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 anywhere in the United States, they could understand what you did and repeat the experiment. Pages from the notebook will be turned in as three parts that will together serve as your laboratory report.

1. Prelab turned in before you start the experiment.
2. Data and Observations turned in before you leave the laboratory.
3. Data Treatment and Conclusion the week following the completion of the experiment.

Heading

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

Before the lab

Prelab

Be very specific in what you write for the purpose. Do not say “Equilibrium is being studied”, instead say:

The purpose of the experiment is to determine the equilibrium constant of

\[
\text{Fe}^{3+}(aq) + \text{SCN}^{-}(aq) \rightleftharpoons \text{FeSCN}^{2+}(aq)
\]

Do not say “Beer’s Law is being studied”, instead say:
The mass percent of the dye in Froot Loop cereal will be found by determining $\lambda_{\text{max}}$ of the dye, constructing a calibration curve to find the molar absorptivity and measuring the absorbance of an extract of the Froot Loops.

Write out any questions (or refer to the question in your answer) and answer in complete sentences (even if a calculation is involved). Do not say “See graph.”

Any attached graphs will have a properly formatted data page immediately before the graph.

**During the lab**

**Data and Observations**

Use the heading **Data and Observations (continued)** if more than one page is used.

Organize your data in clearly labeled sections. Use tables when appropriate.

Always include observations.

**After the lab**

**Data Treatment and Conclusion**

Make sure your calculations are well organized with a description of what you are calculating or finding from a graph (referring to the graph). Conclude this section by summarizing or restating your final answers.