Scoring Rubric for Lab Reports

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Dimension	Unacceptable (0 pts)	Emerging (1 pt)	Accomplished (2 pts)
Cover Sheet **Score:**	Any of the elements from *Requirements for Lab Reports* are missing or incomplete: identification, purpose, procedure, accuracy, or sources of error; poor spelling and/or grammar; difficult to comprehend; does not accurately report the findings included inside the body of the report.	One or more of the required summary statements, while being addressed, are incomplete, imprecise, off-base, or verbose; weak spelling and/or grammar; not as clearly written as could be; provides a somewhat incomplete summary of what is to be found inside the body of the report.	All elements from *Requirements for Lab Reports* are concisely and accurately addressed; appropriate spelling and grammar; easy to comprehend; provides an excellent overview of what is to be found inside the body of the report.
Purpose **Score:**	The purpose statement is incomplete, vague or imprecise.	The purpose statement is correct and concise, but is little more than a summary statement.	The purpose statement provides clear and detailed information about the goal of the laboratory investigation.
Apparatus **Score:**	No or poor description of laboratory apparatus used in the investigation and independent and dependent variables not clearly identified in the diagram.	Inadequate description of laboratory apparatus used in the investigation or independent and dependent variables not clearly or inaccurately identified in the diagram.	Contains a detailed, computer-generated diagram to illustrate the configuration of the apparatus, including independent and dependent variables be clearly and correctly identified in the diagram.
Procedure **Score:**	Does not provide a systematic step-by-step overview of the procedure followed and/or fails to identify and name all pertinent experimental variables; inadequately and/or incorrectly describes how the pertinent variables are controlled.	Provides poor or incomplete overview of procedure and/or fails to identify and name all pertinent experimental variables; inadequately or incorrectly describes how the independent and extraneous variables are controlled.	Provides detailed and complete overview of procedure and identifies and names all pertinent experimental variables; accurately describes how the independent and extraneous variables are controlled.
Data **Score:**	Data not included or insufficient data presented inconsistently and/or consist of fewer trials and a narrower range of data that judgment would indicate necessary; units for physical measurements (kg, m, s, etc.) in a data table not specified in column heading; values obtained by way of mathematical manipulations or interpretations included in this section of the report. Fails to summarize the data by providing appropriate procedures.	Includes the original data sets that consists only of those values measured directly from the experimental apparatus, but values obtained by way of mathematical manipulations or interpretations are included; data tables are neat and orderly; data insufficient to draw correct conclusion; does not include as many trials or as wide a range of data as judgment would indicate necessary; units for physical measurements (kg, m, s, etc.) in a data table not specified in column heading; summarizes the data using appropriate procedures, but fails to include error components.	Includes original data sets consisting only of those values measured directly from the experimental apparatus; no calculated values included in data tables with the exception of summary data; data tables are neat and orderly with no calculations or extraneous notation; data consists of as many trials and as wide a range as judgment would indicate necessary; units for physical measurements (kg, m, s, etc.) in a data table are specified in column heading only; summarizes the data using appropriate procedures such as means and standard deviations.

Analysis of Data **Score:**	Analysis sheet ignores logical order in which the experiment was performed; it is a incoherent and disordered presentation of sample calculations made as part of the experiment; shows none or only some equations employed; fails to identify all variables; some calculations carry no units throughout; reflects a poor understanding of the use of significant digits.	Analysis sheet deviates from the same logical order in which the experiment was performed; it is somewhat incoherent and disordered; shows all employed equations as part of sample calculations, and identifies all variables; calculations carry units throughout and reflect an understanding of significant digits; if a graph is used, then a linear regression equation is given with units and a physical meaning.	Analysis sheet uses the same logical order in which the experiment was performed; it is a coherent and well-ordered presentation of sample calculations made as part of the experiment; shows all employed equations as part of sample calculations, and identify all variables; calculations carry units throughout and reflect an understanding of significant digits; if a graph is used, then a linear regression equation is given with units and a physical meaning.
Graphs **Score:**	Creates graph by hand; graph does not fill the entire page; graph and/or axes unlabeled and/or does not include units; data connected with series of lines; graph analyzed without use of regression processes; non-linear graph(s) not linearized; no interpretation of linear slope.	Uses graphing program to prepare graph; graph alone fills the entire page, but data might or might not fill the entire graph; landscape view; each graph and axis labeled; includes units on each of the graph's axes; regression analysis conducted, but not based on a physical model; if non-linear regression is used, the graph must be linearized and the slope and physical meaning given.	Uses graphing program to prepare graph; graph alone fills the entire page, and data fills the entire graph; landscape view; each graph and axis labeled; includes units on each of the graph's axes; appropriate regression analysis based on a physical model; if non-linear regression is used, the graph must be linearized and the slope and its physical meaning given.
Accuracy **Score:**	Work exhibits lack of care in and or all measurement processes; overall error unacceptably large; result departed markedly from the anticipated result (as indicated by a large margin of error), but no follow-up set of measurements were made to isolate and eliminate the source(s) of error; there is reason to believe that the student skewed the data so that proper experimental results or a smaller experimental error were achieved; inappropriately excludes valid data.	Work exhibits some lack of care in taking in measurements processes; overall error somewhat larger than expected; if a result departed markedly from the anticipated result (as indicated by a large margin of error), a follow-up set of measurements have been made to isolate and eliminate the source(s) of error; there is no evidence that the student skewed the data so that proper experimental results or a smaller experimental error are achieved; appropriately excludes invalid data.	Work exhibits that great care was taken in all measurement processes; overall error should be relatively small throughout; if a result departed markedly from the anticipated result (as indicated by a large margin of error), a follow-up set of measurements has been made to isolate and eliminate the source(s) of error; there is no evidence that the student skewed the data so that proper experimental results or a smaller experimental error are achieved; reports and appropriately excludes invalid data.
Conclusion **Score:**	Purpose statement not directly addressed in conclusion; fails to state relationship between the variables identified in the purpose in a clear, concise sentence; when a mathematical expression can be derived from graphical analysis, it is missing or is provided without appropriate units and/or interpretation; fails to describe new terms that arise as a result of evaluation of data; when results differ from what is expected, no plausible explanation is provided.	Purpose statement is directly addressed in conclusion; clearly states relationship between the variables identified in the purpose in a clear, concise sentence; when a mathematical expression can be derived from graphical analysis, it is provided but fails to include units or the *meaning of the slope* and explains the *significance of the y-intercept* (when appropriate) not included; fails to describe new terms that arise as a result of evaluation of data; when results differ from what is expected, a plausible explanation provided.	Purpose statement is directly addressed in conclusion; clearly states relationship between the variables identified in the purpose in a clear, concise sentence; when an expression can be derived from graphical analysis using a physical model, it is provided using a with the appropriate units; states the *meaning of the slope* and explains the *significance of the y-intercept* (when appropriate); describes any new terms that arise as a result of evaluation of data; when results differ from what is expected, a plausible explanation provided.