

How to Write a Lab Report

Title

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Include a detailed scientific title 	<ul style="list-style-type: none"> • Use the title given to you
<ul style="list-style-type: none"> • Include your name 	<ul style="list-style-type: none"> • Include the date the lab was due
<ul style="list-style-type: none"> • Include the date the lab was performed 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Include all of your partners 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Include the class 	<ul style="list-style-type: none"> •

Abstract

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Include the purpose 	<ul style="list-style-type: none"> • State the step by step procedure
<ul style="list-style-type: none"> • Include the hypothesis 	<ul style="list-style-type: none"> • Start this until the rest of the lab is complete (you will need all the info)
<ul style="list-style-type: none"> • Include a summary of the procedure 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Include the results and errors 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Include quantitative data 	<ul style="list-style-type: none"> •

Background

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Include detailed information on required topics 	<ul style="list-style-type: none"> • Include personal references
<ul style="list-style-type: none"> • Research the theory behind the lab 	<ul style="list-style-type: none"> • Forget sources
<ul style="list-style-type: none"> • Include sources 	<ul style="list-style-type: none"> • Just summarize what we learned in class (it's not in depth enough)
<ul style="list-style-type: none"> • Include relevant equations 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Include relevant examples 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Include example calculations 	<ul style="list-style-type: none"> •

Purpose

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Start with "The purpose of the lab was to" 	<ul style="list-style-type: none"> • Include personal reference
<ul style="list-style-type: none"> • Be specific on reactions 	<ul style="list-style-type: none"> • State in present tense
<ul style="list-style-type: none"> • Number if there is more than 1 	<ul style="list-style-type: none"> •

Experimental Hypothesis

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Include an "IF THEN BECAUSE" statement 	<ul style="list-style-type: none"> • Include personal reference (I don't care what you think will happen)
<ul style="list-style-type: none"> • Include theoretical calculations to support your hypothesis 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Incorporate your theoretical values into your If Then Because statement 	<ul style="list-style-type: none"> •

Variables

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Include minimum 5 controlled variables 	<ul style="list-style-type: none"> • Include a list of materials
<ul style="list-style-type: none"> • Include amounts where possible 	<ul style="list-style-type: none"> • Separate room temp / pressure
<ul style="list-style-type: none"> • Include a detailed manipulated variable (include what specifically is changing) 	<ul style="list-style-type: none"> • Explain your variables (I get it, if it needs explaining it's probably wrong)
<ul style="list-style-type: none"> • Include minimum 2-3 responding variables 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Put in a list 	<ul style="list-style-type: none"> •

Materials

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> • Make a bullet list 	<ul style="list-style-type: none"> • Make your list horizontal ☹
<ul style="list-style-type: none"> • Include quantitative values 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • Be specific 	<ul style="list-style-type: none"> •

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Procedure

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Put in past tense 	<ul style="list-style-type: none"> Include personal reference (I don't care what you think will happen)
<ul style="list-style-type: none"> Include quantitative values specific to your lab procedure 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Include numbered steps 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Make sure your lab is completely replicable 	<ul style="list-style-type: none">

Diagrams

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Include a Specific Scientific Title (i.e. Figure 1: Cross Section of a 1.2kg Sheep Brain) 	<ul style="list-style-type: none"> Include a generic title (i.e. Sheep Brain)
<ul style="list-style-type: none"> Include measurements and amounts 	<ul style="list-style-type: none"> Use squiggly lines for labels
<ul style="list-style-type: none"> Use a ruler 	<ul style="list-style-type: none"> Make your diagram small
<ul style="list-style-type: none"> Use horizontal lines for labels 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Use more than one figure where necessary 	<ul style="list-style-type: none">

Experimental Results (Data)

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Include tables 	<ul style="list-style-type: none"> Use squiggle lines for charts
<ul style="list-style-type: none"> Include a specific Scientific Title (i.e. Table 1: Quantitative Results of a Calorimeter Lab involving 15mL Water and 3g Sodium Chloride) 	<ul style="list-style-type: none"> Forget units
<ul style="list-style-type: none"> Include qualitative observations as notes following the tables 	<ul style="list-style-type: none"> Make sure your table is not messy – that is the worst
<ul style="list-style-type: none"> Use a ruler if you are drawing your own tables 	<ul style="list-style-type: none">

Calculations

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Label which section of calculations you are doing appropriately 	<ul style="list-style-type: none"> Number your calculations according to requirements in your lab hand out
<ul style="list-style-type: none"> Include all balanced equations, states and information 	<ul style="list-style-type: none"> Explain how you are doing your calculations in sentences (I can see what's going on)
<ul style="list-style-type: none"> Put a box around your final answer for calculations 	<ul style="list-style-type: none"> Forget units
<ul style="list-style-type: none"> Include all units in all calculations 	<ul style="list-style-type: none"> Assume I can figure out what calculation applies to where (Label)

