Lab 1: Maintaining a Laboratory Notebook

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Objectives

By the end of this laboratory, you should have developed the skills to do the following:

- Understand the guidelines for laboratory notebook maintenance.
- Properly keep a research notebook in accordance with standard practices.

Recommended Resources

- Handout ~ Topic 1: Safety in the Organic Chemistry Laboratory
- Lab1_Notebook (csub.edu)
- Handout ~ Topic 2: Cleaning Glassware
- Topic2_Cleaning (csub.edu)
- Handout ~ Topic 3: Keeping a Proper Lab Notebook
- Topic3_Notebook (csub.edu)
- Other handouts/information related to your selected activity
- Chemical Circus Silly putty handout
- download (csub.edu)
- Chemical Circus Cobalt Demo
- download (csub.edu)

Background

A laboratory notebook is critical to experimental research. It is a permanent, accurate record for each reaction and experiment that you perform. It will allow you and your peers to reproduce your results, design new experiments, write reports/papers, and/or determine where mistakes were made. Finally, if you were to develop a publishable/patentable idea, your lab notebook could be used as evidence that you developed the idea first.

This exercise will assist you in developing good lab notebook skills. You will conduct a brief experiment using the procedure provided by your instructor. Then all procedures will be collected, and you will exchange notebooks with a student who completed a different experiment. You will attempt to complete the new experiment using only the other student's notebook, while at the same time, that student will attempt to complete the experiment you just did using only your notebook.

Lab Notebook Preparation

Before coming to lab, the following items must be in your lab notebook:

1. Title of the experiment & date the experiment is to be performed
2. Brief description of the activity you are performing (be sure to explain how the activity relates to organic chemistry)
3. References

Safety Notes

Specific safety precautions for this lab will depend on the procedure provided by your instructor. As such, insure you pay attention to any safety notes listed in the procedure, and as a general rule, always wear safety glasses and gloves when working in the organic chemistry laboratory.

Directions

1. Perform the experiment as described using the procedure provided by your instructor. Be sure to record enough detail so that someone after you would be able to reproduce your results.
2. While you are conducting the experiment, be sure to note what you observe. The observations will assist someone repeating your work to ensure that they get the same result you did.
3. If time allows (and with your instructor's permission), determine the effect of a variable on the experimental outcome. You should start by forming a hypothesis as to what would happen if this variable changes, and then testing it to determine if your hypothesis is correct.
4. Once your instructor has collected all of the written procedures and indicates that it is time to switch, swap notebooks with someone who completed a different experiment.
5. Attempt to complete the new experiment using only that student's lab notebook. Provide feedback to the student using the lab notebook grading sheet providing by your instructor.
6. After you have completed the second experiment and filled out the lab notebook grading sheet, return these items to the other student, and collect your notebook and feedback.
7. Make edits/changes to your notebook as needed, then submit it for grading.

Reporting Your Results

A formal lab report is not required. This lab report will concentrate on the Conclusion section.

References & Additional Resources

1. MacNeil, J.; Falconer, R. *J. Chem. Educ.*, **2010**, *87*, 703–704.