

Format for Science Lab Report

Do These Steps **Before** the Lab Starts

RESEARCH QUESTION:

What is the **question** that you are trying to answer with your experiment? Best written in “How does the **IV** affect the **DV**?” format. Be sure your question is **specific** & can be answered with an experiment.

BACKGROUND INFORMATION:

a) Introduce the context or meaning of the experiment and b) explain the science and vocabulary of your lab. Why did you choose this question? How does it apply to our lives? What do others need to know in order to understand your experiment? In most cases, do research on the topic to find out what others know and to help you come up with an educated hypothesis and a good procedure for your experiment.

HYPOTHESIS:

This is your educated **prediction** of what will happen in the experiment.

Explain **why** you have made this prediction; you may explain the scientific reasoning you used or rely on your own experience. Hypotheses are often written in “If...then...” form.

EXPERIMENT PLANNING:

Experiment Planning is not part of an official lab report, but we do it to help plan good experiments.

- What is the **Independent Variable (I.V.)**? (What you change)
- What is the **Dependent Variable (D.V.)**? (What changes in response. You collect data about the D.V.)
- Which variables do you need to hold **constant**? (List everything you must keep the same in all trials.)
- How many trials will you do or how big will your **sample size** be?
- Plan and create your **data table** before you begin the experiment. Put it in the **Data** section.

MATERIALS:

A **bulleted** list of **what is used** in the experiment. Include sizes and amounts.

PROCEDURE:

Numbered and detailed step-by-step directions of exactly **what to do** in your experiment.

A person can repeat the same experiment from your procedure.

Include amounts, measurements to take, what to record, variables to be changed or held constant, how many trials to do. (Revise as necessary during the experiment.) Include a picture or diagram if necessary.

Do These Steps **During** the Lab

DATA:

Data Table – Complete your **data table** with measurements and observations. IV in left column, DV in right column. Usually include trials and averages under DV. Remember a title & proper units.

Observations – Write down other detailed **observations** or measurements.

Do These Steps **After** the Lab

RESULTS:

- Display data meaningfully using **graphs**. Remember titles, units, axes labels, and proper scales.
- What is the answer to your question? Write a few sentences **summarizing** the **data**. Describe what **patterns or trends** you see. Refer to specific data and, if possible, analyze the mathematical relationships involved. Show any **calculations**.

CONCLUSION:

Multiple paragraphs. A person can get the big picture of the experiment by reading only the conclusion.

- Restate** your **question** and a brief 2- to 4-sentence summary of **what you did** in your experiment.
- Restate your **hypothesis**. Do your results **support** or **not support** your hypothesis?
- What is the **answer** to your question? What **conclusions** can you draw? If you can, explain the **science** behind the results. What has this taught us about science? What is the scientific **meaning**?
- How much **confidence** do you have in your results? What are some factors or **errors** that may have affected your results? What were **limitations** in your investigation? What would you do differently?
- What related **questions** are you left with? What future experiments would help you understand more?