

Writing Lab Reports

Purpose: a statement of the main focus of the experiment (sometimes called the **Problem**)

Problem: the major question the experiment is designed to answer

The purpose (or problem) is usually stated on the lab handout but needs to be copied out in the report

For example: How does the mass of a sphere affect the time it takes to fall a given distance?

Hypothesis: a prediction of the answer to the problem based on prior knowledge.

The hypothesis is thought up before the experiment is carried out.

Often it is written as a "If... then..." statement

For example: If the mass of the sphere is increased then the sphere will take less time to fall.

Procedure: a step by step explanation of how the experiment was carried out

Number the steps down the left side of the page

Steps must be written in past tense and third person/passive voice.

(Hint: Use "was" or "were" in every sentence.)

For example: 1. An electronic balance was used to determine the masses of five different spheres.

Observations: the information collected in the experiment.

This section does not include inferences, judgements, or conclusions.

Quantitative observations are recorded in tables and often graphed.

(Refer to the handout on making tables and graphs for details.)

For example:

Table 1: Time for different masses of spheres to fall 3 m

<i>Sphere #</i>	<i>Mass (g)</i>	<i>Time (s) Trial 1</i>	<i>Time (s) Trial 2</i>	<i>Time (s) Trial 3</i>	<i>Average time (s)</i>
<i>1</i>	<i>15.6</i>	<i>0.765</i>	<i>0.787</i>	<i>0.791</i>	<i>0.781</i>
<i>2</i>	<i>23.8</i>	<i>0.788</i>	<i>0.759</i>	<i>0.799</i>	<i>0.782</i>
<i>3</i>	<i>27.2</i>	<i>0.793</i>	<i>0.783</i>	<i>0.664</i>	<i>0.780</i>

Conclusion: the answer to the problem or purpose based on the results of the experiment.

A statement about whether the hypothesis was correct (or not) is not included.

For example: Based on the results of this experiment, the mass of a sphere has no effect on the time for it to fall a given distance.

Discussion: questions designed to deepen or apply the knowledge gained through the experiment.

Answer questions in full sentences and include part of the question in each answer. Include any applicable references below individual answers. In some cases these references can be listed more informally than in a full bibliography.

For example: 1. What did Galileo find out when he dropped balls of different weight from the Leaning Tower of Pisa?

*1. It is generally believed that Galileo did not drop balls from the Leaning Tower of Pisa. It is believed that in fact, he used a "thought experiment" to dispute Viviani's assertion that objects fall at a rate proportional to their masses.
http://en.wikipedia.org/wiki/Galileo%27s_Leaning_Tower_of_Pisa_experiment*

Appendix: a final portion of the report which contains all material not included in the major sections above.

- This includes:
1. **rough work** (data sheets): any information recorded during the experiment but not written up in final form and included in the major sections above (A data sheet represents work done in class. It should never be re-written or changed.)
 2. **skeleton:** a copy of the outline of the lab report that the teacher may list on the board prior to the experiment to ensure students include all necessary parts of the report.
 3. **handout:** the instructions if handed out in printed form

Last Points:

1. Most lab reports are due two days following the completion of the experiment.

Finish as much of the report as you can the first evening so you can ask your teacher about any confusing topics the next day.

Lab reports are due at the beginning of the period on the second day. Reports are deemed late if they are not completed by the time students arrive in class.

2. Use of technology:

Lab report submission:

Some teachers require hand written lab reports, other teachers require reports to be submitted electronically.

Graphing:

Some teachers require graphs to be completed electronically. If your teacher doesn't specify, assume that the graph must be completed by hand following the "Stephi Graff" guidelines for graphing in science.