

Chemistry 12 - How to Write a Lab Report

General Information

- **Each person does their own lab report.** You may discuss info with others, but do not hand in word-for-word copies (or copies with just a few minor changes). **Do your own composition** of your lab report, without looking at somebody else's
- Lab report should be written for an audience who have **not** done the experiment but want to learn about it. Therefore, you need complete sentences to explain what you are answering in each question
- Must be done on computer, minimum 12 font
- Information is spaced out, not crunched together
- No possessive language (no 'I, we, me, you' etc.)
- Use _{subscripts} and ^{superscripts} where applicable
- No table is split between two pages (including Table title)

Beginning the Report

- name and date in upper right hand corner of paper
- underlined appropriate and descriptive lab title
- sub-headings (Objectives, Materials, Procedure etc.) have first letter capitalized and are underlined

Sub-sections

Objectives: what will be achieved in the lab experiment. Objectives should be numbered and copied right from the lab handout onto your report (**do not reference the Objectives like the Materials and Procedure, write them out word for word!*)

Materials: all equipment and chemicals used during the experiment. Materials do **not** have to be copied word for word. You can use the following statement: *"As on the _____ lab handout."* If there are changes to the materials, you must state them: *"The following changes have been made..."*

Procedure: the steps carried out to do the experiment. The Procedure does **not** have to be copied word for word. You can use the following statement: *"As on the _____ lab handout."* If there are changes to the procedure, you must state them: *"The following changes have been made..."*

Data and Observations: contain quantitative data and/or qualitative observations collected from the experiment.

All data tables should be titled. e.g. for table title: *Table 1: Size and Mass of Al Foil*
Data tables should always have proper significant digits and any units should be stated in the column headings rather than on each individual value.

Observations are descriptions of what you see, smell, or hear before, during, and

after a reaction. Be careful not to make assumptions, interpretations, or draw conclusions when listing observations.

Sample Calculations: Any calculations done in/for the data table(s) must be presented in a clear and concise manner as sample calculations. If there are no calculations in the tables, then there is no Sample Calculations section. To avoid redundancy, only **one type** of each calculation should be shown. A proper sample calculation starts with a heading to tell where in the experiment the data is from, then give a general formula (if necessary), then experimental numbers and units, and then an answer with units and proper significant figures.

Example: *For Sample 3*

$$\text{density} = \frac{\text{mass}}{\text{volume}} = \frac{2.56\text{g}}{3.1\text{mL}} = 0.83\text{g/mL}$$

Questions: must be answered in complete sentences, even when the question asks for a calculated answer. Remember, no possessives and remember the audience is people who have not done the experiment. All calculations should be clearly shown with units and proper significant figures. Questions should be answered with thought, depth, and clarity, and use lab results as support (not proof!) for statements. Questions answers should be concise (be to the point with no redundancy). Do not ever say that your lab results have 'proven' something, they can only 'support' or 'provide evidence' for any ideas/statement.

Example Question: *Did the catalyst cause the reaction rate to increase?*

Example Answer: *When the catalyst MnO₂ was added more bubbling was observed, and the test tube was much warmer, both suggesting an increase in rate.*

Example Answer that is not sufficient: *Yes.*

Conclusion: should restate one or more of the lab objectives and whether they have been fulfilled, and where the reader can view the fulfilled objective(s). When restating objectives, avoid using the word *objective*. The final sentence in a conclusion often tells the reader where in the lab report the fulfilled objectives can be observed. e.g. *To view all of the experimentally determined density measurements, see Table 3.*