

How to Graph Experimental Data

Often when you record data for a scientific experiment, it is necessary to graph your data to see any relationship or trends clearly. Creating an appropriate graph and graphing data correctly can sometimes be confusing – but it doesn't have to be!

Step 1. Determine which is your manipulated (independent) variable and which is the responding (dependent) variable.

Remember, the manipulated variable is the one that you change; the responding variable is the one that changes as a result.

Step 2. Determine which type of graph is the right one to present your data.

There are several types of graphs; each one is best suited to a different type of experiment. Look at the descriptions in your book to decide which graph type you should use.

Step 3. Place your manipulated variable along the x-axis and your responding variable along the y-axis.

The x-axis is the horizontal side along the bottom and the y-axis is the vertical one that goes up the left side.

Step 4. Decide on a scale that makes sense.

You want your graph to fill the page, not sit in a tiny corner where it's hard to read. You also don't want the scale to go too far beyond your data. Make sure your numbers are properly spaced! Then, label your axes – don't forget the units! (Is the temperature Celsius or Fahrenheit? Is the time minutes or hours? Is the distance meters or cm?)

Step 5. Plot your data carefully!

It doesn't matter if you've done everything above perfectly – if you don't put the points in the right places, the graph is worthless. Read both numbers of your data point carefully, draw your point lightly in pencil, then check to make sure it's in the right place before making it dark.

Step 6. Final touches.

Give your graph a descriptive title.

Add lines to your graph, if appropriate.

Add color to your lines if there's more than one.

Add a key if you have multiple lines. (What does each color mean?)