Keeping a Science Fair Lab Notebook

Your notebook is perhaps the most important part of a good science fair project. Keeping a detailed lab notebook proves to the judges that you performed this work yourself, that your data actually exist and are valid, and that you followed the scientific method or engineering design process. **Your lab notebook is how you show all of the work you put into your project.** If you are planning to compete at the Ritchey SEF, your lab notebook will be a key part of your project.

You should write in your lab book anytime and every time you work on, talk about, or even think about your project. Keep accurate and informative notes throughout your entire project—from brainstorming to conclusions. Write down ideas, thoughts, sources, sketches, calculations, brainstorming, notes, and anything else that relates to your project. Here are some tips:

- A lab notebook is the primary-source **record** of your work. A research report, review of literature, or print of the descriptions on your display board is not a lab notebook.
- Use a **composition notebook** or other notebook with a *sewn binding*. Spiral bound notebooks tend to lose pages or fall apart during the course of a science fair season.
- Write neatly in black or blue **ink**. Do not use pencil; things that erase aren't good options for writing in lab notebooks.
- **Don't erase** or whiteout anything. If you make a mistake, simply cross or line it out like this: ~~I made a mistake~~. Judges may be suspicious if they see lots of erasures or whiteout. It makes them ask, "What is this student hiding?" Also, you may find out later that what you wrote was not a mistake after all.
- Do not obsess over neatness. Your notebook should be **legible (readable)**—if judges can't read it, then you have a problem—but it is also a working document. Side notes and lining out mistakes are part of the process of taking good notes.
- Record the **date**, **time**, and **place** where you are working. Make mention of any other people who you might be talking to or working with. S**tart every page with that day's date** at the top of the page!
- Write down anything you **observe**, your **procedures**, and any **data** you collect.
- Your lab notebook should contain **ALL** of your data.
- Make sure to write down any **changes** you make to your procedure. You usually don't want to change your procedure partway through an experiment, since that messes up your controlled variables. But, we all make mistakes (add too many milliliters of water, etc.) and it is important to note those mistakes and mix-ups so that you learn from them.
- Make sure **entries** are to the point and emphasize what you did that day. At the end of each entry, you can reflect on what went right or wrong that day, as well as jot down new questions that popped up or new ideas you think of.

If you have more items you wish to include for your science/engineering project, you may choose to display an **additional binder** with completed graphs, data tables, pictures, and/or figures that you have printed or gathered. This is a *companion* to your lab notebook, not the lab notebook itself.

Keeping a lab book isn't hard, and it can really pay off. We said it before, but we'll say it again because it is so important: **write down everything related to your project**. You can even paste in pictures, photographs, charts, newspaper clippings, magazine articles, or photocopied pages from a book. The better the lab notebook you keep, the better scientist you are, and the better the chance that your project will win!

Here is an example of what a page in your lab notebook might look like:

Date: 8 June 2023
Time: 4:03 pm
Place: Canoas Creek
People: my dad & me

Observations:

- *Raining really hard; Creek is about 5 feet deep.*
- *Birds and frogs are present.*

Procedures:

- *Collected 5 water samples, labeled 1 through 5*
- *Measured turbidity of samples*
- *Put samples in cooler*

Data:

- *Sample 1 turbidity: 12 JTU*
- *Sample 2 turbidity: 10 JTU*
- *Sample 3 turbidity: 15 JTU*
- *Sample 4 turbidity: 5 JTU*
- *Sample 5 turbidity: 7 JTU*

Using an Electronic Lab Notebook

In the past the Society for Science and the Public presented the option for students to use an "official" electronic lab notebook (ELN) sponsored by an international organization. That company is no longer in business, plus true ELNs are difficult to learn. Our current recommendation is to sign up and learn how to use OneNote (a Microsoft product for both Windows and Mac computers) if you want to use an ELN. ***We recommend against using an ELN if you are not totally comfortable using computers or have access to a laptop computer or digital notepad.***

Here are a couple of links that discuss the pros/cons as well as tips on using OneNote as an ELN:
http://martinengel.net/2015/12/how-to-use-onenote-as-your-electronic-notebook/
http://www.ascb.org/compass/compass-points/11-tricks-for-using-onenote-as-your-lab-notebook/

We recommend students backup ELN notes on a separate hard drive and/or print out a hard copy periodically. It is also a good idea to print out your notes to leave with your display board at the fair.

If you truly want to learn how to use an ELN, contact sciencefair@weber.edu for more information.