

Senior Lab Experiment Report: format to follow

Course
Period

Your name
Partner's name
Date

Title (describes the lab; underlined, name and reference number)

Purpose :

- What is the objective of the experiment; what do you want to observe, discover or confirm?

The purpose of this experiment is to determine the mathematical relationship between the period and length of a pendulum for small displacements, and to determine if the mass of the pendulum affects the period and to determine if the initial displacement affects the period.

Hypothesis

- A prediction; the hypothesis is a possible solution to the question.
- It is a sentence in the affirmative.
- Use this format: **If** (possible cause)....**then** (possible effect).

Example: The period of the pendulum will be directly proportional to its length. If the length of the pendulum is doubled, its period will double as well. ($T = kL$)

Material

- Make a detailed list of all materials and products used; indicate quantities.

Procedure

- A brief description (shouldn't exceed 10 lines) of what was done during the experiment or activity. Should be detailed enough that another student could carry out the activity using your procedure.
- Use the past tense and complete sentences.
- Number each step; each step on a separate line.
- You must include diagrams, completed in pencil, to illustrate setup. Do not cut and paste diagrams from the internet, or scan them.

Results and Analysis

It is not necessary to include each of the following categories; choose only those that apply.

Observations

- what you observed/measured during the experiment in full sentences.

Data tables

- with borders, units, and a descriptive title. Use a ruler

Graphs

- must be completed on graph paper.
- in pencil.
- Mark points with a cross
- Label both axis (independent variable on x axis)
- Draw axis and lines with a ruler
- Choose a convenient scale which spreads points over majority of the page

- Show all calculations of slope on the line on your graph. Include units for slope
- Write the equation of the line on the line using units which reflect the quantities involved. Eg: Do not use x and y for Period and Length, use T and L

Calculations

- Include units.
- Show work for all calculations
- Provide one sample calculation where calculations are repeated for a data set

Drawings

- Follow all protocols for a scientific drawing.
- in pencil with a ruler
- Clearly label parts.

Questions

- Answers to the questions found at the end of the laboratory instructions in the textbook, or to the questions assigned by the instructor.
- All answer must be complete and written in full sentences, including questions which ask for specific equations, constants or value.

Discussion: should include the following...

- Sources of error (Only mention those errors which cannot be eliminated, such as friction, air resistance, impression in measuring devices etc. Do not include those things that could be improved upon by doing the experiment properly.)
- Comparison of experimental value to accepted value – typically calculate the percent error as $(\text{Experimental value} - \text{Accepted value}) / (\text{Accepted value}) \times 100\%$. This should give you a positive or negative percent value which shows how much your results differ from accepted values.
- Statements linking the experiment to relevant theory

Conclusion

- Repeat the question or hypothesis.
 - Include a brief summary of results including any equations you determined which link the experimental variables.
 - Indicate whether you have supported or refuted the hypothesis or accepted theory.
 - If necessary, discuss any sources of error and/or make suggestions for improvement to experimental procedure.
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General information:

- A lab report is a finished product, not a rough draft.
- A ruler must be used for any straight lines or underlining.
- Lab reports must be handwritten in black or dark blue ink. Computer generated lab are acceptable but must be accompanied by original data. Graphs, diagrams, and scientific drawings must be completed in pencil.
- Lab reports must be completed individually; it is not acceptable to copy the work of another.
- Laboratory reports must be handed in on the due date, at the beginning of the class period.
- Late reports will be penalized.