AP Lab Reports

About Your Lab Book
Your lab book is a permanent record of the laboratory work that you have completed in AP Chemistry. You should safeguard it, since some colleges require it as proof of completion of the lab component prior to extending credit for an AP Lab Science course such as this one.
When working in your lab book, always work carefully and neatly, and in pen, not pencil. You are not allowed to remove pages or use white-out to hide mistakes. In the event that you make an error that you do not wish to have graded, simply draw a single, solid line through it.

The following elements are required in your lab report. Each section should be marked with its name (Title, Date, Purpose, etc.,) as a header on the **left** edge of the page. Remember that you must always use complete sentences as well as correct spelling, punctuation and grammar. Please avoid the use of terms such as “it”, “stuff”, and “thing.” If I cannot read your handwriting, I will not be able to grade your lab.

General Notebook Setup
The lab notebook should be a 3 subject spiral bound notebook. They can be purchased at office supply stores like Staples, Office Max, etc., and cost a few dollars.

- Clearly label the cover of your lab notebook with your name, period, and teacher’s name.
- Number all pages on the **upper right** hand corner in ink (on the front side only).
- The organized and neatly written lab write-up goes on the right-hand side (front) of each page. The left-hand (back) side is for scrap and preliminary calculations. Nothing on the left-hand (back) pages will be looked at or graded by the lab instructor, but very little should be written on the left-hand (back) pages.
- Leave the first two pages (pages 1 & 2) for your "Table of Contents" (TOC), which should include experiment titles and corresponding page numbers as they are performed.
- Leave one page (page 3) for your "Contact List". Names, emails, and phone numbers of lab partners will go here; be sure to update as the class year continues and you change partners.
- Paste/Tape the "Laboratory Safety" List on Page 4 & 5 (and list in the TOC).
- Paste/Tape the "Notebook Guidelines" on Pages 6 & 7 (and list in the TOC).

Ink Only, No White Out - Use permanent black ink for all lab notebook entries. Do not erase, ink-over, or whiteout anything you have written; simply cross out errors with one line so they are still legible (e.g. *0.503 g ~~0.530 g~~*)

Notebook Components
Title
The title should be descriptive. “Experiment 3” is not a descriptive title. “Determination of the Molecular Weight of Oxygen from the Decomposition of Potassium Chlorate” is a descriptive title. Please do not simple rely on the titles that may be at the top of lab handouts if they are given. These often have catchy titles instead of descriptive ones. The reader should know exactly what the lab was about when reading the title.

Date
This is the date (or dates) that you performed the experiment.

Introduction
Provide a short introduction (2-5 sentences) on the purpose and background for the experiment. Show the complete chemical equation(s) for all reactions that occur in the procedure.

Materials
Include a neat list a chemicals and equipment needed to perform the experiment.

Procedure
Record procedures with enough detail so a classmate could understand what you did and reproduce your work if desired. If a typed protocol is used, it should be written in a more student friendly manner so that any student in the class could do the experiment. Often the lab instructor will give you changes in the directions, if there are changes in the procedure, these changes must be noted. Use past tense and passive voice (e.g. *100 mL of Solution A was added to the 500 mL beaker.)*

Data
Record all your data directly in your lab notebook. Organize your data in a neat, orderly way. Label all data very clearly. Use correct significant digits, and always include proper units (g, mL, etc.). Space things out—don't try to cram everything into a small space. Use tables where appropriate.

Calculations and Graphs
You should show *how* calculations are carried out. Give the equation used and show how your values are substituted into it. Give the calculated values, with correct units. If graphs are included, make the graphs an appropriate size. Label all axes and give each graph a title. Graph paper may be stapled, pasted , or taped in your lab book, if used. I am not responsible for the loss of any materials that are turned in "loose" in your lab book. If experiments are not quantitative, this section may be omitted.

Conclusion
- 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: 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? Which measurement was the least precise? 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. 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. If you can calculate a percent error or percent deviation, do so and include it in this section.
  Let me reiterate – sources of experimental error are just that: Experimental.
  Not….Calculations
  Not….Something unspecific such as "human error" or "the scale was off"

Questions
Answer any post lab questions included in the lab.

You must bring your lab notebook to all labs. Failure to do so will result in a zero for the lab grade for the day.