

**Mr. Menin****Title***(Do for pre-lab)*

This should show the reader what your experiment is about. It should be clear and short.

**Purpose/s***(Pre-lab)*

State the problem or question being explored concisely. There may be more than one purpose for a lab. You should number the purposes.

**Introduction/Abstract***(pre-lab)*

Write one paragraph explaining the problem/question being explored in more detail. Write at least one paragraph giving background information about the most relevant science concepts, topics, and vocabulary.

**Initial Hypothesis/es***(pre-lab)*

Write your initial hypothesis before doing the experiment. You must write one hypothesis for each purpose. The plural of hypothesis is *hypotheses*.

**Revised Hypothesis/es***(post-lab)*

Write a concise final hypothesis after doing the experiment and analyzing the data. You will write a more detailed explanation in the conclusions.

**Operational Definitions***(pre-lab)*

Write the experimental variable/s and explain how you will measure it/them. Write any dependant variable/s and explain how you will measure it/them. An experimental variable is the aspect that you will change on purpose, and a dependant variable is an aspect that changes as a result. Most experiments have only one experimental variable.

**Controlling Variables***(pre-lab)*

List any conditions that will be kept constant throughout the experiment and explain how this will be accomplished. A good experiment leaves only the experimental variable/s as a possible cause for any change in the dependant variable. Controlling variables helps to eliminate any other possible causes for change in your dependant variable.

**Materials/Diagram***(pre-lab)*

- a) List the tools and other items you need to do the experiment.
- b) Make a diagram or diagrams showing the set-up/s with labels identifying the pieces.

**Procedures***(pre and during lab)*

- a) Before doing an experiment, list the steps. Number the steps in order. Don't leave anything out! The goal is to write the procedures so that other scientists could do the exact same experiment that you did just by following your procedures.
- b) Procedures should be corrected during the lab as needed to show what you actually did.
- c) Be sure to explain how to collect your data.

**Data/Results***(pre, during and post-lab)*

- a) Before experimenting, create data charts to organize the results.
- b) While you experiment, fill in the data charts and take notes of what you notice.
- c) Collect data. Data are facts collected. Data are not explanations. Data can be numbers, measurements, or descriptions of anything you noticed while doing the lab. All numbers must be labeled with the correct units.

**Conclusions***(post-lab)*

Write at least one paragraph about each of the 3 topics below.

- 1) Write your revised hypothesis with a succinct explanation for the change/s.
- 2)
  - a) List the sources of error that may have occurred. Describe the problems you and your classmates had while doing the procedures.
  - b) What could you and/or your classmates have done to achieve better results?
- 3)
  - a) Analyze the data carefully. Do you think the data is enough to show the answer?
  - b) State the parts of the data that are significant and explain how the data helped lead you to your answer.
  - c) Support your claims with plenty of detail. Refer to your individual data and class data. Refer to graphs when possible. How do the results of other experiments support and/or oppose your new hypothesis?