

Mr. Chem's Top 15 tips to get your Chemistry IA to level 7

- 1) Decide an investigation on a topic which interests you, to explore further and in which you are confident in your subject knowledge. By picking your best topic, it will certainly help you to bring out the clear chemistry and your passion throughout your report which can readily secure a grade level 7.
- 2) Once you decide on the experiment check whether the selected experiment can be linked to the real world situation.
E.g.: if you fancy "Preparing ester" as your favourite topic then you can relate it to the real world in this way: "how to improve the essence of a particular (ester) in less quantity of (alcohol) and (carboxylic acid)" or "how the essence of an ester is affected when you increase or decrease the concentration of (alcohol) or (carboxylic acid) or both.
- 3) Make sure your research question is clear and focused as above. Don't write a vague question that is only understood by yourself.
- 4) Set a clear mark with a good background information. Read through the content and make sure you bring only relevant point into the background information. Don't write about organic chemistry, classification of alcohols, types of acids etc. If possible use any relevant stoichiometric equation and diagram. Don't confirm or decide your conclusion here. You don't impress your teacher or moderator by saying that you expect this result in background information because when you know the result you don't need to do the experiment/investigation to search for the answers! Finally don't cut and paste to impress your teacher or moderators they know very well what has been written by you and what is available out there. Remember: academic honesty rules!
- 5) Selection of variables is key to any investigation. Make sure you get a minimum two independent variables which are measurable and justify each and every variables where possible.
- 6) List apparatus and materials required separately and make sure you clearly show the quantity and uncertainty of each measurement where appropriate. It is a mark of good practice to give justification of your choices in picking apparatus.
- 7) Your methodology must be a free flow one. Imagine if someone wants to choose and perform your experiment they must be able to do so by reading your methodology. Keep it generalised don't say "I filled the burette with 50ml of ethanoic acid". [say instead: "the burette is filled with 50ml of ethanoic acid".]
- 8) No investigation occurs without safety, precautions and ethical considerations. So make sure you incorporate some aspects of risk assessment and ethical considerations.
- 9) Distinguish your data collection table for qualitative (only if appropriate) and quantitative data. Make sure the title is given to every table and graph. Label the axes, and ensure that uncertainties are clearly shown in the column heading with correct significant figures to ensure that the information in the table is clear and precise. Data collection table can easily convey to your teacher/moderator how much care you have taken in your investigation and how precise you are in every bit of data.
- 10) Show clear working of the raw data. Process the outcome data with appropriate graph(s), with error bars, and show the working of errors and if appropriate describe the qualitative data. These considerations would attract and hold the interest readers and would spur them on to read the conclusion.
- 11) Maintain the common link or thread in the conclusion. This is the right place to recall your research question with the support of processed data. Compare your experimental data with theoretical data (literature value). Link the difference with the error calculation. Justify why you got the difference in value by discussing any weakness and difficulties faced during the investigation. Don't forget to say what went well as well as what didn't work to expectations. It is always important to point out your strengths along with weaknesses.
- 12) Wrap up your IA by saying what you will improve if you get another chance to perform the same experiment again.
- 13) Don't forget to mention what the extension of this investigation might be. Do you like to do a further research in future in same topic? Are you considering linking your IA with any other branch of science? Show curiosity and creativity in your write up about your topic that will gain some points in personal engagement and communication.

- 14) Overall, check the presentation of your work, ask yourself by reading again and again, is your presentation communicating interesting fact with clear chemistry. Remember printing in colour ink doesn't make good communication or presentation, conveying your content in a clear way is the best possible communication. Don't forget to check that you are within the words and page limits.
- 15) Finally, check whether you have referred everything in bibliography in alphabetical order. Academic honesty is one of the emblem of IBDP.

Follow these 15 tips to raise your level bar to high in Chemistry IA.