Analysis of Results

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Explain the reason you got the results you got based on scientific concepts (i.e. why did this type of molecule conduct) 	<ul style="list-style-type: none"> Explain how you calculated the numbers
<ul style="list-style-type: none"> Research and Source 	<ul style="list-style-type: none"> Discuss errors... at all
<ul style="list-style-type: none"> Explain what the expected outcome should have been, and point out any areas where the results were incorrect or slightly off 	<ul style="list-style-type: none"> Include a statement such as "The manipulated changed the responding from the controlled" or anything generic
<ul style="list-style-type: none"> Include graphical analysis whenever you can to support your results 	<ul style="list-style-type: none"> Don't use a BAR GRAPH unless specifically asked to do so in your lab... ever
<ul style="list-style-type: none"> Be specific as to the reason you saw the results you saw (include theory) 	<ul style="list-style-type: none"> Connect the dots in your graph, use a line of best fit!
<ul style="list-style-type: none"> Discuss trends in your results based on theory 	<ul style="list-style-type: none"> Include personal reference
<ul style="list-style-type: none"> Put in past tense 	<ul style="list-style-type: none">

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Conclusion

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Start with "According to the evidence" Put in past tense 	<ul style="list-style-type: none"> Include personal reference Discuss your results
<ul style="list-style-type: none"> State your results, whether it supported the hypothesis and list errors that may have effected the results 	<ul style="list-style-type: none"> Discuss your errors
<ul style="list-style-type: none"> The conclusion should be a concise statement of 1-3 sentences 	<ul style="list-style-type: none"> Discuss the WHY behind anything

Extension

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Research an application of where this information is relevant 	<ul style="list-style-type: none"> Repeat the experiment and change something slightly
<ul style="list-style-type: none"> Convince a person of why we even learn this information 	<ul style="list-style-type: none"> List 16 different applications, go in depth on one or two
<ul style="list-style-type: none"> Include relevant chemical reactions and calculations 	<ul style="list-style-type: none"> Summarize
<ul style="list-style-type: none"> Research and Source 	<ul style="list-style-type: none"> Use examples that were used in other labs or projects (don't be lazy)
<ul style="list-style-type: none"> Where applicable, include an abstract for a new lab that could be developed from these results 	<ul style="list-style-type: none">

Error Analysis

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Include minimum 3 errors that influenced the results of your lab 	<ul style="list-style-type: none"> Include errors that could be fixed by re-doing the lab
<ul style="list-style-type: none"> Include the error, effect of the error on your results and a scientific fix to the error 	<ul style="list-style-type: none"> Jump from error to error and back again
<ul style="list-style-type: none"> Include scientific errors 	<ul style="list-style-type: none"> Include errors in measurement, as they are accounted for in your calculations
<ul style="list-style-type: none"> Assume all reactants are pure and all devices are working properly 	<ul style="list-style-type: none"> Fix by "trying harder, pushing harder or generally something you can do..."
<ul style="list-style-type: none"> Fixes should be scientific (use a specific device or tool) 	<ul style="list-style-type: none">

Sources

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Include sources in your work, as well as a list at the end 	<ul style="list-style-type: none"> Just give the website
<ul style="list-style-type: none"> Make sure all listed sources are used in the work 	<ul style="list-style-type: none"> Use an editable site (i.e. Wikipedia, ask.com)
<ul style="list-style-type: none"> Use MLA or APA format 	<ul style="list-style-type: none"> Include the entire source in the work, just the author and the date published (or title and date published if no author present)
<ul style="list-style-type: none"> Use a generator like easybib.com or similar to generate proper formatted sources 	<ul style="list-style-type: none"> Leave the in work citations to the end of the paragraph, put them directly after the source is used
<ul style="list-style-type: none"> Include 5-10 sources 	<ul style="list-style-type: none">

Mechanics

<u>Do</u>	<u>Don't</u>
<ul style="list-style-type: none"> Put all work in past tense 	<ul style="list-style-type: none"> Include personal reference in the work... ever
<ul style="list-style-type: none"> Make sure the lab report is in order according to the rubric 	<ul style="list-style-type: none"> Hand in a diagram or calculations separate... it will be out of order
<ul style="list-style-type: none"> Include page numbers 	<ul style="list-style-type: none"> Forget units
<ul style="list-style-type: none"> Include a header with your name on each page (in case it falls apart!) 	<ul style="list-style-type: none">

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