CIE Biology IGCSE

General practical skills

Recording observations and measurements

Two methods of recording data are **observations** and **measurements**. Both can be recorded using different methods e.g. tables, written statements, drawings, tallies. When using tables ensure you use a ruler and a pencil, and include headings with units.

Observations

Observations are a more **qualitative** form of recording results. This involves writing down **exactly** what you **see** happening during the experiment. There is **always** something to observe; even if nothing happens you can write 'no change'. A good tip is to use four of your **senses** when recording observations;

1. What can you **see**? This is the most obvious one, and therefore easiest to spot. Does anything change colour? Is there fizzing?
2. What can you **smell**? Is there a nice smell, like fruit? Or a less pleasant smell, like rotten eggs? (There are some substances in science that you should never smell directly as they can cause damage. Instead use the technique of 'wafting' detect the smell of a substance without inhaling too much).
3. What can you **feel**? Is something getting warmer, or colder?
4. What can you **hear**? This is the trickiest one as experiments rarely produce noise. Listen carefully, and you may hear popping or whistling if gas is being produced.

Measurements

Measurements are a more **quantitative** form of recording results. This involves exact numbers, either obtained from apparatus such as scales, or counted frequencies. Some examples of things you can measure include weight, length, volume (of liquid or gas), temperature, pH.

It is important to be as **accurate** as you can when taking measurements; ask someone else to check if you are not sure. Record results to the **same precision** as your equipment e.g. if using a measuring cylinder with 1cm^3 increments, do not record 0.5cm^3. **Always use SI units**, e.g. millimetres not inches.