

Setting up your Science Notebook

Grade Level: K - 12

Duration: Preparation: 15 minutes

Activity: 45 – 50 minutes

Setting: Classroom

Objectives:

After completing this activity, students will

- Understand the routines involved in using and adding entries to their science notebooks, including use of a table of contents and types of entries.
- Have a notebook prepared and ready for its first scientific entry!

Materials

- Science notebooks (one per student)
- Pencils
- Table of Contents handout (3 – 4 single-sided sheets for each student)
- Science Notebook Entries Student version (1 half-sheet for each student)
- Glue sticks
- *Notebook_setup.pptx*
- Science Notebook Entries Instructor version (1 for instructor)

Background for Educators

A student's science notebook is a record, both of that student's sense-making process, and of their learning over time. Using science notebooks in the classroom allows for more integration of science with ELA, creates a place for students to construct their own meaning of science concepts, fosters student pride in their own work, and facilitates student use of authentic science tools to do real science. In addition, a science notebook can offer a tool for teachers to do formative assessment throughout a unit, semester, or school year.

In this lesson, we lay out one way for students to set up their science notebooks. In addition, we offer some steps and strategies for guiding students through this process, and continuing to use an organizational system throughout the year. This lesson and way of organizing student science notebooks will work with any style of notebook or journal you have access to. That being said, we have some recommendations for an ideal notebook 'style' for this purpose, which includes that each student has their own, blank notebook with unlined, plain white paper. Plain, unlined pages allow for more student ownership and varied types of entries, including sketches and diagrams. Additional scaffolds (including simple, lined pages for writing activities) can be glued or taped into the notebook, depending on the purpose of the entry. We also suggest using spiral bound notebooks so that it's easy to flip through, and to leave open to one particular page for gallery walks and

teacher review. Depending on your available resources, and your goals for and knowledge of your students, you may choose a different style of notebook. There are three main steps in the notebook set-up process:




- STEP 1: Table of Contents
- STEP 2: Page numbering
- STEP 3: Headings and types of entries.

The **Table of Contents** can be a resource for both students and teachers to find specific entries within a student science notebook. A student might use this as a tool to continue ongoing work, or review their own progress with a particular concept, over the course of a semester or year, or even their own growth through elementary or middle school. It also models a method that many scientists use in their own science or laboratory notebooks (LASER). We provide a table of contents template to download and print for students to glue into their notebooks. You may also want to create your own.

We also recommend that students **pre-number all of the pages** in their notebook. This may take a significant portion of the time you have available for notebook set-up, but it can be an important step for a number of reasons. Organizationally, pre-numbering ensures that the number is always easy to find and all blank pages are ready for a new entry at any time. This step is also another way for students to take ownership of their notebook, in addition to the arguably more creative activity, “Decorate your Science Notebook.”

We define **three types of entries** under which all notebook activities can be organized. The three types are outlined below, along with the symbol assigned to each type which students will add to the heading and the table of contents. We have also included an instructor handout that details the types of entries, symbols, and example headings for your own reference. Categorizing and labeling entries helps make visible to students the types of activities we do in science. It can also help teachers keep track of whether or not all types of science activities exist in their classroom.

Be as flexible as you need to be so that this method of categorizing entries makes sense and is easy to use for both you and your students. For example, notice that depending on the purpose, a sketching activity may be classified as part of any of these three types of entries.

Symbol	Entry type	Description
	Investigation	Students should make an <i>Investigation</i> entry when they are recording parts of an investigatory process. This type of entry should always begin with a focus question, and can include additional sections that may fall under the “investigation” heading such as experiments, observations, sketching, prediction, plan, claims, and evidence.
	Notes	Students should make a <i>Notes</i> entry when they are doing activities including taking notes or recording new vocabulary. Notes can take on many forms, including observational and field sketching, a vocabulary list, a KWL chart, lecture notes, or “notice and wonder.”
	Reflection	Students should make a <i>Reflection</i> entry when they are reflecting on what and how they have learned. There are a variety of ways to prompt reflections, from single questions to reply to with writing and/or drawing, to more structured strategies. See the accompanying slide show and references listed for additional ideas.

