

## Scientific Graphing

---

Have you ever wondered why we use graphs? Or what it is that a graph is telling you? Graphing is a pictorial way of representing relationships between various quantities, parameters, or measurable variables in nature.



A graph basically summarizes ***how one quantity changes if another quantity that is related to it also changes.***

### Steps to Drawing a Line Graph

1. Draw the axes. One will go up the left side of the page and one will go across the bottom of the page. Leave about 4 lines from the edge in each case to write in. Use most of the page.
2. The **independent variable** will go on the bottom (or x) axis. Write the name of the variable and put the units in brackets about 3 lines below the axis.
3. Count the number of squares on the bottom axis. Determine the **range** of the **independent variable** (the amount between the highest and lowest numbers). Divide the range by the number of squares. Round this number **up** to either 1, 2, 5 or 10 or a multiple of that (like 100, 0.1, 0.01, 200, 20, 0.2, etc...). Now, each square on the bottom axis will have that number.
4. The **dependent variable** will go on the side (or y) axis. Write the name of the variable and put the units in brackets about 3 lines to the left of the axis. Write this sideways from the bottom to the top.
5. Plot the data. Make sure all the data is plotted.
7. After all the points have been plotted, if appropriate, draw in a **smooth curve or line** passing near most of the point. *The line or curve is NOT like connecting the dots! It only needs to pass near most of the points.* If it is a line that is drawn, we call it the **line of best fit**.
8. Give a descriptive title to the graph.

