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|  | 9 | 8 | 7 | 6 |
| Background | All concepts relevant to an understanding of the lab are fully and correctly explained.  Relevant vocabulary is incorporated; terms and equations are defined and explained.  Baseline/pre-lab work is cited to illustrate  concepts. | A misstatement in an explanation  Introduction lacks  examples/references to introductory lab activities. | A partial discussion of the topic; greater elaboration needed.  Multiple errors in explanation | Minimal background information provided.  Terms not defined, etc |
| Pre-lab | Primary lab question is clearly and correctly stated.  Hypothesis correctly follows ’if, then, because’ format. Stated relationship between variables is clear and reasonable.  Variables, experimental groups, and control groups are correctly identified.  Methods are summarized; lab constants are evident in summary. | Lab purpose /objective stated, rather than a testable question.  Hypothesis formatting error. | Pre-lab elements missing, or incorrect. | Little of the required content is included in the paper. |
| Results | Meaningful results are generated from data.    Table and graph formatting correctly reflect the variables. Explanatory titles.  Graph type is appropriate to the data. Columns, rows, axes are all labeled with variables & units. Axes are divided into equal intervals. A key is included where appropriate.  Calculations are explained. | Title, axes labels missing or in error.  No examples or explanations of results calculations | Raw data shared, rather than results.  Error in graph choice.  Error in IV/DV position in table or graph.  Tables and graphs missing/incomplete. | Paper has table or graph, but not both. |
| Analysis  C-E-R | Claims are made based on the data, pointing out patterns or lack thereof.  Student data is cited as evidence.  The lab question is answered.  Statistics used to describe the data are discussed.  Reasonable inferences made explaining results | Claim is not clearly stated.  Lab question is not answered.  Evidence or reasoning is weak. | Claim does not reflect data/lab question.  Analysis lacks evidence or reasoning.  Errors in data interpretation | Analysis largely incomplete. |
| Discussion | The hypothesis is evaluated in light of results, revised as needed.  Errors affecting the results are discussed (errors in lab design and of execution)  The conclusiveness of the results is stated, with justification.  Projected results of further testing, real world applications, new hypotheses to test, etc. | Needs a more thoughtful error analysis.  Justification for conclusiveness is weak/incorrect.  No projections made. | Multiple omissions or errors in lab discussion. | Reflection largely incomplete. |
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| Presentation | Paper format follows MLA guidelines: typed, double-spaced, size 12 font, 1” margins, upper left heading, descriptive title, paragraphs.  Tables and graphs computer-generated.  Text is original and employs complex sentences, and academic vocabulary.  Paper is proofread for syntax, spelling, and typographical errors. | Text is original and in complete sentences  Language is informal at times.  A formatting error  Would benefit from more editing | Text is plagiarized  Errors distract from content; paper requires significant editing  Paper is not typed/tables & graphs hand drawn |  |