

2nd Grade – Work Like a Scientist – Unit 1

If you are new to SRCSD, you may want to begin with this self-paced digital PD for information about curriculum components and resources available on the HMH website:

https://players.brightcove.net/3887645559001/SygcGwZWZ_default/index.html?custom_correlation_id=40c92d30-737e-45f3-ab35-71e2db6cc2d5&playlistId=5791310195001

If using a Science or Evidence notebook, be sure to check out this video:

https://www.hmhco.com/content/hsp/science/na/common/video/vbp/index.html?custom_correlation_id=6cf5c01a-6368-44c4-9800-58f4a7c80991&refid=ngss_pd_b2016



Where Should Science Notebooks Be Stored?

In school. The Notebooks can be stored in a basket or behind a colored tab in a file cabinet. If students are working in groups or teams, each team may have its own basket. Use color-coding for easy identification. Store the Notebooks near the science materials.



How Can I Get Started with Science Notebooks in My Class?

You'll want to have students set up their Science Notebooks as soon as possible. You might want to follow these steps or modify them to suit your needs.

1. After deciding on a Notebook format—spiral, pad, loose leaf in a binder, or digital—invite students to make a cover with their name, your name, the class period, and a decoration.
2. Use the first three or four pages to create a Table of Contents. Remind students to write "Table of Contents" at the top of each page.
3. Set up three columns on each Contents page and label the columns *Page*, *Activity*, and *Dates*.
4. Number the pages. While this may seem like a tedious task, it will pay off many times over during the year.
5. Although *HMH Florida Science* has an interactive glossary at the back of the Student Edition, you may want students to use the last ten or twelve pages of their Science Notebooks for a glossary.

Now your students are all set!

For each activity or concept, students should start a new page. Many teachers have students use the pages as pairs, with the right page for input (e.g., information they receive from reading, viewing videos, and listening) and the left page for output (e.g., student-made diagrams, concept maps, drawings, observations, and questions related to the input). After students complete their work, they should return to the Table of Contents and fill in the information.

How Can I Give My Students Feedback on Their Notebooks?

Giving feedback is one of the most important strategies you can use to support students' learning. You'll want to review your students' Notebooks as often as possible. This is a case where *more* really is better. Students need to know their Notebooks are important. Regular feedback sends that message.

Many teachers provide critical feedback to coincide with points in the curriculum where mastery is key to moving on—for example, in the middle and at the end of a unit.

- Be sure you have a clear understanding of the lesson objective. This will help you decide how to comment on whether a student has met the objective. In *HMH Florida Science*, a full answer to an Essential Question articulates the content of lesson objectives.
- Provide positive feedback directly in a Student's Notebook.
- Make suggestions for additional thought or work on sticky-notes, which can be removed when the work is completed.
- When possible, couch your suggestions as guiding questions such as, What conclusions can you draw from the evidence? Which of the variables will you need to control?

You may wish to have students conduct a self-evaluation of their Science Notebook. This page is available in the Assessment Guide.



The form is titled "Self-Assessment My Science Notebook" and includes a "Name" field. The main heading is "Think About It" followed by the question "Do you keep a Science Notebook? Write 'yes' if a sentence describes your Science Notebook." There are seven numbered items for students to check off:

1. I am building a table of contents in the first four pages of my notebook. I add entries throughout the year.
2. I am building an index in the back of my notebook. I add entries throughout the year.
3. I write my plans for investigations in my notebook.
4. I record results, notes, and data from my investigations.
5. I use my notebook to record science notes, drawings, and graphic organizers.
6. I include the date and a title with each entry in my notebook.
7. I use my notebook to review and reflect on what I have learned.

Below the list, there are two sections for written responses: "This is how keeping a Science Notebook is helping me." and "This is what I will do to improve my Science Notebook." Each section has several blank lines for writing. At the bottom right, it says "AG viii" and "Grade 1 - Assessment Guide - Florida".

