

## PRE-LAB: GRAPHING AND ANALYZING DISTANCE AND TIME DATA

Let's say that you go on a practice run for an upcoming Cross Country meet. You quickly fall into a fast and steady pace; you're totally in the zone! You run along a tree-lined trail where the trees are evenly spaced 2.0 meters apart. The time it takes you to run between each tree is 0.5 seconds.

1. Create a data table (boxed in using a ruler!): one column is for *time* (in seconds) and one column for *distance* (in meters).
  - a. Fill in the table with data from the situation above. Your time will increase by 0.5 s intervals from 0.0 to 5.0 seconds.
  - b. Make sure that the data table has a number and a **descriptive** title!
2. On a piece of **graph paper**, create a full-sized graph: *Distance vs. Time* (remember, this is always written as "y" vs. "x").
  - a. Include all of the data points from your table
  - b. Draw a best-fit line through your data points
  - c. How would you describe the speed you are running at: constant, increasing, or decreasing? **Explain your reasoning using the graph.**
3. Calculate the slope of your best-fit line. Show your work (with units) and include the appropriate units in your final answer.

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

4. What does the value of the slope of a distance v. time graph represent?

**GREAT JOB! Make sure to double check your work with a partner.  
You're ready for our next lab!**

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