

Lab Report Format

The following format is to be used in the preparation of formal lab reports. A lab report is intended to document the activities performed and the results obtained in lab, and also to demonstrate your knowledge and understanding of the material. The lab report format which we will use is similar to the format required by scientific journals for the reporting of original scientific research.

Title Page: A separate page containing the title of the lab activity, the student's name that is writing the report, the names of any lab partners that worked with the student on the lab activity, the class that the student is in, and the date that the lab activity was performed. See example below:

<p style="text-align: center;">Title of Lab Activity Name of student writing the lab report Name(s) of lab partner(s) Title of Class Teacher's name Date lab activity was performed</p> <p style="text-align: right;">Date Report is Submitted</p>
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Lab Report Components

All components must have section headings

Introduction: This section should include the following: a brief summary of the purpose of the lab activity. The summary must include the objective of the lab (problem to be solved), the identification of the independent and dependent variables associated with the lab activity and the student's hypothesis (prediction), stated in an if, then format, as to what results will occur.

Method/Procedure: This section contains a detailed account of the experimental procedure followed during the lab activity. If the procedure were followed directly from a lab handout, it is acceptable to cite the lab handout in proper MLA format. If there are only minor changes to the handout, it can be referenced and should be followed by a list of the changes. The method/procedure section should not contain a list of materials. However, any materials need for the lab activity should be underlined or *italicized*, in any of the written steps of the procedure.

Results: This section should present all the data obtained during the lab activity. The results may be summarized in the form of a data table, or a figure (a diagramed illustration, graph, line drawing, etc.) There should also be a written explanation of the data obtained to accompany and tables or figures. Be careful to select the proper format for the data presentation. All items must be completely labeled as appropriate.

Discussion/Conclusion: This section contains an explanation of the experimental results. It should answer the question "what do these results mean?" The hypothesis presented in the introduction should be referenced and an explanation as to whether the results proved your hypothesis to be either true or false should be included. Evidence from the lab results should be cited in this section. Practical "real life" applications of the findings of the lab activity should be discussed as well.

Reflection/Error Analysis: This section should offer a general critique of the lab activity and the performance of the lab partner team during the activity. Suggestions for logical improvements to the lab activity may be included. An analysis of any errors that may have occurred during the lab activity should also be presented in this section.

Important Notes

All tables and figure must be numbered and titled. Tables are labeled at the top while figures are labeled at the bottom.

Any attachments must go in the back of the report, and they must be referred to in the report. There should be no personalization in the report. Avoid using I, me, she, we, etc. It should contain no opinions, and must be written factually.

Laboratory Report Rubric

Criteria	Exceeds Standard 4	Meets Standard 3	Nearly Meets Standard 2	Below Standard 1
Introduction	Demonstrates clear difference between the independent and dependent variables. Formulates objectives that are concise and well articulated. Hypothesizes a realistic and justified outcome of the experiment that is both logical and fits the experiment.	Demonstrates difference between the independent and dependent variables. Formulates objectives that are appropriate to the experiment. Hypothesizes a realistic outcome of the experiment.	Identifies independent and dependent variables. Identifies objectives that are somewhat appropriate to the experiment. Predicts a somewhat realistic outcome of the experiment.	Inaccurately identifies variables. Identifies objectives that are not appropriate to the experiment. Predicts an outcome of the experiment that is unrealistic.
Methodology/ Procedures	Designs a precise methodology for controlling and measuring appropriate and relevant experimental variables. Develops and utilizes a detailed and logical step-by-step set of procedures for conducting the experiment.	Designs a methodology for controlling and measuring experimental variables. Develops and utilizes a step-by-step set of procedures for conducting the experiment.	Develops a mediocre methodology for controlling and measuring experimental variables. Summarizes the procedures for conducting the experiment.	Develops a methodology that does not effectively control and/or measure experimental variables. Weakly summarizes procedures for conducting the experiment.

Data/ Presentation	Expertly designs and neatly constructs appropriate as well as accurate data tables, figures, & graphs that demonstrate patterns and/or trends in data and that relate to the experiment.	Designs and constructs appropriate as well as accurate data tables, figures, & graphs that demonstrate patterns and/or trends in data and that relate to the experiment.	Constructs mostly appropriate and/or nearly accurate data tables, figures, & graphs that demonstrate patterns and/or trends in data and that somewhat relate to the experiment.	Uses data tables, figures & graphs that are not appropriate and/or accurate in demonstrating patterns and/or trends in data.
Discussion/ Conclusion	Analyzes whether and how all of the objectives were met in an extended response that is consistent with the data. Assesses whether to accept or reject the hypothesis based on the data collected. Draws and thoroughly explains conclusions that are based on data collected.	Analyzes whether all of the objectives were met in a way that is consistent with the data. Assesses whether to accept or reject the hypothesis based on the data collected. Draws and explains conclusions that are based on data collected.	Somewhat attempts to analyze whether the objectives were met in a way that is somewhat consistent with the data. Interprets whether the hypothesis is to be accepted/rejected based on data collected. Draws appropriate conclusions based on some of the data collected.	Weakly identifies whether the objectives were realized. Inaccurately interprets whether the hypothesis is to be accepted/rejected. Draws conclusions that are not appropriate and/or reflective of data collected.
Reflection/ Error Analysis	Critiques the conclusions of the experiment. Assesses all logical improvements that could be made in any or all phases of the experiment. Analyzes many errors that might have occurred and must be consistent with the data presented.	Critiques the conclusions of the experiment. Assesses some logical improvements that could be made in the experiment. Analyzes some errors that might have occurred.	Evaluates the conclusions of the experiment. Recognizes some improvements that could be made in the experiment. Identifies some of the errors that might have occurred.	Weakly evaluates the conclusions of the experiment. Recognizes no improvements that could be made in the experiment. Identifies no errors that might have occurred.

Category	Scoring Criteria	Points	Student Evaluation	Teacher Evaluation
Introduction	Shows the <u>difference</u> between independent variable and dependent variable	2		
	Objective is clear and well written.	1		
	Hypothesis is realistic and fits experiment.	1		
Methodology/Procedure	Designs experiment with a control.	1		
	Measures experiment variables appropriately.	1		
	Uses a logical series of steps to conduct the experiment.	2		
Data/Presentation	Creates and fills in appropriate data tables, figures, and graphs.	2		
	The charts/tables/figures shows patterns, trends or relationships in the experiment.	2		
Discussion /Conclusion	Analyzes if the objectives were met. Were the objectives consistent with the data.	2		
	Do you accept or reject the hypothesis based on your data.	1		
	Explain in detail your conclusions that are based on data you collected.	1		
Reflection/Error Analysis	Critiques the conclusion of the experiment.	1		
	Discusses all logical improvements that could be made in any part of the lab.	1		
	Discusses and analyzes errors that occurred	2		