TIP Keeping Place in the Notebooks

Students can lose valuable time trying to find their place in their Notebook. Here are some ways to get around the problem:

- *Have students use a binder clip to hold all the unused pages. During each lesson, they can remove newly used pages from the clip.*
- *Suggest that students tape a string to the spiral or spine of a binder and place the string between the used and unused pages.*
- *Encourage students to use a sticky-note to mark the last used page or first unused page.*

Unit 1 – Work List a Scientist

Lesson 1 – Essential Question: How Do We Use Inquiry Skills?

Students can write this essential question in their notebooks.

LESSON 1

How Do We Use Inquiry Skills?3

SC.2.N.1.1 Raise questions ... investigate them in teams ... and generate appropriate explanations based on those explorations.

SC.2.N.1.3 Ask “how do you know?” in appropriate situations.

SC.2.N.1.5 Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).

Digital Lesson: 9 slides to introduce lesson content.



How Do We Use Inquiry Skills?

Teacher View of Digital Lesson

Additional Inquiry Labs – These investigations can be conducted at any time, before, during, or in response to the lesson.

- A. Hand in Hand – Are all the hands in your class the same size? Measure and compare handspans to find out.
 - a. Materials: Ruler
 - b. Time: 15 minutes
 - c. Prep: Demonstrate for students how to measure their hand by using a ruler. Remind them to start measuring at 0 and not at 1.
 - d. Expected Results: Children should find that some of them may have hands that are the same size as classmates’ hands, but some will be smaller and some will be larger.
 - e. Lab Sheet: https://srcds-my.sharepoint.com/:u:/g/personal/climert_santarosa_k12_fl_us/EXvVEQEfun5Is67_GxB_XukBGfyWSxliweCsBmQizA1h7Q?e=JApr09
- B. Do You See What I See? Choose an object to observe. Decide on a way to record your observations (science notebook). Then infer something about it. Share what you learned with classmates.
 - a. Materials: assortment of objects to be observed; recording sheet
 - b. Time: 15 minutes
 - c. Prep: Collect assortment of items to be observed
 - d. Students can create their own way to record results – writing, drawing, etc, but if they need guidance, they can answer the following questions:
 - i. What object will I observe?
 - ii. What color and shape is it?
 - iii. What else can I observe?
 - iv. What can I infer about the object?

- e. Lab Sheet: https://srcds-my.sharepoint.com/:u:/g/personal/climert_santarosa_k12_fl_us/EXmo4xCo-0NNv3fdZj6zltEBbbCgjdHrjujdSNOqz-Bgg?e=ajlZpj

Optional Extension Activity: Card Sort

Cut out the following cards and have the students match up the definition with the inquiry skill.

To make a good guess about what will happen	predict
To sort things by how they are alike	classify
To show what something is like or how it works	Make a model
To follow steps to answer a question	Plan an investigation

Lesson 2 – Essential Question: How Do We Use Science Tools?

Students can write this essential question in their notebooks.

LESSON 2	How Do We Use Science Tools? 13
	SC.2.N.1.1, SC.2.N.1.2 Compare the observations made ... using the same tools. SC.2.N.1.5
	People in Science
	Anders Celsius.....21
	SC.2.N.1.2, SC.2.N.1.6 Explain how scientists ... solve problems.

Digital Lesson: 10 slides to introduce lesson content.



How Do We Use Science Tools?






Teacher View of Digital Lesson

Additional Inquiry Labs – These investigations can be conducted at any time, before, during, or in response to the lesson.

