Parts of a Lab Report

**Title:** (*1 point*)Every lab report should include a descriptive title. For example, a lab involving the reaction rates of alka seltzer tables could be called “Alka Seltzer Reaction Rates Lab”. “Lab” or something creatively unrelated, such as “BOOM!”, are not to be used.

**Purpose/Problem:** (*1 point*) This is the reason, or the WHY?, you are doing the lab activity—it most likely will related to something we are studying in science class. Not all lab activities will have a purpose, instead they may have a problem statement or question to be answered.

 **Example**: The purpose of this lab is to show how temperature affects the reaction rates of alka seltzer tablets.

**Hypothesis:** (*3 points*) Your educated guess to what you think will happen in the lab activity in relation to your purpose or problem above. Your hypothesis should be written using the “If (IV) then (DV) because (scientific knowledge)” format. Sometimes, there will not be a hypothesis because there is nothing that will be tested—like when we do a microscope lab activity or demonstrate different types of simple machines.

 **Example:** If warm water is used to dissolve an alka seltzer table, then it will dissolve faster than in cold water because the molecules in warm water are moving faster and contain more energy.

**Materials:** (*2 points*) List all materials you will need to complete the lab activity. Do not include items such as pencil, paper, notebook, a person, etc. Lists should be bulleted.

 **Example:**

* 4 Alka seltzer tables
* 3 beakers filled with water (one warm, one cold, one room temperature)
* Dropper
* Stopwatch

**Procedure:** (*3 points*) Detail the step by step instruction to complete the lab activity. For most lab activities, you will receive the procedure. Make sure your procedure is detailed enough so someone else can follow along and repeat your experiment. Also, use numbered steps NOT paragraphs.

 **Example:** 1. Cut an Alka seltzer tablet into fourths.

 2. Place 25 mL of warm water in a beaker.

 3. Drop one fourth of an Alka seltzer table into the beaker.

 4. Use the stopwatch and time how long it takes for the tablet to dissolve.

**Data Collection:** (*5 points*) Before beginning your experiment, decide how you will collect and record data. Data tables are the most common form of data collection. **Always include units.**

**Data Analysis:** (*10 points*) Once your data is recorded, analyze it by creating a graph. Your graph should include:

1. Title of graph
2. X and Y axes labeled with descriptive name AND units used (do not just write “x-axis”)
3. Key (if necessary)
4. Appropriate numbers on each axis

**Conclusion:** (*20 points*) This is one of the most important parts of your lab report. This is where everything you did, what, how and why are summarized.

**Outline for a good four paragraph conclusion**:

**Paragraph 1**: Purpose, procedure, and hypothesis

* Written in third person. Do **not** use I, we, my, me, etc.
* First sentence summarizes the purpose: In this lab the researchers found that...
* Second sentence summarizes the procedure: The experiment was completed using ... to see what happened when... OR The experiment was performed by... in order to ....
* Third sentence summarizes your hypothesis (educated guess) or predictions: The researchers predicted that... because.... OR The researchers predicted that if ... then... DO NOT say “see the procedure above” And if your hypothesis was correct: This confirmed (or contradicted) our hypothesis...

**Paragraph 2**: Background information and vocabulary

* Define important words from the lab activity, explain and make connections as necessary. DON’T assume the reader knows – it is your job to explain ...

**Paragraph 3**: Summarize results

* Next sentence should summarize the results – what happened: The experiment showed that... OR The group found that... DO NOT list EVERY bit of data, just the highlights or overall patterns.

**Paragraph 4**: Sources of error, changes for next time, practical applications

* You may use first person in this paragraph.
* Sources of Error – yes, there are ALWAYS sources of error – measurement, things that didn’t go right or that you forgot or misunderstood, human error, things that involve opinion (what color is it?).
* Practical applications or uses for this information (the textbook usually has this info). This might include other labs you have done that are similar or on a related topic OR Better design for next time or follow up experiment.