



# Formal Laboratory Report Format



A laboratory report is a written record of an investigation. Such a report is an integral part of any laboratory experiment. The names and brief descriptions of the sections of a laboratory report are given below.

## Title Page

Student Name  
Date  
Name of Assignment  
Teacher Name



## Question

Provide the question that will be answered after completing the experiment. The question should include both the independent and the dependent variables.

## Background or Theory

Summarize the notes/information that preceded the laboratory experiment.

This section should be about a page and a half long and should provide whatever background theory, previous research, or formulas the reader needs to know.

## Hypothesis

State your prediction regarding the outcome of the experiment or what are you suggesting will happen at the end of the experiment. Do not forget that hypothesis is an educated guess; therefore, use the background information and your knowledge of the subject to state your hypothesis. Hypothesis should also include both the independent and the dependent variables.

## Materials

Bulleted list of all materials needed for the experiment.

## Experimental Set-up:

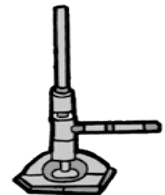
State all variables: dependent, independent, controlled.  
Experimental and control groups  
Sample size  
Number of trials

## Procedure

List step-by-step description of the activities to be done in order to gather the information needed to achieve the purpose of the experimentation. Need to be detailed and precise so another person can repeat the experiment. All units need to be in METRIC.

## Observations and Data

This is a running account of what takes place during the course of an investigation, and therefore, should be complete, well organized, and well labeled. May include data tables, graphs, written observations made during the experiment, etc.



## Analysis

Look at your data tables and graphs and describe the trends you see in your own words. Example: number of germinating seeds decreases with the increase of acid rain pH. Do your measurements and calculated values make sense? This is not a yes or no answer, but something to discuss in your analysis. Questions given by the teacher should be answered in this section.

## Conclusions

Include the following: What was the purpose of the experiment and was it achieved? Restate your hypothesis and comment if it was supported by your data or not? Present the conclusions you draw from the results. All conclusions should be clearly stated and **supported with evidence**. Cite specific results and observations from the experiment and tie them to your conclusions. Summarize reasons for any disagreement between your results and the expected results (sources of error). Recommend ways to correct problems that may have led to discrepancies or bad data points. Recommend any practical way of improving the experiment.



Student Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_ Folder # \_\_\_\_\_

