Physics Lab Report Format

1. Keep all labs in your lab folder, which should be a 3-hole punched folder with pockets. Your formal lab reports will be typed. Equations can be hand-written in or typed in the document. Graphs will be glued in the appropriate section of the lab (leave room).
2. Write your name, the name(s) of all members of your laboratory team, and the date the investigation was performed in the upper right hand corner of the first page of each report.
3. Include an appropriate title for the report at the top of the first page of the report.
4. Each of the following sections of the laboratory report should be in order and prefaced with the section names underlined.

**PURPOSE**

This is a statement of the problem to be investigated. It provides the overall direction for laboratory investigation and must be addressed in the conclusion. It is usually a statement of the **variables** to be studied. In most of the labs we do, the purpose will be a statement like: “To find the relationship between (variable 1) and (variable 2)...”

**MATERIALS**

A list of all laboratory equipment used in the investigation, along with a **detailed diagram** of how it is set up (not of each individual item), should be included in this section. This should be a bulleted list or a numbered list. Leave room in your document to draw the setup in by hand or attempt to use drawing tools to print setup with your document.

**PROCEDURE**

Explain, using complete sentences, what you are testing and how you are testing it. Tell how you **control** the variables to single out relationships. **Be specific!** Include enough detail that someone who was not present during the lab would understand how the experiment was performed.

**DATA**

Record the values that you measured during the experiment in neat, organized tables in this section. Include the data from each trial of the experiment, and perform as many trials as judgment would deem necessary. You should have a wide enough range of data to determine whether the graph is a line or a curve, so the data range by an **order of ten** (typically 8-10 points). Specify the **units** for physical measurements (kg, m, s ,etc.) in the data table heading or on each value.

**EVALUATION OF DATA**

A) This section should include all graphs and analysis of graphs. Label each graph clearly, including **variables** represented on the x and y-axes, the **units** of measurement, and an appropriate scale. Draw a **best-fit line or curve**: Do not just connect the dots!

B) Write the mathematical model (equation) of the line or curve, making sure to include the appropriate **variables** (not x or y), and the slope and intercept should be **numbers with units**. Example: If the graph was a straight line, the math model would be of the form: y = mx + b, replacing “y” and “x” with your dependent and independent variables, respectively, and replacing “m” and “b” with their calculated values.

**CONCLUSION**

A) State the **relationship between the variables** identified in the purpose in a clear, concise, full sentence.

B) State the meaning of the **slope** and explain any new terms or concepts derived from this.

C) Discuss the significance, if any, of the **y-intercept**. (What does it MEAN?)

D) Discuss possible **sources of error** in measurement or evaluation of data. Think hard about this one, I WILL NOT accept “human error” or “calculation error!”

Physics Lab Report Rubric

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_ Lab Station \_\_\_\_\_

Partners \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lab \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Format(10 points) | 1. Group names, date, title2. Each section clearly labeled, neat & organized | \_\_\_\_\_\_\_\_\_\_ |
| Purpose(5 points) | 1. Independent and dependent variables are clearly identified in a complete sentence.  | \_\_\_\_\_ |
| Materials& Procedure(25 points) | 1. All materials listed, with a clear, labeled diagram of setup (10)2. Clear and detailed sequence of steps, using complete sentences. (10)3. How variables were isolated and/or what was kept constant | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Raw Data(10 points) | 1. Measurements organized into a neat table (2)2. Values are clearly labeled, with units included in the heading of the table or with each measured value.3. Multiple trials, ranging over a factor of 10 (3) | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Evaluation of Data(25 points) | 1. Graphs a. variables on appropriate axes, with units b. best fit line or curve (not dot-to-dot)2. Interpretation of graphs (equation) a. appropriate variables instead of x and y b. correct numbers for slope and intercept c. units on slope and intercept | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Conclusion(25 points) | 1. Written explanation (full sentences) of relationships (must address variables in the Purpose) and implications2. Meaning of slope, discussion of new terms or concepts (10)3. Significance of y-intercept4. Reasonable, thoughtful explanation for error  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Late \_\_\_\_\_\_\_ No folder \_\_\_\_\_\_\_ Same as partners’ \_\_\_\_\_\_\_

Maximum Score = 100 points Your Score \_\_\_\_\_\_