

## 1.3 Teacher Tool Box- Notebooking



### Preparing the Journals

Recording information in science and particularly engineering is crucial for developing a product. Throughout the Engineering design process there will be extensive changes, modifications to the original ideas that must be documented. These modifications will allow you to create a product that will serve the needs of your stakeholders and community partners.



### Notebooking Rational:

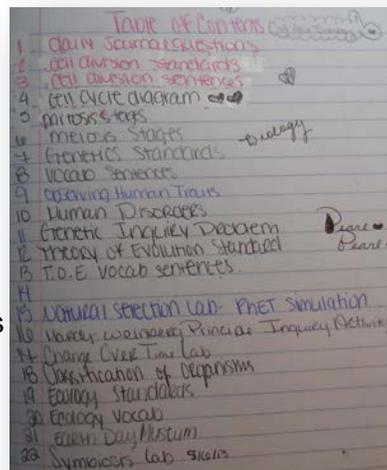
Although the use of notebooks has been around for hundreds of years, it has met with some resistance by students and educators alike. Although most teachers agree that this is a great practice, it does take time to implement a system of notebooking that will work. Additionally at the high school level, most educators believe that students understand how to take notes and stay organized. If this is the case with your students, you may not need this information. However, these notebook essentials will help your students organize their thoughts and their data so that it can be a resource for not only the students but also artifacts for the EPICS projects that your students are engaged.

### Essential Elements

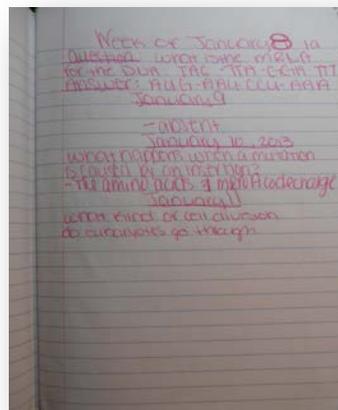
The notebook will be the students running thread of information to pull the entire planning process together for the development of the service-learning project. Without a complete documentation complete with reflections, sketches of models and prototypes along with detailed information about the stakeholders, project and community partners; the project could not possibly be implemented.

To help with the organization of the notebook, there are essentials that must be included for a good organizational tool for the students and the project. Remember, the product does not have to be neat as long as the student understands the content and owns the product.

**Table of Contents:** Although this may seem like a useless piece of book keeping, the table of contents is very important for the students being able to find information on the project and data at a moments notice. The students should leave the first 2 pages in their notebook for the table of contents and they can leave the page numbers until they finish each day of their work. They will go back into their table of contents and write in page numbers as they go through their

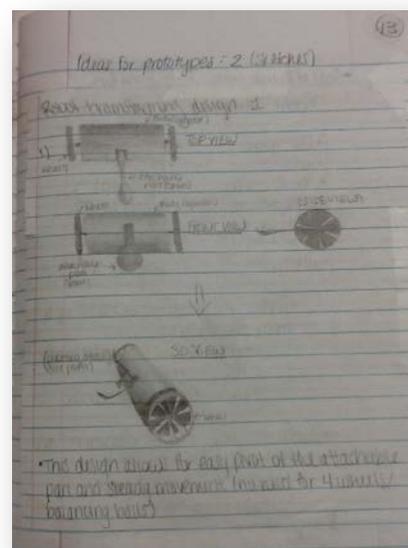


**Line of Learning:** As a way for students to track their development of the knowledge of the engineering process, the Line of Learning is a great vehicle to show this progression. There does not have to be an entry in the Line of Learning every lesson, although throughout the EPICS lessons, a reflective question is provided, it is up to you and your students when the reflection occurs. Whenever you see that they students have made significant progress toward understanding a concept, this would be a great time for this type of reflection. Additionally, it is helpful to have this reflection at the beginning of a module or concept so the students can see their progress.



**Elements of the Line of Learning-** Students should write a reflective question, write their response, along with the date. After the reflection, have the students draw a line to designate the end of that reflection.

**Prototype sketches:** Engineers and scientists live by the use of notebooks. These have their notes, their sketches and other important information that will drive the project. Students should make sure that all sketches have labels as a way of adding more detail and also each page should be numbered. As the students number their pages, they will return to their table of contents and write in that information to keep their notebook organized.



**Communications:** As the students begin to work with their Project and Community Partners, recording communication is extremely important. This may include:

- Contact information
- Important dates and e-mail information
- Notes from group meetings

This information will be vital for the success and tracking the progress of the project. These are just a few tips to help you get started with notebooking. For further information we have included additional resources to follow.

**Resources:**

- Pajares, F., Britner, S. L., & Valiante, G. (2000). Relation between achievement goals and self-beliefs of middle school students in writing and science. *Contemporary Educational Psychology*, 25(4), 406-422.
- Campbell, Brian, and Lori Fulton. *Science Notebooks: Writing about Inquiry*. Heinemann, 361 Hanover Street, Portsmouth, NH 03801-3912, 2003.
- Fulwiler, B. (2007). *Writing in Science: How to Scaffold Instruction to Support Learning*. Heinemann, 361 Hanover Street, Portsmouth, NH 03801-3912, 2003.