What lab reports and scientific papers do:

- Persuade others to accept or reject hypotheses by presenting data and interpretations
- Detail data, procedures, and outcomes for future researchers
- Become part of the accepted body of scientific knowledge when published unless later disproved
- Provide an archival record for reference and document a current situation for future comparison

Parts of the Formal Lab Report

Mechanics

- Title and Style (i.e. APA, MLA, etc.)

1. Introduction

Purpose/Problem/Question

- Define the subject of the report: "Why was this study performed?"

Background Information

- Provide background information and relevant studies: "What knowledge already exists about this subject?"

Hypothesis

- Outline scientific purpose(s) and/or objective(s): "What are the specific hypotheses and the experimental design for investigation?"

2. Procedure

Materials

- List materials used, how were they used, and where and when was the work done (especially important in field studies)
- Describe special pieces of equipment

Experimental Design

- Provide enough detail for the reader to understand the experiment without overwhelming him/her. When procedures from a lab book or another report are followed exactly, simply cite the work and note that details can be found there.

*Safety**

- Include any special safety precautions/procedures necessary for the investigation. If none are necessary, denote "no special precautions needed" in this section.

3. Results

Raw Data Only (measurements and other observations)

- Organize data into tables, figures, graphs, photographs, etc.
- Data in a table should not be duplicated in a graph or figure
- Title all figures and tables; include a legend explaining symbols, abbreviations, or special methods

4. Discussion & Analysis

Data Analysis (Graphs, Charts, Calculations, etc.)

- Interpret data

Error Analysis (quantitative)

- Percent error

5. Conclusions

Restatement of Purpose, Results and Error

- Relate results to existing theory and knowledge
- Explain the logic that allows you to accept or reject your original hypotheses
- Include suggestions for improving your technique or design, or clarify areas of doubt for further research.

6. References

Citations, Consultations, MSDS

- Follow the recommended format for citations (see Literacy/English)

** Adapted from Biological Investigations, 5th ed. by Warren D. Dolphin 1999, published by McGraw-Hill*