

## ***Are You Speeding?***

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What is speed and how is it related to velocity?

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***For each student or group:***

Data collection system

Reflector (optional)

Motion sensor

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Add this important safety precaution to your normal laboratory procedures:

Make sure students have a clear area in which to work, with no tripping hazards.

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In everyday language the word "speed" is used in many ways. You might have heard the expressions "speeding up," "speeding ticket," "speed limit," "speed trap," and "need for speed."

## Speed and Velocity

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The steps below are part of the Procedure for this lab activity. They are not in the right order. Determine the proper order and write numbers in the circles that put the steps in the correct sequence.

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**Note:** en yo ee e y o      pe c ped n e o o n ep ee o en eed ec  
p ed n e ec p append x co e pond o yo A C d co ec on y e e e yo nd





## *Speed and Velocity*

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15. Start recording the second data run. ♦



24. Start data recording. ♦
25. On the starter's signal to begin, the walker should walk at a constant pace away from the

## *Speed and Velocity*

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3. Follow the same procedure to compute the speed of both walkers for the portion of the graph where the walkers were moving away from the motion sensor and for the portion of the graph where the walkers were walking towards the motion sensor.

4. Examine your graphs of position versus time. How does the slope, or steepness, of the graphs, compare to the speeds of the walkers you just calculated?



9. What is the difference between a velocity of 0.5 meters per second (m/s) and a velocity of -0.5 meters per second (m/s)?

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10. How are speed and velocity related to each other?



## *Speed and Velocity*

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Fill in the blanks from the list of randomly ordered words in the Key Term Challenge Word Bank.

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average speed

reference

position

object

