Concise, descriptive title

Your name (and possibly lab partner’s name)

# Abstract

The abstract should be no more than 250 words, written as one paragraph. It includes an introduction (scope and purpose of your study or experiment), a brief description of the methods, the results, and your conclusions.

# Introduction

Writing the introduction might be less daunting if you start with the objectives and work backwards.

Make a general statement likely to interest the reader in your topic.

Review current literature (primary journal articles) to provide background information on the topic. Provide just enough background information to allow the reader to understand the objectives of your experiment. Too much information diverts attention from the specific goals.

Paraphrase information from the literature and cite the source; do not use direct quotations.

Do not reference information that is common knowledge (i.e., familiar to your audience).

Use proper in-text reference format (Name–Year, Citation–Sequence, and Citation–Name format are recommended by the Council of Science Editors).

Describe a question or unresolved problem related to the topic. This part of the introduction should help the reader understand why you carried out the experiment.

State the objectives of your experiment and any hypotheses in the last paragraph.

# Materials and Methods

Do not list the materials separately.

Write in full sentences and paragraphs; do not use a numbered list.

Use past tense.

Use passive voice to emphasize the action (active voice is allowed in some disciplines).

Provide enough detail to enable someone with your training to repeat the experiment.

Do not explain routine procedures (e.g., do not explain how to use a micropipettor).

Do not say that you will graph and interpret the data.

# Results

When you analyze the raw data, eliminate erroneous results, average replicates, and, if warranted, apply statistical methods. Follow your professor’s instructions for analyzing and summarizing the data. If you are not given specific instructions, use a table to emphasize the numbers. Use a graph to identify a trend. XY graphs are appropriate when both variables are quantitative. Bar graphs are used when one variable is categorical (not quantitative). Pie charts are rarely used for scientific data; when used, the response variable percentages must add up to 100.

Do not include both a table and a figure for the same data.

Give each figure and table a caption that consists of a number and a short, descriptive title. The title should enable the reader to understand the visual without having to refer to the body of the Results section.

⮚ Figure captions go *below* the figure

⮚ Table captions go *above* the table

Decide on the order of the figures and tables. Let’s say the order will be Figure 1, Table 1, Figure 2, and Figure 3. First describe the important results shown in Figure 1, and refer to Figure 1 in parentheses at the end of the first sentence in which you describe it. Then insert Figure 1 with its figure caption below it. Then describe the results shown in Table 1 and refer to Table 1 in parentheses. Type a table caption and then insert Table 1 below it. Next describe Figure 2, reference it, insert the figure, and type a figure caption below it. Finally, describe Figure 3, reference it, insert the figure, and type a figure caption below it.

Use past tense when you describe the data in the figures and tables.

Make each sentence meaningful. Avoid sentences like “The results showed that pH had an effect on enzyme activity.” Do not start sentences with unnecessary introductions like “The results showed.” Jump right in and state what the effect *was*.

Describe the trend, rather than listing every single number.

Equations are neither figures nor tables. Use the Equation Editor to produce equations with a professional look. Guide the reader through the calculation procedure.

Do not interpret or give possible explanations for the results.

# Discussion

Briefly restate the results in past tense.

Interpret the results and provide possible explanations. Explanations can be stated in present tense, because they are based on scientific fact.

Present evidence for your conclusions, referring to the figures and tables in the Results section.

Compare your results to findings published in the primary literature (journal articles). Provide enough detail from the source to show how it is relevant to your experiment.

If warranted, point out any inconsistencies in your data, discuss possible sources of error, describe the implications of your work in a broader context, and describe possible future work on this topic.

# References

Primary references such as journal articles are preferred. Textbooks and reliable internet sources may also be included.

Include only sources that you have cited in the body of your lab report.

Make sure all cited sources are listed in the References section.

Use proper end reference format (Name–Year, Citation–Sequence, and Citation–Name format are recommended by the Council of Science Editors).