

LAB REPORTS

What is a lab report?

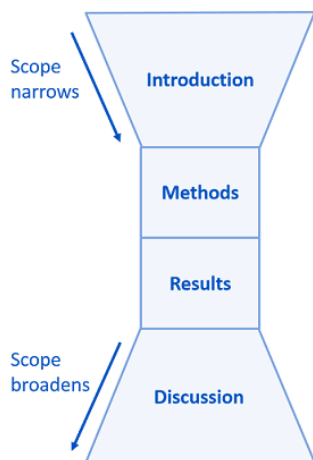
Lab reports **convey the findings of scientific research**. This guide examines the structure of lab reports and explains how to write the different sections.



Structuring a lab report

A lab report is structured like an hourglass:

- The **introduction** starts with the broad context of the research and then narrows to the specific research aim;
- The **methods** and **results** of the study are then presented; and
- In the **discussion** section, specific research findings are discussed before expanding out to broader implications.



Components of a lab report

While the exact format may vary between disciplines, most lab reports include:

- The **title** of the experiment;
- An **abstract** that summarises the report;
- An **introduction** that establishes the context and purpose of the research;
- An account of the **methods** used;
- A description of the main **results**;
- An interpretive **discussion** section;
- A list of **references** cited; and
- A list of **appendices** (if necessary).

Title

The title should be brief and informative, allowing a reader to quickly deduce whether the study is relevant to their purposes.

Abstract

The abstract succinctly summarises the entire report. It should contain information from each section in the same order it appears in the report. It may be easier to return to the abstract after completing the other sections of the lab report.

Introduction

An effective introduction clearly identifies the context and purpose of the research. It often spans at least two paragraphs.



When writing your introduction, try to:

- Begin with a general statement about the topic and its relevance/significance;
- Introduce background information, define key terms and theories, and briefly review relevant literature;
- Introduce the **research aim**; and
- State the **hypothesis** or hypotheses.

TIP

The **research aim** is a statement of the overarching goal of the research, e.g., *The study aimed to investigate the impact of a study partner on student motivation.*

A **hypothesis** is a testable statement that specifies the key variables studied and the predicted direction of the effect, e.g., *It was hypothesised that students with a study partner would be more motivated to study compared to students without a partner.*

Methods

The methods section includes a description of how the experiment was carried out, details about any subjects or participants, and an account of the materials used.

You may be required to divide the methods section using subheadings (e.g. subjects, materials, procedure). Be sure to check the specific requirements of your unit.

TIP

Include enough information so the study could be replicated by another researcher.

Results

The results section provides a **description** (not interpretation) of the main findings. Focus on the results that are relevant to your specific aims and hypotheses.

TIP

Use **tables** and **figures** to summarise complex information. Each table or figure should be clearly labelled, numbered sequentially, and referred to in your report (e.g. "As shown in Figure 1... ; Descriptive statistics are displayed in Table 2.").

Discussion

The discussion is where you comment on, interpret and explain your results:

- First, state whether the results supported the hypotheses. In scientific research we never "prove" a hypothesis; it can only be supported or not supported.

- Next, interpret your results in light of the research aim. Discuss how the results fit with or differ from the research you described in the introduction.
- Finally, discuss the broader theoretical and/or practical implications of the study, key limitations, and suggest possible directions for future research.

References

List the sources you cited in the lab report using the required referencing style.

Appendices

This section is optional. Include information that would distract from the flow of the report but may still be useful to the reader, e.g. raw data, measurement tools, calculations, and experimental stimuli.

TIP

Use different tenses for different tasks:

- Use the past tense when discussing, **previous research** (e.g. *Previous studies found...*), describing the **methods and results** (e.g. *over 5% of participants reported...*);
- Use the present tense when discussing **tables and figures** (e.g. *Figure 5 indicates...*) and referring to the **significance** and **interpretation** of results (e.g. *Removal of the agent appears to reduce...*); and
- Use the future tense to suggest **future research** (e.g. *Further research will determine the outcome...*).