

Lab Write-up Guide

(Final Report form of quantitative, controlled experiment)

- 4 labeled sections, with subparts labeled and underlined in correct order.
- Do NOT use 1st person. Use standard formal English.
- Typed (double space) or neat and legible in pen. Staple in upper left hand corner.
- Full name and period in upper right hand corner. TITLE at top in middle.

INTRODUCTION (paragraph form)

- Background Information. (A full paragraph) Describe the science behind the topic.
- Question - State the problem you will be investigating and explain why you chose it. Questions should be testable and challenging.
- Hypothesis - label and state it in the form, "If x is done (in the experiment), then y will be observed (measured) , because z (an explanation - not just the name of a concept)."
- Control Setup - describe the control setup (how it is different from the experimental setup) and explain why it's a good control.
- Variables - controlled variables (everything that is the same in both setups), the experimental variable (the ONE thing that differs between the setups), and the responding/ dependent variable (what is expected to change? you measure it).

METHOD

- Materials - LIST all materials needed.
- Procedure - NUMBERED, step-by-step instructions (so another scientist could replicate your experiment). Be sure to include what data to measure, how to measure it, and when to take and record it. Draw diagrams of setups, if appropriate.

DATA & CALCULATIONS

- Data Table - for **raw data** (quantitative, original from your notebook)
- Qualitative observations - optional, but if included, label it.
- Calculations and statistics - explained (differences, averages, percents, totals, etc.)
- Processed Data Table - for **processed data** (if any; to help reader understand the data, you may graph this processed data)
- Graph(s) - line graphs are preferred; bar graphs are a distant second. This should make patterns clear, data easier to understand. The graph should be a stand-alone feature that is easily understood without reading the procedure.

CONCLUSIONS & EVALUATION (paragraph form)

- Conclusion - Make generalizations about data. (What are trends or patterns?) Compare results to your hypothesis. (Does the data support your hypothesis? Does it contradict it? Is the data inconclusive?) Compare to the control. Do you accept or reject your hypothesis? (You do NOT "prove" it, or show that "it is right".) State statistics from your data to support your conclusion. Explain and defend your conclusion.
- Evaluation - Offer alternative explanations about your conclusion. (Explain how likely you think they are. Include discussion of any variables you could not control for.)
- Improvement - Analyze your experimental design for improvement. (How could you change your lab setup or procedure so that it would be better next time?)
- Implications and Questions - Explain the implications of this investigation. (How could someone use this information?) Suggest testable questions this investigation has raised.