We recommend demonstrating best practices during set-up and throughout the school year by using a **class notebook**. During this set-up lesson, you may want to use a class notebook to model adding entries to the Table of Contents, and later add headings to blank pages by doing it right along with them and displaying the process using a document camera. Decide on what you will define as “best practice” for your classroom: Will you start a brand new page for each entry? How will you organize the space on the page? Do you want additional information in the heading, for example group members, or time of day?

Teacher Preparation

- Print all handouts (see Materials)
- Be sure to have a blank notebook for each student
- Designate one blank notebook as the “class notebook” and have it accessible to use to model all of the steps in this lesson.
- Set up document camera and/or *Notebook_setup.pptx*
- Ideally, students do this set-up after decorating and personalizing their notebook cover (see “Decorate your Science Notebook” lesson)
- Depending on the size of your students’ notebooks, you may need to trim down the handouts so that they fit and can be glued onto a notebook page.

- Do some thinking about where students will be keeping their notebooks, and what routines you would like to have in place around retrieving them and putting them away.

Introduction (5 minutes)

Instructor Note: It may be helpful to use the accompanying presentation slides (Notebook_setup.pptx) to guide students through the following steps in setting up their notebook.

- Announce to students that today everyone will be setting up their science notebooks to use for the entire year (or semester, etc... whatever is applicable).
- Invite students to discuss with an elbow partner or trio one or both of the following questions:
 - How have you used a notebook or journal before?
 - At home...
 - At school...
 - How do you think you might use a notebook to do science?

Instructor Note: The lesson "Science Notebooks Across Time" is meant to give students a sense of how notebooks are and have been used in science. Doing this lesson just before or after setting up their own science notebooks could be fun and useful for students.

Activity (25-30 minutes)

- Retrieve notebooks, open to first blank page
- **STEP 1:** Starting with that first blank page, glue in 3-4 table of contents pages, using both sides of the notebook pages.
- **STEP 2:** Skip 1-2 pages, then number the remaining pages, starting with the 1, and continuing until all remaining pages are numbered.
 - Skipping a couple of pages makes sure that there is some space for additional Table of Contents pages, or for other glue-in sheets students feel should go towards the front of their notebook.
 - Encourage students to be consistent, and to choose a place on the bottom or top edge of each page that they will consistently write the page number. This will make it easy for both teacher and student to find and reference.
- **STEP 3:** When all students have finished the first two steps, introduce the three different types of entries and associated symbols.
 - Hand out the "Science Notebook Entries Student version" (table) so that students can take notes on each entry type.

- Give students a chance to share out what types of notebook entries fall into each category, starting with *Investigations* and discussing each type one at a time.
- Give students time to record what they think is important in their “Science Notebook Entries Student version.”
- Finally, give students time to glue the table into their notebooks, on a page following the Table of Contents, or inside the front cover.

First Notebook Entry (10-15 minutes)

- Tell students that the class will be trying out the notebook organization that they just set up by adding a new entry to the notebook and that it will be a reflection entry.
- Ask students to open their notebooks to the first blank, numbered page.
- Guide students, using the class notebook, to add their first heading, including the circle symbol to indicate that they are adding a reflection entry
- Guide students using the class notebook to add the entry to their Table of Contents.
- Give students the following prompt, and 2-5 minutes to write or draw their response under the new heading:
 - What are you looking forward to most about your science notebook?
 - *I am looking forward to...*
 - What do you still wonder about your science notebook?
 - *I wonder...*

Wrap-up (5 minutes)

- Give students time to share part or all of their reflection with a partner.
- Ask students if there are any questions they would like to share with the whole class.
- Close notebooks and put them away!

Extensions and Adaptations

- Adaptations for younger students
 - Provide wider-ruled table of contents
 - Leave out the “symbol” column on the Table of contents: Focus on writing the most important 1-2 words of title, as well as the page number and date (see 3rd grade example in the image above).
 - Number pages in stages: One example is to number pages 1 – 15 during this first set-up lesson, then designate a future class time to number pages 16 – 30, etc.
- Index of Science Terms
 - Introduce another layer of organization to support learning of new content by guiding students to create an index of science terms that

allows them to use their own notebook entries as a reference (FOSS, p. 9)

Reference and Resources

Full Option Science System (FOSS): Science Notebooks. Retrieved from

<https://www.fossweb.com/science-notebooks>

Washington State Leadership & Assistance for Science Education Reform (LASER):

Science Notebooks. Retrieved from <http://wastatelaser.org/Science-Notebooks>



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