	Average Acceleration
	10.0m						
	10.0m						

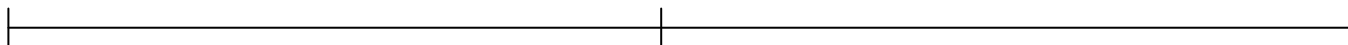
5. Calculate the Average Velocity by using the average velocity equation. Show all work below.

6. Final Velocity: Double the average velocity

7. Average Acceleration: Use the average acceleration equation. Show all work below.

Start

End



### Question:

1. What are some sources of error in your experiment? \_\_\_\_\_

2. Explain why we could use the average velocity to find the final velocity. \_\_\_\_\_

\_\_\_\_\_

3. What are some problems with using the average velocity to find the final velocity? \_\_\_\_\_

\_\_\_\_\_

