

Name: \_\_\_\_\_

Lab Report Rubric: \_\_\_\_\_

Lab Report Sections and Checklist	4	3	2	1	Score (circle)
	Strong evidence of understanding or skills performance		Partial evidence of understanding or skills performance	No enough evidence of understanding or skills performance	
<b>Investigative question</b> <input type="checkbox"/> Question <input type="checkbox"/> Factor you will change <input type="checkbox"/> Factor you will measure <input type="checkbox"/> Question Mark		The question is related to the topic, and mentions specific factors, and is testable.	The question is partly related to the topic and mentions only broad factors. The question may be vague or too broad to test in a single experiment.	The question does not relate to the topic. The wording is vague or unclear. Too many or too few factors are mentioned. The experiment may not be testable.	Student 4 3 2 1  Teacher 4 3 2 1
<b>Hypothesis</b> <input type="checkbox"/> Possible explanation <input type="checkbox"/> Reasoning  Common phrasing: <i>If..., then..., because...</i> <i>I expect that...</i> <i>I predict that...</i>		The hypothesis clearly states a possible scientific explanation reasoning related to the investigative question.	The hypothesis states a prediction, but the reasoning is based on opinions or inferences.	The hypothesis states a prediction, but lacks a scientific explanation or reasoning for this prediction.  The hypothesis is unrelated to the investigative question.	Student 4 3 2 1  Teacher 4 3 2 1
<b>Introduction</b> <b>Background information</b> <b>Initial research</b> <input type="checkbox"/> Reason for experiment <input type="checkbox"/> Prior knowledge <input type="checkbox"/> Research facts <input type="checkbox"/> Connection to real-world		Clearly presents background and reasons that this experiment is useful for gaining scientific understanding. The reasons for carrying out the experiment are detailed and clear.	Only partially presents the background and/or the reasoning for the experiment.	Does not present the background and reasons for the experiment.	Student 4 3 2 1  Teacher 4 3 2 1
<b>Variables and constants</b> <input type="checkbox"/> Independent (changed or manipulated) <input type="checkbox"/> Dependent (measured) <input type="checkbox"/> Constants - (kept the same)		Independent variable, dependent variable and constants are properly identified.  The wording provides enough detail to check for understanding.	Independent variable, dependent variable and constants are correct, but may be phrased in general terms and may not provide enough detail.  Minimal constants are listed or they do not identify some of the most critical constants needed for this experiment.	Variables and constants are not correctly identified or are vague and unclear.  The response does not demonstrate an understanding of the variables in an experiment.	Student 4 3 2 1  Teacher 4 3 2 1
<b>Materials</b> <b>Methods</b> <b>Procedure</b> <input type="checkbox"/> Materials listed or embedded in procedure. <input type="checkbox"/> State what was done in experiment. <input type="checkbox"/> Enough detail to repeat.  <i>May be written as a list of steps or in a paragraph.</i> <i>Individual teachers may specify a required method.</i>		The necessary materials for this experiment are clearly identified.  The procedure describes how the researcher planned to change the independent variable, measure the dependent variable and keep everything else constant.  The experiment is replicable and can generate data to answers the question.	Most of the materials necessary for this experiment are clearly identified.  The procedure describes a general plan to change the independent variable, measure the dependent variable and keep some factors constant.  Parts of the experiment may not be repeatable because more detail is needed.	Key materials are not mentioned.  The procedure is not clear about what is changed and what is kept the same, or what was measured to answer the question. The experiment may not be unrelated to the investigative question.  The experiment cannot be repeated because it is confusing or lacking detail.	Student 4 3 2 1  Teacher 4 3 2 1

**4 - Advanced:** Depth of knowledge exceeds the grade level standards/skills, often evidenced in a lab report by student's reasoning, examples provided, research connections and use of cross-cutting concepts and skills such as mathematical analysis.

	St	Te
Sum		
Score (sum/5)		

