

How to Write a Lab Report for 8th Graders

All lab reports should be written using the following format. Include all section subtitles underlined as you see below. All lines should be drawn using a ruler. Follow standard writing conventions for grammar and punctuation. Formal lab reports should be written in ink or typed, one-sided and double-spaced.

Typically: This front side provides pre-lab information (completed before lab investigation). The back side describes post-lab information (completed during and/or after the lab investigation).

Heading

Name: _____

Period: _____

Date: _____

Abstract - This section is only included in a formal lab report and is located underneath the heading at the beginning of the report. Detailed directions on "how to write an abstract" are on the back of this paper.

Title

(Note: The title should be on a new page after the abstract, centered, and relate to the problem statement.)

Purpose or Problem Statement

Write either a **purpose statement** that reads as, "The purpose of this experiment is to..." or a **problem statement** that is stated as a **question**, "How does _____ affect _____."

Background Research [use research tools (e.g. google document → tools → research)]

Summarize current research on the topic in a **paragraph by including 5 significant pieces of information.**

Define tier 3 words (science vocabulary words) from the purpose or problem statement.

Hypothesis

State the hypothesis as a **well-informed proposed solution or tentative explanation that should be written in an "if..., then..., because..." format.** The word "if" indicates how the independent variable is being changed; the word "then" is the prediction of what will happen to the dependent variable; the word "because" is the inference explaining the logic behind the prediction.

Variables

List the variables as:

Dependent variable- identify the variable that you are **measuring to find out (measure during the experiment)**; it is the variable that *depends* on the independent variable.

Independent variable- identify the variable that you are **allowing to change** or are manipulating for the experiment; it is the variable that is *independent*, you decide how to change/manipulate it before the experiment begins.

Controlled/Constant variables- list all the variables that you are keeping **constant**, in order to see the effect of the independent variable on the dependent variable clearly.

Control group- identify the test or **comparison group** that you are using to see if the independent variable really affects the dependent variable in the first place. (You may not always have a control group.)

Materials

List all materials needed for the experiment **using bullet format.**

Procedure

List all procedures as a **numbered set of specific directions.**

Results Section

Data Table

Make a data table as a **titled box of labeled columns and rows** that contain measurements with units and any qualitative observations (e.g. texture, smell, color) taken during the experiment.

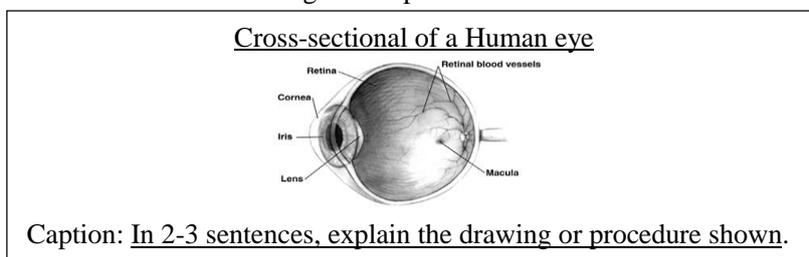
Results Section (continued)

Graph

A **graph** shows the relationship between the independent and dependent variables. Make a bar graph for data which does not change over time, and a line graph for data that does change over time. **All graphs should have a title**, and the **x-axis should be labeled with independent variable** and have a unit of measure (e.g. seconds), and the **y-axis should be labeled with the dependent variable** and have a unit of measure (e.g. temperature). **Include a legend or clearly labeled lines if making a graph with more than one line**. Numbers should be spaced evenly and logically on each axis.

Scientific Drawing

Make a **drawing of your experimental set-up and label all the materials used**. Your drawing should **include a title, and labels of all objects on straight lines fitted around the drawing**. If you are drawing specimens, then you should also include the specimen name, magnification, the view, (top, side, x-section, **or** long-section) and your qualitative observations, on straight lines underneath the drawing. Example below:



Data Analysis

In a **short paragraph (minimum 6 sentences)** interpret the relationship between the two variables by **describing the data in detail**. **Actual data or measurements must be cited**.

Conclusion

Write a **summary paragraph (minimum 9 sentences)** that includes each of the following 5 parts:

- 1) **Describe the purpose or problem statement as a topic sentence.**
 - a. Next, **explain the steps of the experiment in sequential order**.
 - b. Do **NOT** copy the procedures word for word; **logically explain the gist of the procedures**.
- 2) **Cite your hypothesis** and conclude if the **data supports or rejects the hypothesis** by **citing actual data** and/or trends.
- 3) Describe what you have **learned** about your purpose or problem statement and from the experiment.
- 4) Discuss the **kind of errors** that may have occurred during the investigation.
- 5) Explain how the experiment is related to **real life situations**.

Future Research

Briefly describe (**2-3 sentences**) how the experiment can be **expanded upon**, or describe a **new related experiment or topic** that would be interesting to investigate/research in the future.

How to write an abstract – This section is only included in a formal lab report and is located at the beginning of the report.

The abstract should contain approximately 150 - 250 words in paragraph form and contain five distinct parts.

1. Introduction/Motivation
 - Pull the reader into your writing.
 - Why should the reader be interested in your report?
 - Think about your audience. Be engaging and creative!
2. Problem Statement
 - What problem are you trying to confront?
 - State the problem or purpose statement and explain.
 - State the hypothesis and explain your prediction.
3. Methods
 - Should be a brief summary of the procedures – the gist.
4. Results
 - What did you find out?
 - Briefly describe the data analysis and trends of the investigation.
5. Conclusions
 - What did you learn from your results?
 - Did data from your experiment support your hypothesis/prediction?
 - Explain how this investigation relates to the real world.

Avoid using jargon, technical terms, abbreviations, and acronyms that the readers will not understand. Do not include citations, tables, or graphs. Focus on your work and results, **not** the work of other scientists or related experiments. Be creative, the abstract is similar to an advertisement and is meant to interest people to read about your investigation.