

Guide to Writing a Lab Report

A lab report is a formal document describing the lab you have performed. A lab report is written as several different sections in the order listed:

1. Title
2. Introduction
3. Methods
4. Results
5. Discussion
6. References
7. Figures

1. Title

The title should describe the problem or question you investigated in the lab.

2. Introduction (written in present and future tense)

The introduction states the problem that you investigated, the context of the problem, and your hypothesis. Your investigation may have background or context that you should explain. Your investigation may also be related to other labs, discussions, or papers that led you to the current investigation. The goal of your introduction is to put your problem in context and state a logical solution to the problem.

3. Methods (written in past tense)

The methods are a description of the experimental design and special equipment that you used to execute and analyze your investigation. You should not make a list of materials or procedural steps. Write your methods as descriptive paragraphs that show the reader the setup including quantities of substances, equipment, techniques, and statistical tests (when applicable). Include information that affects the results, but leave out logistical information that is unnecessary for the reader to know to repeat the investigation. The reader should be able perform your investigation by reading the methods.

4. Results

The Results section includes several forms of information that describe what happened in the lab. First you should describe what happened. You need to put the major trends into words, which means that you should provide enough information about what happened that your reader should be able to understand why your graphs have the particular shape that they do (your description of the results should be reflected in your graphs or figures). When you make a statement that has a corresponding graph, cite the graph number in parentheses. For example, “Brine shrimp population size decreases as pH of the water increases (Figure 1).

The second form of descriptive information for your results is pictorial; graphs, diagrams and tables. Graphs and diagrams are referred to as figures, and tables are tables. All are numbered and described with their own title. Figures should also have a legend.

Graphs should have labeled axes, labeled lines/bars, numbered axes, and units of measurement. The legend should include a title and short description of the information in the figure. For example, “**Figure 1. Number of water breaks is positively correlated with number of bathroom breaks.** One-hundred students were surveyed regarding water and bathroom breaks over a 2-week period.”

Tables should include clear column and/or row headings. Since data tables can often be graphed, tables are not usually the first choice for presentation of data.

Discussion

The discussion is where you explain the meaning and significance of your results. You can use the context of the lab to extrapolate more meaning from your results (what is the big picture and how do your results fit?). The discussion is an opportunity to apply the results to relevant scenarios. You should also take the opportunity to evaluate how well your methods worked, especially if you designed them and were trying them for the first time. In describing the importance of results or problems with the methods, avoid the temptation to overstate the situation. Try to stay away from “always,” “never,” and hyperboles.

Good research and thoughtful analysis engender new questions that build on what you’ve learned from your current research. Your discussion is an appropriate place to present new, unanswered questions that are related to the conclusions you’ve made here.