

Writing Lab Reports

Please use the following **format and numbering sequence** when writing up any labs that require a formal write up.

I. OBJECTIVES

AND HYPOTHESIS: This should indicate what the point of the lab was. Be brief, but indicate what we were trying to figure out by conducting the lab. What was the question being investigated? State the objectives, in your own words, that are being investigated by the procedure(s). Include any hypotheses written in a testable form using an 'If....then' statement. Keep it to the point.

II. MATERIALS

AND METHODS: What materials and equipment were used and what procedures were followed. List the materials that were used in conducting the experiment. Describe the procedure you followed in conducting your experiment using a numbered list of steps that were followed. This should be detailed enough that one of your classmates could reproduce your experiment using only this written procedure. It should be clear from the procedure what steps you have taken to control for variables other than the experimental variable.

III. Data and

OBSERVATIONS: This part of the report will display in table and/or graphical form the data that you collected and/or that was collected by the class as a whole. This is the only part of your lab write-up that will be shared with your partners(s). Keep this clear and to the point.

Data tables should be neatly and clearly presented with titles and clear headings for the various rows and columns, including the units of measure that were used. If the lab is "observational" in nature, you would include diagrams and/or descriptions of structures, chemical reactions, behaviors, etc. **DO NOT FUDGE YOUR DATA!!** Put only the data that you, or your lab group, or the class collected, not what you think you should have seen.

Graphically display your data. In this class you will almost always use a line graph to do this, because we are often trying to demonstrate how one variable affects another. Make sure you always include a title and label for each axis with what is being measured by that axis and the units that were used. Each axis should also have clearly marked, uniform scales.

This section of the lab report is also where you would include any calculations that were required using the data that was directly measured during the lab. For each calculation you do, clearly show the equation that was used (if any) and how you set up the problem and rearranged the terms to solve for a particular variable. You do not have to show the arithmetic that was performed to get to the final answer.

IV. DISCUSSION: Put into your own words what the numbers or observations tell you. How do you interpret the data or observations in light of your hypothesis or your own expectations? Do not make the mistake of looking for the "right answer", and please do not ask, "what was supposed to happen?" Nature does not lie, but can be maddeningly difficult to figure out. In this section you must discuss YOUR results and what they suggest to you. You should interpret your results and state whether or not they lead you to accept or reject your original hypothesis. If you come up with results that do not make sense or are not conclusive, examine your methods and materials for sources of experimental error, and describe them and how they affected your results here. Be specific about the source of the error(s) and how they affected your results. Do not simply state that the 'problem' with your lab was that you had 'human error'.

V. ANSWERS TO QUESTIONS: In this section, answer any specific questions that the lab handout asks.

If you received a lab handout it should be NEATLY stapled at the end of your lab.