

Lab Notebook and Lab Report Instructions

Lab Notebook (ISBN: 978-1-930882-74-4)

The laboratory notebook is a permanent, documented, and primary record of laboratory observations. Each page has a duplicate, so when you write you will produce an original and a copy. A laboratory notebook should be legible, and data in it should be readily accessible, clearly labeled with units and grouped in a logical way.

General Guidelines

1. Be sure to fill in the Table of Contents at the front of your lab notebook.
 - Make sure that you include the date (day/month/year)
 - Experiment title
 - Page numbers
2. Write in a third person, passive voice. Avoid personal pronouns.
3. Always use **black** or **blue** pen when writing in your lab notebook. Remember that all other work in chemistry is to be done in pencil.
4. If you make a mistake draw a single line through it! NO WHITE-OUT.
5. Cut out and tape any graphs or figures into your notebook (original and copy).
6. Make sure the back flap is under the “copy” so you only write on one page.
7. NEVER tear out a master page from you lab notebook, even if you make a mistake.
8. Show all calculations neatly and accurately; **box your final answer with correct units.**
9. Check your significant figures. Do they correctly reflect the measuring device?
10. If there is a % error to be calculated, remember the formula: $\% = 100 \times (\text{measured} - \text{accepted}) / (\text{accepted})$.
11. For each lab include the following:
 - a. Exp. Number= lab number (sequential)
 - b. Experiment/Subject = lab title
 - c. Date = date of experiment
 - d. Name = your name
 - e. Lab Partner= lab partner’s name(s)
 - f. Locker/Desk No. = lab station
 - g. Course and Section No. = class (HC, CP, AP) and period
 - h. Signature and Date = you do this before you turn it in.
 - i. Witness/TA = my signature at end of lab and after clean up.
12. Only turn in “copy” to me, stapled.

Lab Report:

All lab reports will contain the following sections in this order.

1. *Introduction/Objective:*
 - This section is brief, one short paragraph. Should contain a clear statement of the problem or question and one or two sentences to discuss the method used to answer the question (**in your own words**). This needs to be done before you come to lab.
2. *Pre-Lab questions:*
 - Must be completed before you start the lab. You will not be allowed to work in the lab unless they are completed.

3. *Procedure/Methods:*

- Chronologically state each step in the experiment
- Steps can be a few sentences long, but make each step its own bullet/number
- Someone should be able to read this section, and go do exactly what you did
- Include all chemicals and materials used (even measuring devices)
- Include details about when steps occurred, the order of steps, and what was done to complete each step
- Do not include why steps happened or any chemistry or explanation behind a process.

4. *Data:*

- Construct data tables with headings and clearly label rows and columns. Use a ruler to make straight lines. Include units on all quantities measured, and detailed observations. Indicate the amount, concentration, etc. and identity of chemicals used. Graphs need to have a heading, and clearly labeled x (independent variable) and y (dependent variable) axis, including units. Graphs and tables could also be completed in Excel and then cut out and taped into this section.

5. *Calculations:*

Label all calculations, show the formulas used, include units.

6. *Results/Discussion:* Present tense

Topics to Include:

- Summarize the data
- What the data means (answer “so what”)
- Any issues/problems encountered
- Why this method was the best/why you used it
- Possible explanations for any odd or unpredicted results
- Sources of uncertainty. Don’t just say “electronic balance was off.” Describe credible sources of uncertainty and comment on how to minimize.
- Comment on how the uncertainty affects your data.

7. Follow-up questions, if any. Don’t write your questions here!