

## ***Writing a Laboratory Report***

(Adapted from NC State's LabWrite: [http://www.ncsu.edu/labwrite/index\\_labwrite.htm](http://www.ncsu.edu/labwrite/index_labwrite.htm))

***You may word process your report in any order that makes the most sense to you, then cut and paste the appropriate sections into the format given at the end of this guide.***

### **SECTION ONE: Problem Statement**

#### ***Establishing a context for the lab***

**Step 1:** Begin the Introduction with 1 or 2 sentences clearly stating what scientific concept the lab is about. Then finish the paragraph by writing down details about this concept specifically relevant to the lab that you can find in the textbook, class notes, handouts, etc . . .

**Step 2:** Write the main objectives of the lab--the specific actions you took in the lab, such as measure, analyze, test - in sentence form. Then complete the paragraph by describing how the achievement of these objectives helped you learn about the scientific concept of the lab.

**Step 3:** State your hypothesis, what you thought the outcome of the experiment would be before you did it. This will be the first sentence of the hypothesis paragraph. To write a scientific hypothesis, you first need to identify the independent and dependent variables in the experiment (see below). Write your hypothesis, describing the relationship among the variables you listed.

**Step 4:** Continue the paragraph you began with a hypothesis by explaining how you used your understanding of the scientific concept of the lab to arrive at your hypothesis.

### **SECTION TWO: Variable Identification**

Identify the independent variable (the one you chose to alter), the dependent variable (the one changed in response to what you altered), and any variables held constant.

### **SECTION THREE: Experimental Design**

#### ***Describing the lab procedure***

Using the notes you took while performing your experiment(s) and any other appropriate sources, describe in list form the experimental procedures you followed. Be sure to include enough detail about the materials and methods you used so that someone else could repeat your experiment as you performed it.

#### **SECTION FOUR: Data Presentation**

##### ***Making sense of your data for yourself and others***

**Step 1:** If you haven't already done so, put your lab data in visual form by creating appropriate tables, graphs, and other figures. Representing your data in a visual format will allow you to identify trends and relationships among variables more easily.

**Step 2:** Once you have generated visual representations of your data, decide the order in which your tables, graphs, or other figures should be presented in the Data section.

#### **SECTION FIVE: Conclusion**

##### ***Interpreting the results of the lab***

**Step 1:** Restate the problem question and present the answer your experiment has suggested for that question. Write a sentence or two stating whether or not the results from the lab procedures fully support your hypothesis, do not support the hypothesis, or support the hypothesis but with certain exceptions.

**Step 2:** Identify specific data from your lab that led you to either support or reject your hypothesis. Refer to the visual representations of your data as evidence to back up your judgment about the hypothesis.

**Step 3:** Use your understanding of the scientific concept of this lab to explain why the results did or did not support your hypothesis. If the hypothesis from the Introduction was not fully supported, show how your understanding of the scientific concept has changed.

#### **SECTION SIX: Validity**

Discuss any problems that occurred or sources of uncertainty in your lab procedure that may account for any unexpected results. Discuss suggestions for improving the lab.

#### **SECTION SEVEN: Real-Life Application**

Relate the problem and conclusion to any real-life applications as appropriate. If the experiment was designed to model of a real-life situation, discuss how well that situation was replicated by the model, and any limitations on application of the conclusion from the experiment to the real-life situation.

**FORMAT:**

Now that you have written the pieces of the lab report, insert them into your report following the format below:

Name: \_\_\_\_\_ Class Period: \_\_\_\_\_  
Date of Report: \_\_\_\_\_ Date of Procedure: \_\_\_\_\_ Lab Partner: \_\_\_\_\_

**<Insert Title here >**

**Problem Statement:** <Insert problem statement here.>

**Hypothesis:** <Insert hypothesis here.>

**Variables:**

**Independent Variable:**

**Dependent Variable:**

**Constant(s):**

**Experimental Design:**

1. <Insert step one of your procedure here.>
2. <Insert step two here, and continue adding steps until you have included all of your procedure for the experiment.>

**Data:** <Insert all appropriate data tables, figures and graphs here. Include appropriate titles, labels, and units.>

**Conclusion:** <Insert your conclusion section here.>

**Validity:** <Insert your discussion of experimental validity here.>

**Real-life Application:** <Insert the real-life application section here.>

**Answers to questions:** <If any additional questions were asked by your instructor on the lab handout, include answers to those here.>