

You should keep a lab notebook containing records of all the laboratory work you carry out in the program. The ability to keep an orderly record of your experimental work is an essential component of doing science.

Lab records should take a simple form. The information in the lab write-up is intended for the person conducting the experiment (you). Therefore, only include those things that will ensure that you can recall the details and the results of the experiment at a later date. For each lab record you should include an entry in a table of contents at the start of the lab book. As a general rule the write-up should include the following:

1. The title and date of the experiment and all lab partners
2. A *concise* statement of the purpose of the experiment
3. A copy of the lab hand out, attached.
4. If the handout does not describe the method or procedure you should do so.
5. An *organised* data table (with sample pictures or tapes affixed with tape): The table should indicate precisely what is being measured and what the units are. The uncertainty of the measurements should always be recorded.
6. Processing of Data:
  - (a) Graphical analysis -- this represents the best means for averaging the data and enables extrapolations and the calculation of slope. When plotting the data keep in mind the following:
    - i) If appropriate the data should be plotted in such a way that the resulting graph is linear (it is usually appropriate).
    - ii) A clear title should appear at the top of the graph and both axes should be calibrated and labelled with descriptive words and units.
    - iii) Points should be clearly identified.
    - iv) Graphs should be large.
    - v) The slope of line of best fit is usually an important quantity and should be shown on the graph. (Remember to include units!)
  - (b) Calculations -- Details of the calculations made with the data should be shown. This should include, where appropriate, the physical equation relevant to the measurement, and any necessary manipulations. Pay special attention to units and significant figures.
7. Discussion: Discuss what was learned through the experiment and your analysis of the data. Indicate possible sources of error. If the experiment was unsuccessful or limited in its ability to fully explore the physical effect, explain how. Comment on extensions or improvements to the experiment that occur to you.

Remember the lab record is not a work of art but simply a careful record of your work. There is no need to labour for hours on the write up.