

More pointers on the reports:

Abstract 15 points

What did you do. Why is it important and most importantly, why should anyone bother reading this lab report. The abstract should sell the report and draw in readers. There is no such thing as overselling (within a marginal amount of reason).

Introduction 10 points

You assume you have attracted interest with the abstract. Now you want to do a comprehensive, logical and scientifically sound job in giving all of the background a reader will need to understand the results and calculation section, but nothing more. This is not a download section for everything you know or can find on the internet. How do you do what you have gotten them interested in doing in the abstract. All equations are here with all terms defined. Only list equations that you use in the results/calculation section.

Experimental 5 points

Give a sketch of the experimental setup listing all of the important parts. Explain the sequence of things you did (not what is stated in the writeup but what you actually did). No data is given here, no results. Explain how the numbers from the result are obtained. If it involves a lengthy discussion some should go in the introduction (parts that are more general in scope belong in the introduction versus the specific that belong in experimental)

Results/Calculations 10 points

All of your results. Figures/Tables are introduced in the text then shown. All figures and tables have numbers and captions. You refer to figures by figure number in the text before they are shown in the report. If the figures are in the appendix then refer to them by figure number and note that they are in the appendix.

Your results should not include expressions such as "...Check the appendix to see which dots are which..." This is meaningless. It should be worded, "Figure 1 shows the Laue pattern with indexed reflections associated with the reflection numbers in Table 1." Then Figure 1 should be labeled "Figure 1. Traced Laue Pattern from KBr salt." And you should include it in the results section or indicate that it is in the appendix.

Discussion of Error 10 points You are trying to justify your conclusions based on a reasonable and logical understanding of what you do and do not claim to know from the experiment. All of the labs can be done with the data that you have measured so an argument that you can't get a result is not viable. You need to justify your results based on a reasonable analysis of the error involved in the measurement. This should use all of the tools you have learned in your education including calculus to determine the error in a result based on the estimated error in the measurement. This is not a philosophical section. This section is the basis of your analytic understanding of the scientific method.

Discussion: 10 points Report the values and refer to the tables and figures. Give context to the numbers you have measured. This is parallel to the introduction. The introduction presents a

framework to understand why you did what you did and the discussion presents a framework to understand why you got what you got.

Questions: 15 points Answer the questions. The questions are mostly a guide to the discussion so the question section usually blends well with the discussion. You can answer the questions in the discussion and or in the questions section if you want.

Conclusion: 15% Give what you found in brief. Explain why it is important. Why should I be happy I read your report. This is your last selling point on the way out the door to convince the reader (me) that they are happy they read your report. Complaints about the measurement, TA or life in general do not belong in the conclusion unless you are shooting for a low grade on this section. The point is to sell your results and the ramifications of the results. Why are the results important?

Refs. 5 points Try for more than one. Use JACS (Journal of the American Chemical Society) format if you can sort this out. At least be consistent in format and follow an accepted format. Pick up a journal and see how they do references.

Appendix: 5 points. Do not copy the references and put them in the appendix. You need a copy of your lab notebook as well as the cover of the notebook not just the cover and not just the pages you used. You can put primary data sources in the appendix, drawings and photographs etc if you want. These can also be included in the report. Number all figures and all tables and make sure they all have captions. Refer to these figures and tables by number in the body of the report and indicate that they are in the appendix so I can find them.