Name: \_\_\_\_\_

Lab Report Rubric: \_\_\_\_\_

Lab Report Sections and Checklist	4	3	2	1	Score (circle)
	Strong evidence of understanding or skills performance		Partial evidence of understanding or skills performance	No enough evidence of understanding or skills performance	
<b>Data table Calculations</b> <input type="checkbox"/> Column and row headings <input type="checkbox"/> Units identified <input type="checkbox"/> Complete set of data <input type="checkbox"/> Calculations - formulas shown <input type="checkbox"/> Calculations - work shown	<p>Appropriate data was collected and recorded to answer the question and be confident in the results.</p> <p>Appropriate calculations were made to analyze the data for patterns.</p> <p>Data are displayed in organized tables that include labels and measured units. Data tables include raw data collected and subsequent calculated data or summary statistics, such as averages.</p>	<p>Appropriate data was collected and recorded to address the question, but not enough to identify patterns or to be confident in the results.</p> <p>Some calculations may have been performed, but may not be helpful in revealing patterns in data.</p> <p>Data are displayed in organized tables, but some labels or measurement units may be missing.</p>	<p>Too little data was collected and recorded to find patterns or be confident in the results.</p> <p>No calculations were made to identify patterns in the data.</p> <p>Data are displayed in incomplete or disorganized tables.</p>	<p>Student</p> <p>4 3 2 1</p> <p>Teacher</p> <p>4 3 2 1</p>	
<b>Graphs</b> <input type="checkbox"/> Appropriate graph type <input type="checkbox"/> Title (indicates both variables) <input type="checkbox"/> Axis labels and units <input type="checkbox"/> Data plotted <input type="checkbox"/> Appropriate scale <input type="checkbox"/> Even intervals <input type="checkbox"/> Margin	<p>An appropriate graph or graphs were chosen to display meaningful data that helps draw a conclusion related to the hypothesis.</p> <p>The graph format is neat and correct; axes are labeled, an appropriate scale is used, units are provided. The graph title is detailed and specific.</p>	<p>An appropriate graph or graphs were chosen to display data, but it may not be enough to help draw a conclusion related to the hypothesis.</p> <p>The graph is mostly neat and complete, although one or two parts may be incomplete or incorrect.</p>	<p>The graph type is not appropriate for the data plotted, or the data plotted is incorrect or inaccurate. The data does not help draw a conclusion related to the hypothesis.</p> <p>Several graph components are missing or incorrect. There is minimal effort in creating a neat organized graph that helps the student identify patterns in the data.</p>	<p>Student</p> <p>4 3 2 1</p> <p>Teacher</p> <p>4 3 2 1</p>	
<b>Analysis Discussion</b> <input type="checkbox"/> Identify patterns <input type="checkbox"/> Summarize outcomes <input type="checkbox"/> Backup with data <input type="checkbox"/> Linked to bigger concepts	<p>The discussion correctly identifies patterns in the data and interprets appropriate outcomes of the experiment.</p> <p>Statements are linked to specific examples from the data or calculations.</p> <p>The outcomes of the experiment are linked to bigger scientific concepts through prior knowledge and/or research.</p>	<p>The discussion identifies patterns in the data, but there might be a few misconceptions in the interpretation.</p> <p>Most but not all statements are linked to specific examples from the data or calculations.</p> <p>Bigger scientific concepts are mentioned although the link between this experiment and those concepts may be weak or not backed by enough research. Statements rely on inferences rather than facts from research.</p>	<p>Patterns in the data are not identified correctly and the interpretation of the outcome of this experiment is incorrect or lacking.</p> <p>Statements are made without backing from the data or calculations.</p> <p>There is no mention of bigger scientific concepts and how they link to this experiment.</p>	<p>Student</p> <p>4 3 2 1</p> <p>Teacher</p> <p>4 3 2 1</p>	
<b>Quality of designed experiment (Validity)</b> <input type="checkbox"/> Sources of error <input type="checkbox"/> Suggested improvements <input type="checkbox"/> Next steps	<p>Sources of scientific error (variables they could not keep constant with the means available to them) are identified.</p> <p>Meaningful suggested improvements and/or next steps for future experiments are provided.</p>	<p>Statements about the quality of the experiment focus on opinions rather than observations or data. Mistakes are listed as sources of error.</p> <p>Improvements for future experiments are mentioned, but could have been incorporated directly into this experiment.</p>	<p>The student does not discuss the quality of the experiments. They do not mention sources of error or any improvements for future experiments.</p> <p>The student may suggest that the experiment worked perfectly and that there was no scientific error or need for improvement.</p>	<p>Student</p> <p>4 3 2 1</p> <p>Teacher</p> <p>4 3 2 1</p>	
<b>Conclusion</b> <input type="checkbox"/> Support or reject hypothesis <input type="checkbox"/> Evidence from data	<p>The conclusion states and interprets the data as evidence to support or reject the scientific explanation (hypothesis) proposed in this experiment.</p>	<p>The conclusion summarizes data from the experiment but does not explain how the data relates to the hypothesis.</p> <p>or</p> <p>The conclusion supports or rejects the hypothesis, but without making a strong connection to the data using evidence.</p>	<p>The conclusion does not demonstrate an understanding of the lab results or refer back to the original hypothesis.</p> <p>Or</p> <p>The students conclusion contradicts the data collected.</p>	<p>Student</p> <p>4 3 2 1</p> <p>Teacher</p> <p>4 3 2 1</p>	
<b>Sources</b> <input type="checkbox"/> Correct citation format <input type="checkbox"/> Book and internet sources included	<p>Sources are provided for any facts or research stated.</p> <p>Correct citation format is used.</p>	<p>Some sources are provided for facts or research stated.</p> <p>Citations may be incomplete or use incorrect format.</p>	<p>Sources are absent.</p>	<p>Student</p> <p>4 3 2 1</p> <p>Teacher</p> <p>4 3 2 1</p>	

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	St	Te
Sum		
Score (sum/6 or sum/12)		