Practical Skills

Keyword	Definition
Decimals	When there are numbers after the decimal point Example 0.6 or 96.2
Percentages	Example. 34 as a percentage of 68 Percentage = 34 / 68 = 0.5 0.5 x 100 = 50%
Variables	There are 3 types of variable that must be considered in any scientific investigation, this ensures the investigation is accurate.
Uncertainty	This is a measure of the overall confidence in experimental results. It is often expressed as a value + or – the final result.
Resolution	This is the smallest measurement that can be made with a particular piece of equipment. An example would be millimetres using a ruler

INDEPENDENT VARIABLE

What I CHANGE

DEPENDENT VARIABLE

What I OBSERVE

CONTROLLED VARIABLE

What I KEEP THE SAME

Categoric variables are fixed, examples could be colours.
Categoric variables are often displayed as bar charts
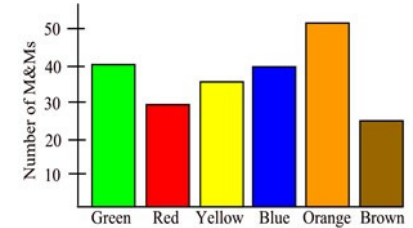
Continuous variables vary over a range of numbers. They are usually displayed as line graphs.
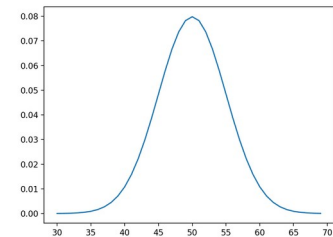
Anomalies or anomalous results are results that do not follow a pattern. They are seen as plotted points that do not follow the line of best fit.

You should not include an anomalous result when calculating means, ignore them in your calculation.

Average mean is calculated by adding all your results together. Then dividing this by the total number of results you took. Example:

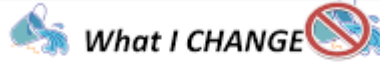| 73	73	76	77	81	100

Mean (average) = $\dfrac{\text{Sum}}{\text{Count}}$

$= \dfrac{73 + 73 + 76 + 77 + 81 + 100}{6}$

$= \dfrac{480}{6}$

$= \mathbf{80}$

In a results table the independent variables is in the first column. Units must be included also!

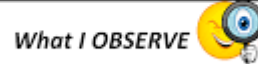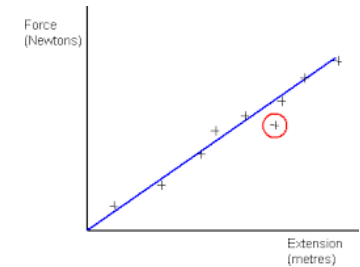| Independent Variable (Unit)	Dependent Variable (Unit)
0.0	0.0
1.0	0.5
2.0	1.5
3.0	1.7
4.0	2.5
5.0	3.1

Scientific prefixes are used to represent large and small numbers more easily. An example is millimetre, mm, this means a 1000th of a metre. So 2mm means 0.002m.

Prefix	giga	mega	kilo	deci	centi	milli	micro	nano
Symbol	G	M	k	d	c	m	µ	n
Multiplying factor	10^9	10^6	10^3	10^{-1}	10^{-2}	10^{-3}	10^{-6}	10^{-9}