

Lab report outline for the Natural Science Program

Kungholmens International Section

Title or Cover Page

Title - the reader should be able to understand the goal of the practical.

Name and Date the practical was performed

Lab partners.

Introduction:

Background: what is this lab going to be about, why is this important to know, what do we already know, and what is the relevance.

Theory: what technical information the reader needs to know so they can understand the experiment.

Overall question/Aim:

The overall question or aim is the problem or issue that you want to investigate. It should lead directly to the hypothesis.

Hypothesis:

The hypothesis is a statement about the relationship between an independent variable and a dependent variable. The hypothesis should basically imply or say what the **method** is going to measure.

Method: (written in past tense)

Should follow directly from the hypothesis. The method needs to provide a clear description of how the dependent variable will be tested and measured. It must also clearly indicate how the independent variable will be measured/changed/controlled.

A good method will also identify variables that are controlled or held constant.

Present your independent variable, the dependent variable, and the controlled variables in a bullet point list or table. Make sure to add a subheading called **Variables** under the heading **Method**. If you choose a table it needs a table number (in bold) and descriptive text – all in font size 10 if the body text is in font size 12). Then there could be a subtitle called Procedure where you describe the experimental set-up.

A method is more than a recipe or set of instructions

Results:

Raw and processed data in a table:

Table number: Table description (all in font size 10)

Table

Processed data in a graph:

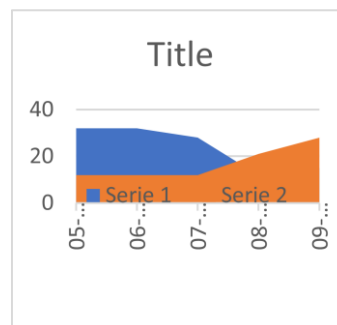


Figure number: Figure description (all in font size 10)

Discussion and Conclusion :

Analysis: this is where you analyze your results and look for patterns/relationships/problems – you describe the processed data and graph. **You may only use your own results**

Conclusion: this is the answer to the hypothesis. Is the hypothesis supported/accepted or refuted/rejected?

Restate the hypothesis for clarity use the data and analysis to say if it is supported or not by the evidence/data collected.

Evaluation:

How certain are you that your conclusion is sound (good) / probable? What are potential issues in the method that could cast doubt on the conclusion? **Human error is not a source of error unless you clarify exactly what you mean. All science is conducted by humans. There are random errors and systematic errors.**

- **Random errors** are (like the name suggests) completely random. They are **unpredictable** and **can't be eliminated** by repeating the experiment again.
- **Systematic Errors** produce **consistent errors**, either a fixed amount (like 1 g) or a proportion (like 105% of the true value). **If you repeat the experiment, you'll get the same error unless the reason is found.**

E.g. **Systematic errors** consistently change the results in the same direction (e.g. they are always 50 g, 1% or 99 mm too large or too small). In contrast, **Random errors** produce different values in random directions. For example, you use a scale to weigh yourself and get 72Kg , 75 Kg, and 68 Kg. Random error could also be that e.g. that the tester is not the same person at each sample trial.