

## Laboratory Notebook and Report

A laboratory notebook contains the permanent written record of a researcher's mental and physical activities from experiment and observation, to the understanding of new phenomena. The act of writing the notebook forces one to stop and think about what is being done in the laboratory. **After** the experiment, the researcher **then** analyzes, evaluates, and interprets the data

There are important legal reasons for keeping a good notebook. A laboratory notebook is admissible in a court of law for patent claims. In industry, a researcher's laboratory notebook is the property of the company. It is witnessed, signed, and collected each working day.

A notebook is bound and numbered continuously throughout. **The first few pages are left blank for a table of contents.** All entries are recorded with a black or blue ball-point **ink** pen. Incorrect data is removed by drawing a single line through the entry. Be sure to leave the unwanted entry legible, as it may turn out to be correct. The key to writing a good notebook is simple clarity: clear layout, clear descriptions, and **good penmanship**.

In this course, your laboratory notebook will be part of your grade. The main criteria for evaluation will be how clearly you indicate what you did and saw. **It should be written so that if the notebook was sent to a chemical laboratory in anywhere in the United States, they could understand what you did and repeat the experiment.** The notebook will be turned in as three parts that will together serve as your laboratory report.

1. **Purpose, Introduction and Questions** turned in before you start the experiment.
2. **Data and Observations** turned in before you leave the laboratory.
3. **Data Treatment and Discussion and Conclusion** the week following the **completion** of the experiment.

### Heading

1. Fill in **each** page with your name, partner's name (if applicable), experiment name, date and section number.

### Before coming to the lab

#### Purpose

1. Write legibly and use the lines in the notebook. Use the whole page across.
2. Use **complete** sentences, passive voice (do **not** use I, we, one, etc.), in the future tense.
3. Be **very** specific. For example:

The purpose is to find the hardness of water samples;

The purpose is to determine the stoichiometry of  $\text{KClO}_3$  decomposition;

The purpose is to determine the heat of formation of  $\text{MgO}$ .

## Introduction

1. Write in **complete** sentences, as a narrative; **not** bullet statements.
2. Write in passive voice and in the **future** tense.
3. Use spacing and paragraphs to make your report more readable
4. **Summarize** the main points of the procedure, but without **specific** details.
5. **Do not write out the procedure or the introduction given in the handout.** Talk about **how** what you are doing in the lab helps achieve the **Purpose**.
6. Give any appropriate background information or **theory** that connects procedure to **Purpose**.

## Questions

1. Write out the question, and answer in complete sentences (even if a calculation is involved).

## **During the lab**

### Data and Observations

1. Use the heading **Data and Observations (continued)** if more than one page is used.
2. **Organize** your data in clearly labeled sections. Use tables when appropriate.
3. **Always** include observations.

## **After the lab**

### Data Treatment and Discussion

1. Write a description (narrative without numbering steps) of what you are calculating, and then show the calculation. If you are finding a number, do not just say you are finding it – **give the answer**. Do **not** number the steps.
2. Include possible sources of error and suggestions for improving experiment.

## Conclusion

1. Clearly repeat the answer(s) to the **Purpose**.
2. Address any additional points requested **in separated paragraphs**.