



Laboratory work and writing up an experiment

Before starting an experimental investigation, the aim of the experiment should be made clear. You may ask an open-ended question, such as “*What is the effect of salt water on plant tissue?*” You may also formulate a hypothesis, such as “*The germination of seeds requires the presence of water, oxygen and an optimum temperature*”, and then plan an experiment to test it.

In any case the experiment must be designed in a way that reliable data are produced.

Each report of an experiment should contain the following elements:

(1) Title

This is a clear statement of the overall problem to be investigated. Example: “*Experiment to investigate the effect of temperature on the rate of photosynthesis*”.

(2) Hypothesis or aim

This is a clear statement of the hypothesis or question including the variables under examination. Example: “*Experiment to investigate the effect of temperatures of 0, 10, 20, 30, 40, 50, 60, 70 degrees Celsius on the rate of photosynthesis of an Elodea plant measured in number of gas bubbles produced per minute*”.

(3) Method or procedure

This includes the description of the apparatus and materials needed and an account of the activities carried out during the experiment in logical order. Using the information given another scientist should be able to repeat the experiment.

(4) Results and observations

Observations and results should be presented as clearly as possible in adequate forms, such as verbal description, tables of data or graphs depending on the data collected. If several data are collected for repeated measurements of one variable, the mean (average) of these values must be calculated and recorded.

(5) Discussion and/or conclusion

In this part you formulate the answer to the question(s) posed in (2), discuss reasons for unexpected results, verify or falsify your hypothesis.