

Physical Science

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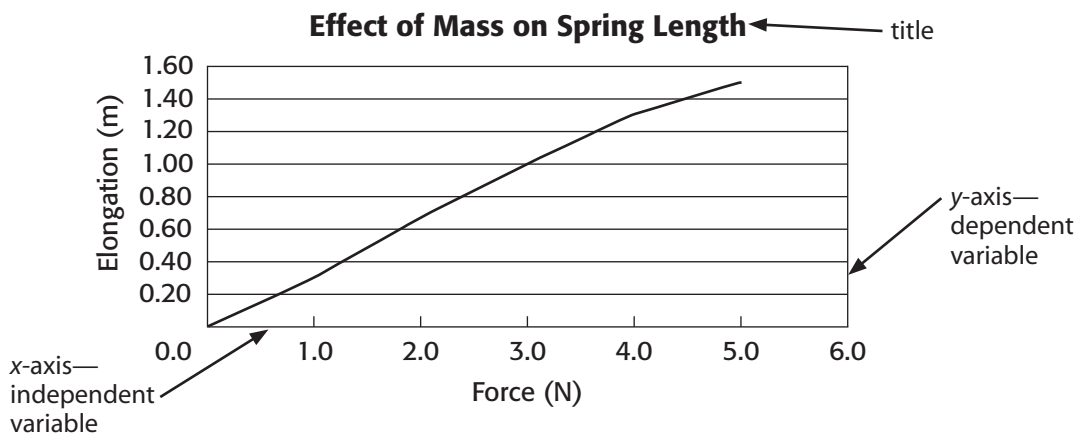
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Drawing a Graph

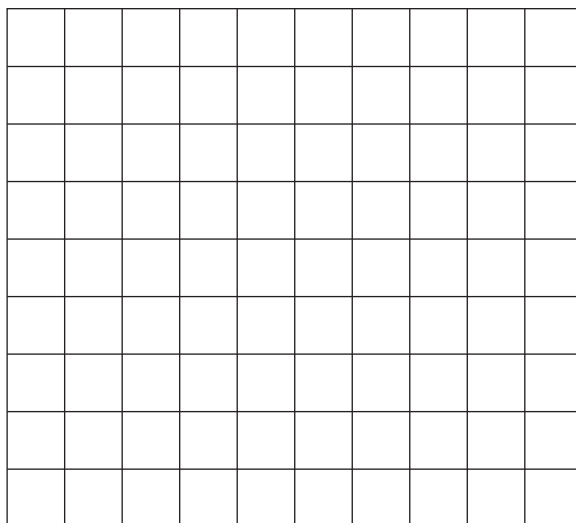
A graph is often used to see if a relationship exists in a set of data. You can use a graph to show how one variable changes in response to another variable changing.



Data on the speed of an object during a certain time interval was collected and placed in a data table. Follow the steps below to graph the data.

- Step 1** Draw an x -axis and a y -axis.
- Step 2** Label the x -axis with the independent variable—this is the variable you change.
- Step 3** Label the y -axis with the variable that is the dependent variable—the variable that is a result of changing a variable.
- Step 4** Decide on the scale for each axis. Look at your data. Determine the range of the data for each axis. Choose a scale that has the numbers equally spaced.
- Step 5** Plot each point.
- Step 6** Draw a line connecting the data points.

Time (s)	Speed (m/s)
0	0
10	20
20	45
30	60
40	84



Reading a Graph

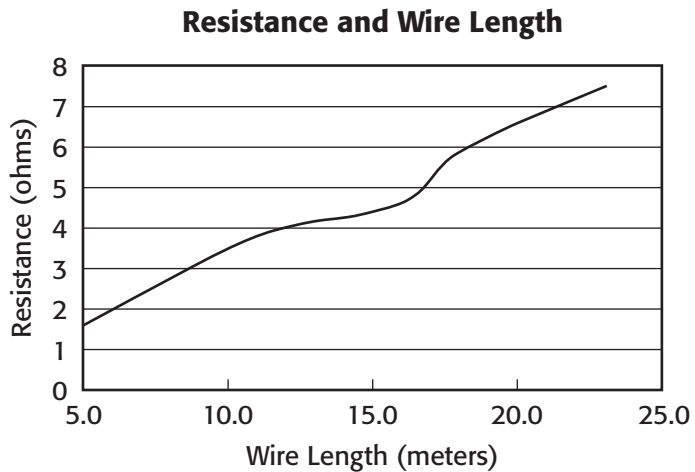
Data collected in an experiment is often displayed on a graph. A graphical display can be an easy way to see the relationship between variables.

1. When both variables increase the trend is _____.
2. When one variable increases and the other decreases the trend is _____.
3. When there is no relationship between variables there is _____ between variables.

Use the graph to answer the following questions.

4. What are the two variables tested in this experiment? _____
5. The horizontal axis (the axis that goes from left to right) is known as the x -axis. The independent variable is placed along the x -axis. What is the independent variable?

6. The vertical axis (the axis that goes up and down) is the y -axis. The dependent variable is placed along the y -axis. What is the dependent variable?



7. To read a point on the graph, start at the x -axis, move up the line, move across to the y -axis, and read the point on the y -axis. What is the resistance in a 15 m piece of wire? _____

8. What do you notice about the graph as the length of the wire increases?

9. Is this a positive or negative trend? _____

10. Based on the graph, what will happen if the length of the wire is increased to 25 m?
