

5. Record Keeping

Your lab book is an important record that must be interpretable by other researchers: to confirm your results; build on your work; and develop/test new theories.

Record experimental objectives, methods, materials and/or strategy, the number and type runs, interpretation, and conclusions. All data should be recorded in tables in an orderly fashion with appropriate headings and units. The first page of the book should contain a **Table of Contents** that is to be completed as the work proceeds. Leave at least 2 pages at the beginning of the book to allow for the Table of Contents. All pages in your lab book should be sequentially numbered.

... it is important to:

- Date every new entry in your lab book (e.g. not “Friday”, but Nov. 6, 2020).
- Hand writing must be legible.
- All records need to be written in pen, NOT pencil. DO NOT erase errors; draw a single line through the error and enter the correct result above.
- It must be UNDERSTANDABLE to a reader other than yourself. Avoid abbreviations that others may have trouble understanding.
- Document all experiments, whether the experiment worked or not. Don't ignore experiments that didn't work, since there is always something to learn from an experiment, even if it "failed".
- Data that doesn't seem to make sense or doesn't follow the trend you are looking for, is valuable data. Don't throw it out. Often it starts to make sense after further information comes to light.
- For each experiment, briefly, explain what you did and why and how you did it (1 or 2 sentences is often sufficient).
- List materials and methods:
 - If a formulation is involved, provide ALL the details ... it is not sufficient to say that a 1% solution was made up, then 3 grams of whatnot was added to it ... since the volumes are missing, this experiment is impossible to repeat.
 - If you are making up a solution, include the source of the reagent, lot number, etc.. ... and what you dissolved it in - water, distilled water, buffer, type of buffer, concentration of components in buffer, pH of buffer ...
- Tabulate or plot the results neatly, with proper legend, labels, units, in neat rows or columns.
- Briefly draw your conclusions or interpretation of the data ... what you think it means ... even if you are not sure what it means, just say so.

- If you have plots in another location like on a hard drive, then state where it can be found, and scotch tape a printout of the figure or table into your lab book.
 - Don't stuff a pile of data (like chromatograms) into your lab book. Neatly organize them with dates that should correspond to dates in your lab book, write clear headings that explain what it is, how it was run, etc.
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Last updated Oct. 18, 2019