**Laboratory Report Format**

A laboratory notebook should be used to explain laboratory procedures, record all laboratory data, and show how calculations are made. You may also use the notebook to discuss the results of an experiment and to explain the theories involved.

A record of laboratory work is an important document which will show the quality of the laboratory work that you have done. When you explain your work, list your data, calculate values and answer questions, be sure that the meaning will be obvious to anyone who reads your notebook.

* Neatness, spelling, grammar, complete sentences where appropriate, etc. are all important!!! Spread things out and make the report easy for the evaluator to read. Remember a happy evaluator can lead to a higher grade for you!
* Using ink is preferred to pencil.
* Save the first four pages for cover pages and a table of contents. This should be kept current as you proceed.
* If you make a mistake, it is preferred that you DO NOT ERASE! Just draw ONE LINE through your error, and continue. It is expected that some errors will occur. A laboratory notebook is a working document, not a perfect, error-free polished product. Errors should be corrected by drawing one line through the mistake, and then proceeding with the new data.
* Do not use the first person or include personal comments.

Include the following information in your laboratory reports. **Use the headings as given to separate sections and include the numbers.**

**l. Title.**

The title should be descriptive. Experiment 5 is not a descriptive title. You may include the experiment number, but you also need the word title. (Experiment 19 – Qualitative Analysis of Cations).

**2. Date.**

This is the date (or dates) you **performed** the experiment, not wrote up the lab report.

**3. Purpose.**

A brief statement of what you are attempting to do, including the method used. What is the reason for doing the experiment or what is there to be learned from doing the experiment?

**4. Procedure.**

A somewhat brief statement of the experiment method. There should be enough information so that a person who understands chemistry would be able to read this section and know what you are doing, and could possibly repeat your experiment. Please do not make this section pages long however! Sketches of the procedure may be sufficient when your instructor tells you. You may refer to the specific lab manual or handout for specific instructions.

**5. Data.**

Organize your data in a neat, orderly form. Label all data very clearly. Use correct significant digits, and always include prop­er units (g, mL, etc.). Underline, use capital letters, or use any device you choose to help organize this section well. **Space things out--don't try to cram everything on one page.** Use tables where appropriate.

**6. Calculations and Graphs**

You should show **how** the calculations are carried out. **Give the equation used and show how your values are substituted into it.** Give the calculated values. If graphs are included, make the graphs an appropriate size. Label all axes and give each graph a title. If experiments are not quantitative, this section may be omitted.

**7. Conclusions.**

Make a simple statement concerning what you can conclude from the experiment. (It was concluded that the chloride sample was 32.0 % chlorine by analysis.)

**8. Discussion of Theory.**

**The discussion of theory section is the section where I determine if you know what actually happened in the lab and why!! It is a very important section! It will be the hardest section for you to write and the hardest section for the teacher to evaluate.**

In this section you should include such information as:

* What theory was demonstrated in this experiment?
* What do the calculations show?
* How was the purpose of the experiment fulfilled?
* Why does (or doesn’t) the experiment work?

Refer back to the purpose of the lab to write this section. (Discuss what gravimetric analysis is and how it worked or was applied in this experiment).

**9. Experimental Sources of Error.**

What are some specific sources of error, and how do they influence the data? Do they make the val­ues obtained larger or smaller than they should be? You need to discuss **your** **specific error.** (Don’t tell what would cause a value to be too high when your own value was too low, etc).

Which measurement was the least precise? In writing this section it is sometimes helpful to ask yourself what you would do differently if you were to repeat the experiment and wanted to obtain better precision.

Instrumental error and human error exist in all experiments, and should not be mentioned as a source of error unless they cause a significant fault. Significant digits and mistakes in calculations are **NOT** a valid source of error.

**10. Questions.**

Answer any questions included in the lab directions. Answer in such a way that the meaning of the question is obvious from your answer.