

NAME: \_\_\_\_\_

## HOW TO WRITE THE PERFECT LAB REPORT PIEDMONT SCIENCE DEPARTMENT

Lab reports are simply a way for scientists to share their ideas. The lab report should be an honest, carefully written representation of your **own** lab work. As long as your work is accurate, there are no wrong answers! Reports should be typed.

### Organize

The more organized you are while you perform the lab, the more organized and coherent your lab report will be. **Follow instructions**, read the lab ahead of time, take careful notes, and be sure to record everything! Break your notes up into the sections (i.e. Intro, Materials and Methods, Data etc...) and then you will have a handy outline from which you can write your report. Do as much of the lab as you can **before** coming to class. You may be asked to do a **pre-lab** prior to the actual laboratory which consists of sections 2-5 below.

Parts of the the Lab Report:

1. **Title:** Give your lab an interesting and informative title. The title should be centered on the first page with the author(s) names(s), class number and date in the upper right hand corner.

### THE BODY

Scientific writing should be formal. Avoid the use of passive voice, pronouns, contractions, and slang. Divide the paper into the following sections. Section headings should be underlined or bolded.

2. **Introduction:** The introduction should be written in paragraph form and should include the following:
  - a. Topic
  - b. Purpose
  - c. Hypothesis
  - d. Reasoning/support for your hypothesis (may require some research)
3. **Materials and Methods:** This section lists the materials you used and how you did the experiment.
  - a. Make sure to note any changes to the standard laboratory instructions.
  - b. If appropriate, include the type of statistical or chemical analysis you used. (E.g., "Using Microsoft Excel, we analyzed the data by generating a best fit line and calculating an R value.")
4. **Data/Results:** This section should include
  - a. Tables and figures (i.e. graphs and illustrations) that summarize the data you collected. Tables should be prepared as part of the pre-lab so that they are ready to fill in during your experiment. Think about the type of data that you will be collecting **before** you begin the experiment, this will help you to organize how you will perform the experiment. All tables and figures (i.e. graphs and illustrations) should be
    - i. numbered
    - ii. titled
    - iii. well labeled.
  - b. Text that describes the important information in the tables and graphs
  - c. Any statistical analysis you may have done
  - d. Observations made during the experiment that don't fit in tables or graphs

NOTE: The data in tables and graphs should "stand alone": you shouldn't have to look at the text to understand them. Similarly, the text should also be understandable without having to look at the tables and graphs.

**5. Conclusions and Discussion:** This section should be written in paragraph form and it may require some research (don't forget to include citations).

- a. **Outcome of the experiment:** This is where you begin to think about why you saw the data you did and discuss the significance of your findings. What do your results mean? What conclusions can you make? Did the data support or reject your hypothesis? How do your conclusions compare with accepted scientific thought?
- b. **Error Analysis:** What, if any, problems did you encounter in the experiment? Did these problems affect your results?
- c. **Applications:** How are the results of your experiment important in a global sense? How is this subject currently being applied in the world?
- d. **Extension:** Give any suggestions for additional experiments or questions that could further our knowledge of this subject.

## **6. Questions**

Answer any questions that are included in the laboratory handout.

## **7. Literature Cited**

Please follow MLA guidelines.

## **8. Checklist**

- a. Did you follow directions?
- b. Are your sections clearly defined, and do not overlap?
- c. Did you answer all the questions on this sheet?
- d. Is your report neat and well organized?
- e. Did you proof read and spell check your report?