

# Speed of Vertical Throw Lab

Physics 432

Name: \_\_\_\_\_  
1 2 3 4 5 6 7 8

In this lab, we will be determining your throwing speed using physics.

## Procedure

Before going outside, you will need the following: stopwatch, ball, and this worksheet to record your own data.

- 1) While outside, give yourself room so that you will not bump into another group while throwing your ball.
- 2) As hard as you can, throw the tennis ball straight up. Your goal should be to have the ball land exactly where it was thrown from. Have your lab partner measure the time that the ball spent in the air. Record your times below.

Trial 1

Trial 2

Trial 3

Average Time

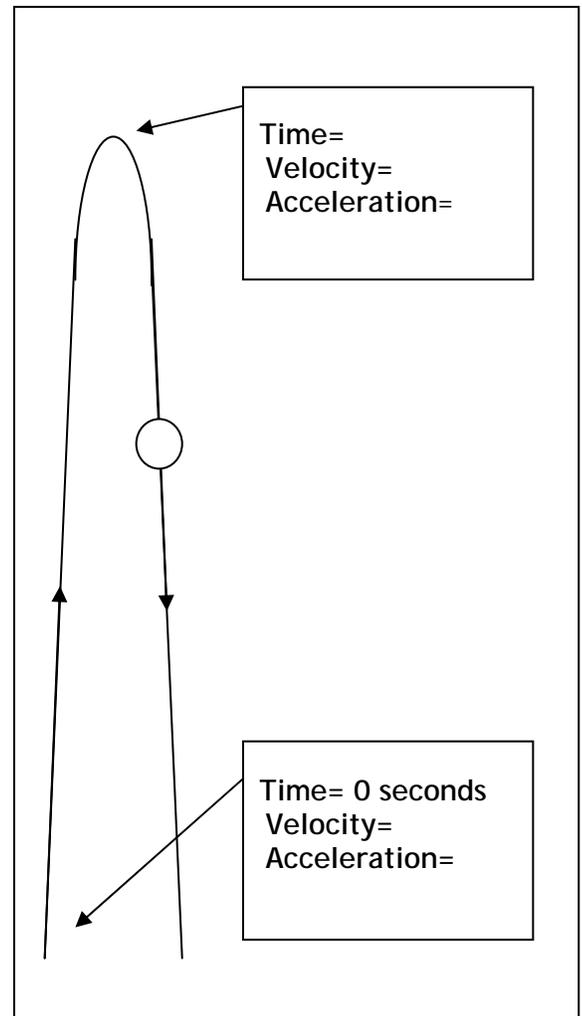
- 3) Help your lab partner record times for their throw. When your whole group has finished timing, return the ball and stopwatch to your teacher.

## Analysis

- 1) In the box at right, fill in any known information. Do not perform any calculations yet.
- 2) Now, use the space below to calculate the other unknown variables.

3) At what velocity did you throw the ball?

4) At what velocity did the ball hit the ground?  
*[show calculations to prove it!]*



## Post lab questions

During the flight of your ball, indicate when:

- 1) your velocity was at a maximum
- 2) your distance was at a maximum
- 3) your acceleration was zero
- 4) there was a positive velocity and a negative acceleration
- 5) there was a negative velocity and a positive acceleration

6) Is it possible to accelerate in one direction while moving in another? Explain.

7) Justine the Jock threw the ball for an air time of 6.5 seconds. At what speed did she throw the ball?

8) Leon the delicate threw the ball for an air time of 1.3 seconds. At what speed did he throw the ball?