How to keep a lab notebook:

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It is of utmost importance to write down all your activities, observations, data, objectives, and results in a lab notebook. This is very helpful when you need to perform a similar test years from now, or if somebody else in the laboratory has to perform a similar test. I have begun to write all the materials I ordered, the vendor, confirmation numbers, and their phone numbers down in my lab notebook as well, and I have noticed that I use this information over and over again. Finally, while writing your thesis, report, poster, or paper you will find yourself going back to your notebook numerous times. In addition to the notebook, you need to prepare a standard operating procedure (SOP) or protocol for all the new analytical tests or other procedures that you develop and leave that in the lab. It is common to leave your notebook (or at least a copy of the notebook) as well. Don’t ever be afraid that you are writing too much information.

You cannot rely on your memory; you also have to write the mistakes and the problems that you observed. The lab notebook can also be used to prove that an invention was made on a certain day. Hence, date and sign your notebook!

When your advisor or a colleague explains and shows you a new procedure, write every step down carefully. Make sure the person that explains things remain at a slow speed of showing you, so that you can write everything down. You will have to be instructed again if you forget to do this!!!

Somebody else needs to be able to read your notebook and should be able to perform the same test or protocol you just described.

Some standard procedures that you will have to follow:

1. The notebook must be permanently bound and the pages numbered.
2. Leave the first 2-4 pages blank initially, and use them for a Table of Contents that you fill as you go along.
3. Date every page and sign after you are done for the day (end of lab session).
4. Start each new lab session on a new page.
5. Handwriting must be legible. All the writing should be done in ink and are part of the permanent record: neatly cross out mistakes by a single line, so that it remains readable, don’t tear out pages!
6. You may glue in drawings, graphs, excel data sheets, handouts, etc. Sign or leave circles around the corners of the paper that you glue in.
7. The lab notebook should be current, so write while performing work, or finish the notebook entries just after finishing your work. Your advisor may check your lab notebook for accuracy and how current it is.
8. Everything should be recorded including:
   a. Title of experiment and date
   b. Note the members in the lab who assisted you.
   c. Objectives: what you are trying to do and why you are trying to do it.
d. Procedures: this should not be an exact copy of the SOP, but reworked so it is easy for you to follow and full of tips on how to do it. It also should include where materials are located and which equipment was used (and its location).

e. Information: which chemicals did you use, the calculations and procedures how to mix the chemicals if this was performed (recipes, pH corrections, tips on how to mix the chemicals [i.e., mixing, heating, what water to use, etc]). Write down the actual time when you start and end an experiment, so for example use from 3:15 pm to 5:15 pm rather than for 2 hours.

f. Any deviations from the SOP.

g. Observations: everything that happens during the experiment that may be important for the results or the interpretation of the results.

h. Data: raw and calculated, sample calculations are needed because you may forget how they were done (for example a conversion of units).

i. Discussion: interpret your results and draw conclusions on your experiment.

9. If you need to add information later, please date, sign, and mark what was added.

10. You may refer to a page number when you do a test over again in a similar manner.

11. Pictures from gels must be taped in the notebook as well. But, make sure you label them with meaningful names so that you realize what the picture or gel was about.

12. Never use loose pieces of paper!!

13. Keep your lab notebook in the lab at all times. Don’t take it home.

14. Date all the information taped in your notebook. Don’t leave data just stored in the computer, because this is not a permanent record!!

This is a work in progress!! So, sometimes it is not necessarily that tidy!! Remember, that you will forget everything that you do!! Do you remember what you did exactly 2 years ago??