2 Lab Formats Described

FULL LABS

Title: Should be centered at the top of the page; It can consist of the problem

Theory: List any principles, concepts, or laws. If a chemical or math formula is used, write it in this section.

Purpose/Problem: Identify the intent of this investigation. (ex. The purpose of this experiment is to compare the pressure and volume of an enclosed gas while the temperature remains constant by using a syringe and gas collecting device.)

Procedure: Cut out the procedure from the instructions, paste in, read the procedure, and summarize what you are going to do in the experiment. Any apparatus using many types of lab equipment should be sketched and labeled.

Data: Any observations (quantitative or qualitative) should be recorded and organized in a neat and logical manner. Be as detailed as possible**. Data must be recorded during the lab experiment.** Data tables will be made with a ruler and labeled with headings. If units are used with a measurement, indicate them with each measurement. Use care in equipment readings and use significant digits when taking measurements. Do not hide or eliminate suspected faulty data, but present it. Later, in error analysis, you may explain why you have decided not to use suspected errors in your analysis. **Graphs,** with a title, and axis' labeled, are included. Each graph must be drawn on graph paper and each one must occupy an entire sheet. (no quadrants)

Calculations: Use illustrations (sample problems) to show how you converted Data into Results. If D.A. (dimensional analysis) is used, show all work***. All answers must contain the correct sig figs and units of measurement.*** Do all "scratch work" here and include in lab report.

Results/Discussion: Answer any discussion questions in complete sentences, so that the reader will understand exactly what the question asked.

References: (2 are usually needed) When you obtain information to answer your discussion questions, you will usually get it from your chem book. However, occasionally you will need to look elsewhere, like the Internet.

Conclusion: THIS IS THE MOST IMPORTANT PART OF YOUR LAB REPORT. Conclusions should "tie into" the purpose or problem of the experiment. Your conclusions should be understandable by looking at your Results. Interpretations of any trends that you observe from your Data should be discussed in this section (including graph trends). **Explain experimental errors that appear in the error analysis here**.

INQUIRY BASED LAB

1. BEGINNING QUESTIONS (BQ) – After reading the lab material, write a BQ that can be measured. The questions are in the form of quantitative or quantitative relationships.

    Example: What is the the relationship between the length of copper wire and its conductivity?
    Non-example: What color is my product?

2. TESTS/PROCEDURES/SAFETY (TPS) – What tests will I conduct or what procedure will I follow? After reading the lab, list the steps that you will take in the lab. How will you divide the labor? What would you want to include if someone were going to use *only* your procedure to do the lab? List the major safety concerns for the experiment you are about to do. Will you need gloves, safety goggles, or fume hood? Will there be waste?

3. DATA/OBSERVATIONS: During the lab, list all data (before, during and after experiment) and qualitative and quantitative observations You may need to make calculations, graphs, balanced equations, and gather chemical information to support your hypothesis. Do not use another notebook or scratch sheets of paper.

4. Results/Discussion- same as above
5. References- same as above

6. READING/REFLECTION: Does your conclusion answer the BQ you originally thought of? If you were to repeat the lab, how would you alter your procedure? Do you have a new question? How do your results compare to other groups or the textbook or literature value? What connections did you make between the lab and the chemistry concepts.