

# Distance-Time Graphs: Graphing Motion

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## LEARNING OBJECTIVE

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Students will construct and interpret a distance-time graph to describe motion.

## MATERIALS NEEDED

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- graph paper
- ruler
- toy car/ball or a walking volunteer
- stopwatch
- measuring tape or masking tape markers

## HANDS-ON ACTIVITY

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1. Using your marked track (or a hallway marked every 1 meter), have your car/ball travel while a partner records the time it passes each 1-meter mark.
2. Build a data table of distance (meters) versus cumulative time (seconds).
3. On graph paper, plot distance on the y-axis and time on the x-axis, connecting the points with a smooth line.
4. Repeat the motion but have the object start slow and speed up (push harder partway through); plot this second data set on the same graph in a different color.
5. Label which line represents constant speed and which represents acceleration, marking the steepest section of each.

## QUESTIONS

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1. What does a straight, sloped line on a distance-time graph indicate?

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2. What does a curved line that gets steeper over time indicate?

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3. What would a perfectly flat horizontal line on your graph mean?
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**4. How can you find the speed from a distance-time graph?**

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