Name: _____ Period: _____

Position-Match Graph Lab
Data Sheet

1. If you held the motion sensor and pointed it at a fixed position, like a wall, would the position change during the experiment? Explain?

_____

_____

_____

2. What do the *x*-axis and *y*-axis represent on the graph on your screen?

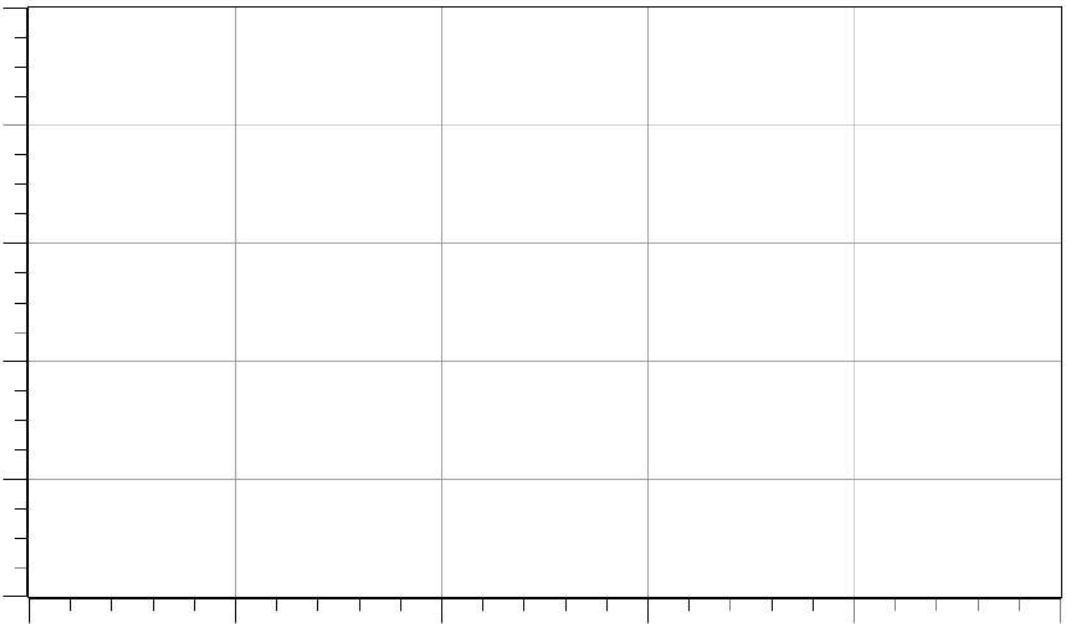
_____

_____

_____

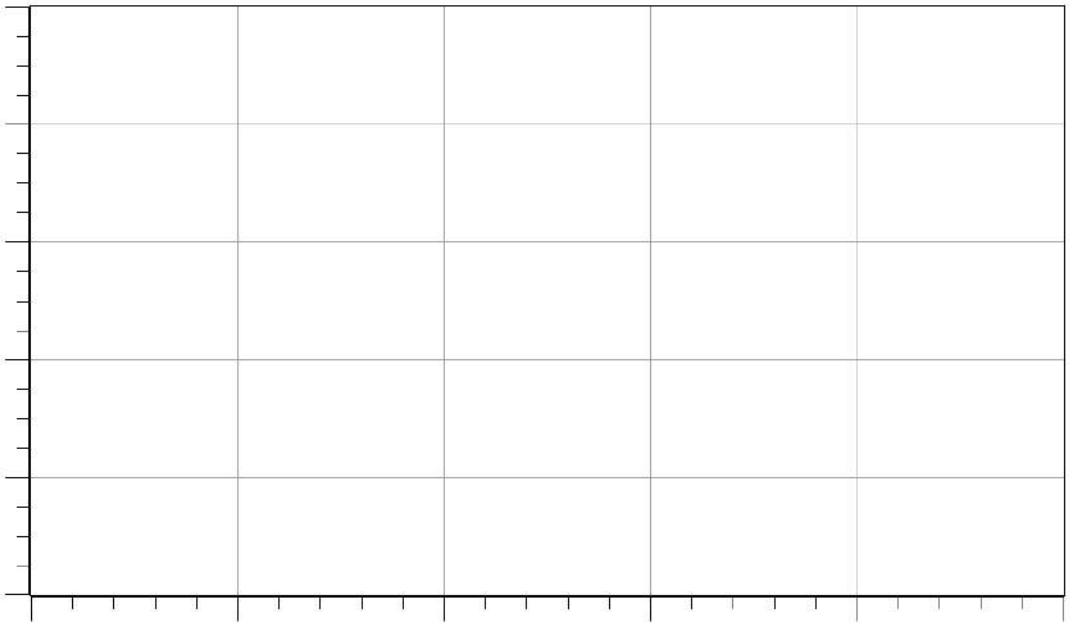
Graph 1: Position versus Time

Draw the graph that you followed below for Part I of your procedure. (Label your graph.)



Graph 2: Position versus Time

Draw the graph that you followed below for Part II of your procedure. (Label your graph.)



Analysis Questions

1. From Graph 1, identify your initial position and your final position.

   Initial position: _____

   Final Position: _____

2. From Graph 1, what was the distance you travelled?

   Distance: _____

3. From Graph 1, what was your displacement?

   Displacement: _____

4. From Graph 2, identify your initial position and your final position.

   Initial position: _____

   Final Position: _____

5. From Graph 2, what was the distance you travelled?

   Distance: _____

6. From Graph 2, what was your displacement?

   Displacement: _____

Synthesis Questions

1. If you were using a motion sensor to measure the motion of a cart on a track, and the graph of the motion was a straight line starting at 0.2 meter at zero seconds and ending at 1.1 meter at 4 seconds, what is the displacement of the cart? What is the speed of the cart?

   Displacement: _____

   Speed: _____

2. At a field meet, a runner in a 2 kilometers event runs on a circular track that is exactly 2 kilometers in circumference so he only has to run one lap. What was his distance traveled in meters, and what was his displacement at the end of the lap?

   Distance: _____

   Displacement: _____

3. A graph of Position versus Time of a car travelling down a straight road that starts at a driveway and ends at the post office shows the car travelling 5 miles away from the driveway in 15 minutes, and then 2.5 miles toward the driveway in 5 minutes. What distance did the car travel, and what was the car's displacement?

   Distance: _____

   Displacement: _____

4. An ant follows a straight chemical trail that starts at its nest to a piece of bread 23 centimeters away. At the end of the day (24 hours) it delivers 10 pieces of bread to the nest. What was the total distance the ant travelled in meters and its speed in meters per second?

   Distance: _____

   Speed: _____