Scientific Communication

How to Write a Lab Report

What is a Lab Report?

- A lab report is a writing format that is specific to science and engineering.
- Lab reports describe the work done before, during, and after an investigation or experiment.
- There are different formats that can be used, but they all include the same basic information.

What is a Lab Report?

- A good lab report tells the reader:
  - why you did this experiment,
  - what you investigated,
  - how you did it,
  - what you found, and
  - what it means.
- A good lab report does more than present data; it demonstrates your understanding of the concepts behind the data.

What is Included in a Lab Report?

- **Title Page**
- **Introduction**
- **Materials**
- **Procedure**
- **Safety Considerations**
- **Results**
  - **Data Table**
  - **Data Summary and Observations**
- **Graphs**
- **Conclusion/Discussion**
- **Mechanics: Grammar and Spelling**

Title Page

- Must include your name, date and period in lower right hand corner.
- Must include a title that is straightforward and clear.
- Title is centered.
- The title lets the reader know what the report is about- such as "The effect of _____ on _____.").
- The problem statement is OK to use for the title.

Introduction

- The introduction sets the stage for the reader.
- A good introduction states the objective or purpose of the investigation clearly.
- A good introduction clearly describes the hypotheses and variables involved.
- A good introduction provides the reader with background that is related to the investigation.
- Read the rubric for more specifics.

Materials

- This is a list of the supplies and materials.
- Use bullet points.
- Make sure that the list is complete.
- Use metric units (cm & m instead of ft. or in.)

Experimental Procedure (Methods)

- Describes the steps of the process in order.
- Use a numbered list form.
- Explain all steps in the order they happened, not as they were supposed to happen.
- If you did something different than your plan, state that in this section.
- If you've done it right, another researcher should be able to duplicate your experiment.

Safety Considerations

- A simple description of things that you needed to do to keep yourself, your partners, and the equipment safe.

Results: Data Table and Observations

- Include all data in table form.
- Show calculations or formulas as needed.
- Data tables must be neat and well-organized.
- Include a paragraph which includes your observations and summarizes important results.
- The paragraph should refer to the graph!
- See rubric for more specifics.

Results: Graph

- Follow guidelines for graphing.
- All graphs must have titles which are specific!
- Graphs must be included within the body of the text or may be added as an appendix if they are too large to fit on one page.

Conclusion (often called Discussion)

- This is the most important part of your report.
- Show that you understand the experiment and the ideas behind it.
- Don’t just describe data, state why the results were obtained.
- If results were different than expected, explain why (don’t just say “human error”- be specific)

Conclusion (often called Discussion)

- This part of the report focuses on a question of understanding "What is the significance or meaning of the results?”
- To answer this, use data as evidence.
- Explain, analyze, and interpret the results!

Conclusion (often called Discussion)

Analysis

- What do the results indicate clearly?
- What have you found?
- Explain what you know with certainty based on your results.
- Draw conclusions

Interpretation

- What is the significance of the results?
- What is still not clear?
- What questions might we ask now?
- Find logical explanations for problems in the data

Quick Format Notes

- Double space when typing.
- Speak with me if you don't have computer access.
- Double check for speeeeling errors.
- capitalize the Beginning of each sentence.
- Use. Appropriate punctuation,
- Remember that u should write in a formal tone.

Don’t let tenses stress you out!

- When writing, keep in mind that the experiment is finished, so you use past tense when writing about the experiment, such as “it took more force to pull the block on…”
- When writing other parts, use present tense, such as “The purpose of this investigation is to…”
- Avoid “I” and “You”. Never abbreviate ur words.
- Use a formal voice such as, “The data collected by the team shows that….”

Do Not Worry

- We will break the report writing into pieces!
- You will do a little bit each night.
- Do Not skip a night or you will be behind.
- You MUST see me if you have any questions or problems.

Putting it all Together

- Use the rubric to guide you.
- Before turning in your final copy, have someone preview your work and look for errors.
- Be sure that your graphs and tables are neat and correct. Tape or glue carefully.
- Make sure that you included all sections.
- Staple the pages together in the top, left corner
- Do not use a report cover