

PRACTICAL FORMAT

1. **TITLE:**

The title indicates the topic or section of the syllabus under which the experiment is based. For example, *Thermal Properties* is a suitable title for an experiment to determine the specific latent heat of a substance.

2. **AIM:**

The aim states exactly what is going to be done in the experiment. An aim usually begins with the word "To". An example of an aim under Mechanical Properties of Materials is "To determine the Young's modulus of a steel wire".

3. **APPARATUS:**

A list of all essential apparatus and materials should be given. Where possible, write down the length of any material used (e.g. 10.2 cm of wire) and the magnitude of the physical property of components (e.g. 9 V dry cell).

4. **DIAGRAM:**

A large, line diagram showing how the various pieces of apparatus are utilized in order to carry out the experiment, should be drawn. For example, in an experiment to determine the resistance per unit length of a wire, a circuit diagram is suitable. Your diagram should have a title. Draw neat, horizontal pencil lines to label the main parts of the diagram.

5. **METHOD:**

List all steps in the procedure, taking care to show the correct sequence of tasks. Use past tense, third person and passive voice. For example, "The switch was closed and the current noted on the ammeter".

6. **THEORY:**

Briefly explain the principle(s) behind the experiment. Write down any formula (e) which is/are relevant to the experiment.

7. **RESULTS:**

It is essential to make accurate observations and record such observations properly. When in doubt, double check the steps in the procedure and have the apparatus checked. Data is usually tabulated (Table format) with suitable headings and units, if any. The number of significant figures used in recording numerical data should be consistent.

8. CALCULATIONS:

It is often necessary to perform calculations based on your results. Express your answers to the appropriate number of significant figures. Record the calculated values in the results table using a suitable heading and unit.

9. PLOTTING A GRAPH:

Give your graph a suitable title. Label each axis with the variable and its unit. Choose scales which will enable points to be plotted easily. The resulting graph (line or curve), when drawn should occupy most of the page. Plot points with a sharp pencil using either a dot or cross to mark each point. Draw a line or curve of best fit, which need not pass through all the points (see figures 1, 2).

10. DISCUSSION:

Explain how sources of error may occur while conducting the experiment. Errors may be random or systematic. Random errors occur when measurements are scattered around a mean value. Random errors arise, for example, in taking readings on analog instruments where the observer has to estimate the position of the pointer on a scale. Systematic errors occur when there is a significant difference between the mean and the accepted value. Systematic errors may arise from a faulty instrument, lack of skill on the part of the experimenter or there may be a problem with the method. State any precautions which were taken to ensure reliable and accurate results.

11. CONCLUSION:

There should be a link or connection to the aim of the practical. Write a clear and concise conclusion.