Format for Long Laboratory Write-ups Honors Chem

These reports can be typed or hand written and handed in usually 1 week after the lab is completed.

- **Title/Partner Name/Date:** Be sure to include this information

- **Question/Purpose:** Write one or two sentences that describe the reasons or objectives for completing the lab.

- **Pre-Lab Questions:** Answer any prelab questions if applicable.

- **Experimental Design/Procedure*:** In your own words, write the directions for the experiment. You can write it in paragraph form or in a numbered step-by-step list. Write the procedures with enough detail that experiments could be reproduced from what is written. The text may have a sequence that is not suitable for the lab, so you may have to write the steps in a different order than presented in the literature. For instance, towards the end of a procedure, you may be told to pour boiling water over a substance. When you write the procedure in your notebook, you may want to make an earlier step directing you to begin heating the water so that it is ready by the time you need it. **Be sure to include a labeled diagram with your procedure the emphasizes a particular part of the procedure.**

- **Pre Lab Questions*:** Answer any prelab questions if applicable.

- **Safety Concerns*:** Use this section to indicate if there are any safety considerations to be aware of while doing this lab.

- **Data Section:**

    - **Data Table(s):** Create a blank data table to record data collected during the experiment (completed for pre lab assignment). Record the information from the experiment in the table while conducting the lab. Include units for all measurements.

    - **Observations**: If applicable to a particular experiment create a blank table to record observations collected during the experiment (completed for pre lab assignment). Include anything you do, see, smell, hear, etc.

- **Calculations/Analysis:** Include all pertinent calculations. For all calculations, the equation must be expressed in words first before numbers are used in the equation. Show work for calculations, express all answers to the correct number of significant digits and include units. For repetitive problems, provide one sample calculation (with appropriate units) for each type of calculation. Percent error should be calculated in this section.

For example:

Mass of substance = mass of substance and beaker – mass of beaker
24 g = 63 g – 39 g

Volume of object = Volume of water and object – volume of water only
2.0 mL = 14.3 mL – 12.3 mL

- **Graphs:** Data should be graphed with maximum use of the paper, labels on both axes with units, a title, and a best fit line or curve through the data. Write the equation expressing the relationship between the variables. Graphs may be hand drawn on graph paper or prepared on a computer. Not all activities will require a graph.

- **Post Lab/Analysis Questions:** Answer any post Lab Questions in the report if applicable.

- **Conclusion:** one of most important parts of report!!!
    - 2-3 sentences: Restate the overall purpose of the experiment and how the procedure enabled you to accomplish it. Do not repeat the whole procedure!
    - 2-3 sentences: Discuss overall results and draw conclusions from your data. Discuss possible trends in the data/graphs (if applicable).
    - 2-3 sentences: Describe likely sources of error. Weighing errors, misreading digits, balance inaccuracy, etc. should be included only if you seriously believe they are applicable to your work.

2. FORMAL LAB REPORT

Scientific papers are written in an objective, technical form using the passive past tense. This report should be typed.

- **Title/Source/Partner Name/Date:**

- **Abstract**: Write three to four sentences *briefly* summarizing the purpose and procedure of the experiment, including a *brief* description of the results. The procedure may be different from what was originally written in the lab notebook depending on what actually happened in lab (what you intend to do is sometimes not what happens).

- **Results and Discussion**: State the results of the experiment and list any results from evaluation methods used (i.e. chromatography R_f values). Compare the results with standard values and list the percent error (when applicable). State whether the results were too high or too low. Suggest two sources of error related to the data you collected that would have caused these experimental results. Hypothesize why the errors occurred and what might be changed to avoid these errors.

- **Answers to Questions:** Rewrite the analysis/conclusion questions from the lab sheet and then answer each question.

- **References**: Cite reference material, if applicable. If it's a handout from your teacher, simply list it as a handout from the instructor.

Teacher notes:

Make note of

*items to be done for Prelab (also prelab questions due day lab is to be completed)

title, source (given) partner name!!! date

handwritten parts vs. typed parts

procedure summary ex. “React Zinc with HCl and predict the formula (by mass) of product formed.”

Procedure notes: specific, written in own words (unless CBL lab)

Questions about the procedure will be exposed when you write what you are going to do. Fewer mistakes will be made in the lab because you will be more familiar with the experiment. Additionally, you will frequently be able to do the lab in considerably less time than you would have without this preparation.

Data table: may use original sheet from lab

Observations: cheap, easy points but commonly forgotten!!!

Calculations: show equation in words first, repetitive problems do one

Graphs: remember titles, equation!

Analysis questions: rewrite question—easier and faster to grade

Conclusion: one of most important parts of report!!! Spend time! Follow directions provided carefully!

Other reminders:

- Leave several pages at the beginning for a table of contents.
- Number each page of your notebook before using.
- Draw a single line through a mistake, and record the new value next to it.
- Record your ALL laboratory work in a bound notebook.
- Exemplars available to preview