## Lab Report - Scoring Rubric



Category	Excellent (3)	Good (2)	Satisfactory (1)	Needs Improvement (0)
<b>Question/ Purpose</b> 1x	<ul style="list-style-type: none"> <li>* Purpose/Question is clearly identified and stated</li> <li>* Variables obvious</li> </ul>	<ul style="list-style-type: none"> <li>* Purpose/Question stated</li> <li>* Variables stated but relationship questionable</li> </ul>	<ul style="list-style-type: none"> <li>* Purpose/Question stated</li> <li>* Variables not obvious and/or not related</li> </ul>	<ul style="list-style-type: none"> <li>* Purpose/Question not stated clearly and/or appropriately</li> </ul>
<b>Research</b> 2x	<ul style="list-style-type: none"> <li>* All appropriate info about the topic included</li> <li>* 1-2 pages (double spaced)</li> </ul>	<ul style="list-style-type: none"> <li>* Most appropriate info about the topic included</li> <li>* 1 page (double spaced)</li> </ul>	<ul style="list-style-type: none"> <li>* Some info about the topic included</li> <li>* ½ page (double spaced)</li> </ul>	<ul style="list-style-type: none"> <li>* No or very little info about the topic included</li> <li>* less than ½ page or absent</li> </ul>
<b>Hypothesis</b> 1x	<ul style="list-style-type: none"> <li>* Testable, well worded hypothesis</li> <li>* Relationship between variables indicated</li> <li>* Predicted results are clear and reasonable + based on research</li> </ul>	<ul style="list-style-type: none"> <li>* Testable hypothesis</li> <li>* Relationship between variables referenced</li> <li>* Predicted results reasonable and based on research</li> </ul>	<ul style="list-style-type: none"> <li>* Hypothesis needs improvement</li> <li>* Relationship between variables unclear or absent</li> <li>* Predicted results not based on research</li> </ul>	<ul style="list-style-type: none"> <li>* Hypothesis not stated</li> </ul>
<b>Experimental Design/ Procedure</b> 1x	<ul style="list-style-type: none"> <li>* All materials and procedures used for the experiment are clearly and accurately listed/described</li> <li>* Unites included &amp; in metrics</li> </ul>	<ul style="list-style-type: none"> <li>* Most materials and procedures used for the experiment are clearly and accurately listed/described</li> <li>* Unites included &amp; in metrics</li> </ul>	<ul style="list-style-type: none"> <li>* Many materials and procedures are missing, described inaccurately, and/or not described well</li> <li>* Unites included &amp; but not in metrics</li> </ul>	<ul style="list-style-type: none"> <li>* Most materials and procedures are missing, described inaccurately, and/or not described well</li> <li>* Unites not included</li> </ul>
<b>Variables, Groups, Trials Sample size</b> 2x	<ul style="list-style-type: none"> <li>* All variables &amp; groups are clearly described/obvious with all relevant details</li> <li>* # of trials &amp; sample size excellent</li> </ul>	<ul style="list-style-type: none"> <li>* Most variables are clearly described/obvious with most relevant details</li> <li>* # of trials &amp; sample size reasonable</li> </ul>	<ul style="list-style-type: none"> <li>* Most variables are not described/ obvious</li> <li>* Lack detail</li> <li>* # of trials &amp; sample size included but not appropriate</li> </ul>	<ul style="list-style-type: none"> <li>* No reference to variables</li> <li>* # of trials &amp; sample size not included</li> </ul>
<b>Data Collection and Analysis</b> 3x	<ul style="list-style-type: none"> <li>* Professional looking and accurate representation of data in tables and/or graphs</li> <li>* Graphs and tables are properly labeled and titled</li> <li>* Analysis is specific and inclusive (answers to questions)</li> </ul>	<ul style="list-style-type: none"> <li>* Accurate representation of data in tables and/or graphs</li> <li>* Graphs and tables are labeled and titled</li> <li>* Analysis is specific (answers to questions)</li> </ul>	<ul style="list-style-type: none"> <li>* Accurate representation of only part of the data</li> <li>* Missing parts or whole table and/or graphs</li> <li>* Analysis is general and not inclusive (answers to questions)</li> </ul>	<ul style="list-style-type: none"> <li>* Data is inaccurate and or not shown</li> <li>* Analysis is missing or too general (answers to questions)</li> </ul>
<b>Conclusions</b> 3x	<ul style="list-style-type: none"> <li>* Purpose of the experiment clearly described.</li> <li>* Conclusions indicate whether the findings support the originally stated hypothesis</li> <li>* Reference to data tables and graphs thorough and complete</li> <li>* Concluding statement thoroughly describes what was learned from the experiment</li> </ul>	<ul style="list-style-type: none"> <li>* Purpose of the experiment described.</li> <li>* Weak reference to hypothesis (it's restated)</li> <li>* Reference to data tables and graphs present, but not complete</li> <li>* Conclusions indicate what was learned but not thorough enough</li> </ul>	<ul style="list-style-type: none"> <li>* Purpose of the experiment mentioned</li> <li>* Hypothesis mentioned but not restated</li> <li>* Data referenced but values not included</li> <li>* Conclusions incomplete or irrelevant</li> <li>* Wording needs refinement</li> </ul>	<ul style="list-style-type: none"> <li>* No conclusion was included in the report OR shows little effort and reflection</li> <li>* Purpose missing</li> <li>* Hypothesis not referenced</li> <li>* Data not referenced</li> <li>* No clear concluding statement</li> </ul>
<b>Limitations/Sources of Error</b> 1x	<ul style="list-style-type: none"> <li>* Detailed limitations and sources of error included</li> <li>* Testable and relevant additional questions given</li> </ul>	<ul style="list-style-type: none"> <li>* Limitations and sources of error mentioned</li> <li>* Additional questions given</li> </ul>	<ul style="list-style-type: none"> <li>* One of the two items are missing and or questionable</li> </ul>	<ul style="list-style-type: none"> <li>* No limitations, sources of error, or additional questions given</li> </ul>
<b>Appearance/Organization</b> 1x	<ul style="list-style-type: none"> <li>* Report is typed &amp; neat</li> <li>* Headings and subheadings are in bold and are used to visually organize and present material</li> <li>* Grammar, punctuation, and spelling excellent</li> </ul>	<ul style="list-style-type: none"> <li>* Report is typed</li> <li>* Headings and subheadings are used to visually organize and present material</li> <li>* Grammar, punctuation, and spelling good</li> </ul>	<ul style="list-style-type: none"> <li>* Report is typed or neatly written, but formatting does not help visually organize material</li> <li>* Grammar, punctuation, and spelling fair</li> </ul>	<ul style="list-style-type: none"> <li>* Lab report is hand written and looks sloppy</li> <li>* Grammar, punctuation, and spelling bad</li> </ul>