In many Science and Engineering units, you will undertake experiments in a laboratory.

This experimental work helps develop your understanding of the theory in the subject. It gives you “hands on” experience in the use of equipment and the experimental techniques used in your field.

The lab work may consist of a number of tasks: preliminary work to be completed before the beginning of the lab, the experiment itself, questions asked by the demonstrator at the end of the experiment to check that you have understood the theory behind the experiment, and a lab report written either during the lab time or to be handed in at a later date.

You will be given detailed guidelines about what is expected in labs in particular subjects, but here is some general advice about how to learn most effectively from the lab work.

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**Preparation for the lab**

**Read the lab notes** a few days before you attend the lab session so that you can discuss any problems with the lecturer. Become familiar with the theory behind the experiment by reading the relevant sections of your textbooks and lecture notes.

**Understand clearly what you are investigating** in each lab. If you are not sure about any aspect of the theory or the experiment, ask your lecturer to give you a brief explanation.

**Complete any preliminary work** set out in the lab notes. This may include reading set chapters of your textbooks, or doing some calculations or problems.

**Preview the experiment** so that you know exactly what you are going to be doing during the lab. Be clear about each step in the experiment, the equipment which you will need to use and what data you will need to record.
During the lab

Arrive on time so that you can listen carefully to the demonstrator’s explanation of the experiment and demonstration of any new equipment.

If you are not clear about anything, ask your demonstrator. During the experiment, you can check with your demonstrator that you are on track and getting reasonable results.

Be involved; ask yourself questions about what is happening and make predictions about what you will discover. Make sure you can explain any unexpected results to yourself.

Note down any problems you have. You may need to discuss why you had these problems in the discussion of your results in the written lab report.

After the lab

Clarify any important points you didn't understand by discussing the experiment with other students, reading your textbook, or consulting your lecturer.

Revise to consolidate what you have learned (concepts and theory) from the experiment. Writing a lab report is a good way to do this.

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