

## Formal Lab Report Dos and Don'ts

### General

Don't	Do
Include the lab handout.	Type up any necessary information from the lab handout in your report.
Write your report by hand.	Have all text word-processed.
	Use 1" margins on all sides.
	Use the font Times New Roman or Arial (or similar) and a font size no larger than 12.
Submit files for the report, graphs, etc.	Combine all files into a single pdf file. The graphs and other figures should be inserted at appropriate locations in your report.
Write or white-out work last minute by hand.	Prepare your report before the due date and have it reviewed by peers.
Write with too much or too little detail.	Consider your audience when deciding on how much detail to include. Write enough that another high school Physics student could repeat your experiment but probably not enough that a Science 8 student could do it.
	Keep your report as brief as possible. When you are done, it should be true that you can not cross out any sentence in your report without losing meaning.
	Write clearly. Often, but not always, this means using short sentences. Unless you must do otherwise, write in the present tense.

### Introduction

Don't	Do
	State the purpose/objective of the lab.
Simply list a bunch of equations.	Introduce each equation explaining each variable used.
	Write down, beginning from the fundamental equations (as found on your formula sheet), any essential steps leading from the fundamentals to the set of equations essential to your work.
	Include answers to all <u>Introduction</u> questions found on the lab handout.

## Experimental Method

Don't	Do
Simply staple the lab handout.	Include an apparatus diagram.
	Label the apparatus diagram.
	Include the procedure in your own words with enough detail that the reader can understand how measurements were made and can identify potential flaws.

## Data

Don't	Do
Simply staple the lab handout.	Include data in word-processed tables.
Include units in each entry/cell.	Include units in brackets at the top of each column.
Have a table run across multiple pages.	Format your table and/or page so the table is all together on the same page.
	Include measurements to the correct number of significant figures.

## Graphs

Don't	Do
Use blank or lined paper for hand-drawn graphs.	Use grid paper for hand-drawn graphs.
Try to fit the plot on less than half a page.	Choose a sensible scale which allows the data to fill the entire page.
	Use round numbers for the scale (unmarked grid lines should also be round numbers).
Connect the data points.	Draw a best fit line for data which is linear.
Draw a line that connects the first data point or the origin to the last data point.	Draw a best fit line which follows the trend of the data and has an equal number of points above and below.
Draw a best fit line for data which is not linear.	Draw a smooth best fit curve if the data is not linear.
Label the axes "y" and "x."	If included, use the same symbols for the axes which are used in the text.
	Include a label for each axis with units in brackets.
Title the graph y-variable vs. x-variable.	Include a descriptive title or caption which clearly explains the graph.

## Analysis and Discussion

Don't	Do
Simply include stand-alone calculations.	Accompany calculations with an interpretation (in paragraph form) of what the calculations show or represent.
	Accompany all graphs with an interpretation describing the relationship between the two variables.
Use data points to calculate the slope.	Use two points on the best fit line to calculate the slope.
Manually calculate the slope for a computer-generated graph.	Display the equation of the best fit line on the graph. Take the slope directly from the equation.
Write a value without units (unless the quantity is unitless).	Express all measured and computed values with correct units.
Use "y" and "x" as variables when writing the equation for the best fit line.	Use the variables the axes represent when writing the equation for the best fit line.
State theoretical values without any justification.	Show derivations of theoretical values.
Include the following in as sources of error: human error, old equipment, calculation mistakes.	Review each step in your experimental method and identify possible sources of error in each step.
As a source of error, state that measurements are not exact.	Identify specific sources of error which would have affected the accuracy and/or precision of your results.
As a source of error, state that mistakes were made (e.g. calculation errors, improper use of equipment)	If you suspect that you have made a mistake, review your work and repeat the experiment if necessary.
	Address all points in the <u>Analysis and Discussion</u> section of the lab handout.

## Conclusion

Don't	Do
Neglect to address the purpose of the stated in the introduction.	Briefly summarize what you did in the lab to achieve the objective.
	Restate what your main results were. With numbers, if applicable.
	Compare the experimental results to accepted values (e.g. state the theoretical values along with percent error).