

Preparing For The Experiment

The prelab assignment is designed to prepare you for the experiment. You need to familiarize yourself with the entire experiment, including the equipment you will be using (shown in the experiment section and/or in this section). *Two major purposes of the lab notebook* are: (1) to guarantee the integrity of the data; and, (2) to ensure repeatability of an experiment. Guidelines for preparing and using a lab notebook are given in the following subsection (including an example of a prepared lab notebook).

A: Read all of the available online materials and notes found in the procedure and in the course resources.

Complete the online assignment.

B: Reread the Entire Experiment

You may not understand everything but do your best to complete the online assignment (vocabulary words and questions). You need to understand the basic goal and concepts of the lab you are going to do.

C: Prepare Your Lab Notebook

In your lab notebook, write out the primary goals of the day's experiment, along with an outline or flowchart describing the procedure. Do not copy the procedure verbatim from the manual. Instead, try to identify what and how data are to be obtained, as well as relevant equations and/or concepts. Your procedure should also help you see the overall flow of the experiment.

Organize your work and write legibly. Use enough detail so that your notebook would enable another person to redo the experiment and get the similar results. Write in ink. *To correct something, draw a single line through the incorrect entry* and put the correct entry nearby. You must prepare your prelab in your notebook in advance of doing each experiment.

Some tips:

Your procedure section should include enough information to perform the experiment.

Summarize or abbreviate the details given in the manual using outlines, flowcharts, and/or diagrams.

Record changes in procedure (and explain).

Include sketches of instruments as needed (photocopies are OK) and a list of required equipment.

Read through the experiment and your assignment to check that it makes sense.

Visualize all the steps and write them out so you have a flow chart or outline of the procedure.

Highlight places where you will record each piece of data. When you will be taking several pieces of related data, make a table.

Keep your notebook neat and organized to make your work more accurate and easier to interpret.

You should also make data tables so that you can record data as you measure them. You must record experimental values in your notebook. *All quantities* entered must be labeled and have the *right units*. Never leave details to later. Make necessary notes so that you do not have to rely solely on your memory.

Prepare a place in your notebook for each measurement. Make clearly labeled tables in advance for recording related observations, particularly for large amounts of data and results. Devising good tables can take some practice. Here is an example of data tables that could be used for an experiment that involves pipet calibration experiment.

pan balance (0.01g)			analytical balance (0.0001g)				
run#	m _{dry beaker} [g]	m _{beaker+water} [g]		m _{dry beaker} [g]	m _{beaker +water} [g]	t _{transfer}	t _{weigh}
1							
2							
3							

Figure 1: Pipet Calibration Data

Some measurements are only made once so no table is required, but it is still good to leave “blank” spaces to fill in the data. For example, the non-table data for the pipet calibration experiment could be the following.

1. T_{water} = _____ °C
2. Diameter_{beaker} = _____ cm
3. m_{clean beaker} = _____ g
- m_{smudged beaker} = _____ g

Figure 2

Never scribble data on loose sheets of paper.

Never wait to write down values.

Never tear out pages from your notebook.

Observations include smells, colors, and how long events take to happen, as well as readings from instruments.

Your writing must stay legible and each page should be dated.

Draw single lines through mistakes.

If you want to add something, add it on a later page and cross-reference the page numbers.

Your notebook may seem messy but this is the conventional format used.

Ask yourself if your results make sense. If not, stop and figure out what is going on. Things don't always go smoothly.

You <i>must</i> record your data in your lab notebook. You will lose points if you do not do so.
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Example notebook¹ — Note that lines *should* be drawn with a ruler; tables are preferred.

¹samplenotebook.pdf