- A. Hold It! – How much water can a container hold? Estimate and then measure to find out.
 - a. Materials: container, measuring cup, water, paper towels (for any water spills)
 - b. Time: 15 minutes
 - c. Prep: Try to get 1 cup (8 oz.) measuring cups to help students easily measure one cup of water at a time.
 - d. Expected Results: Children will find that their predictions are less than, greater than, or the same as the actual amount the container holds. You can extend this activity by providing students with a variety of containers of all different shapes and sizes.
 - e. Lab Sheet: https://srcds-my.sharepoint.com/:u:/g/personal/climert_santarosa_k12_fl_us/EYPWF9nGjXNrX1NcsMW8KEBHLzo233emSU1ZOoGL_DS3A?e=12SMYP
- B. Objects Up Close – Choose an object to observe with a hand lens. Decide on a way to record your observations. Share what you learned with classmates.
 - a. Materials: Science Notebook or other recording sheet
 - b. Time: 15 minutes
 - c. Prep: hand lens, assortment of small classroom objects for students to observe
 - d. Students can create their own way to record results – writing, drawing, etc, but if they need guidance, they can answer the following questions:
 - i. What object will I observe?
 - ii. How will I use the hand lens to observe the object?
 - iii. What can I see with the hand lens that I could not see with my eyes alone?
 - iv. Should the object I observe be large or small?
 - v. How will I record my observations?
 - e. Lab Sheet: https://srcds-my.sharepoint.com/:b:/g/personal/climert_santarosa_k12_fl_us/ETZslRe_LWBPgtJfZQKcYhcBHjbsO3ZEE3vOwW9jrEJvIQ?e=y8cKSf

Optional Extension Activity: Card Sort

Cut out the following cards and have the students match up the name of the tool with the picture.

tape measure	
balance	
thermometer	
measuring cup	
hand lens	

Lesson 3 - Inquiry Lesson – Essential Question: What Tools Can We Use?

Students can write this essential question in their notebooks.



What Tools Can We Use? 23
 SC.2.N.1.1, SC.2.N.1.2

Digital Lesson: 14 slides to introduce lesson content.



Inquiry Lesson - What Tools Can We Use?

Teacher View of Digital Lesson

Guided Inquiry Lesson – What Tools Can We Use? - How do science tools help you learn about things?
Investigate to find out. Pg. 23-26

- Materials: thermometer with cup of ice water, balance with various objects, measuring cups and samples of colored water, hand lens with salt crystals, and a ruler with different lengths of yarn
- Time: 30 minutes
- Prep: Have an assortment of interesting objects for students to observe. Set up 5 stations with the materials listed above. If time is limited, you can use these tools as a whole group demonstration.
- Expected Results: Students should realize that science tools enable them to learn more about objects than they would learn with their senses alone.
- No lab sheet needed – Inquiry lessons are located directly in the consumable textbook.

Lesson 4 – Essential Question: How Do Scientists Think?

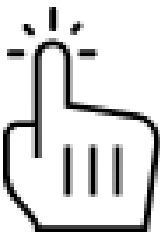
Students can write this essential question in their notebooks.

LESSON 4

How Do Scientists Think?..... 27

SC.2.N.1.1, SC.2.N.1.2, SC.2.N.1.3, SC.2.N.1.4, SC.2.N.1.5 Explain how ...
scientific investigations should yield similar conclusions when repeated.

Digital Lesson: 8 slides to introduce lesson content.



How Do Scientists Think?

Teacher View of Digital Lesson

Additional Inquiry Labs – These investigations can be conducted at any time, before, during, or in response to the lesson.

- A. Everything in Balance – Make a hypothesis about the weight of objects. then use a balance to test your hypothesis.
- Materials: three objects of various sizes and shapes, balance
 - Time: 15 minutes
 - Prep: Review how to use a balance with students and collect the objects for balance activity
 - Expected Results: Children will use the balance to compare 2 objects at a time and then order the objects from lightest to heaviest. They will find that the balance helps them compare 2 objects because the heavier object is lower on the balance than the lighter object.
 - Lab Sheet: https://srcds-my.sharepoint.com/:b:/g/personal/climert_santarosa_k12_fl_us/EYhNZfvbP5dlrcLgRfxgslABITSGcsjZLIANgR311i2nog?e=QKIEdb
- B. Rule It! - Choose three objects. Use a ruler to measure them. Decide on a way to record your results. Share what you learned with classmates.
- Materials: Science Notebook or other recording sheet, ruler, variety of objects to be measured
 - Time: 15 minutes
 - Prep: Gather assortment of objects for students to measure and remind students how to measure correctly on the ruler by starting at 0 and not 1.
 - Students can create their own way to record results – writing, drawing, etc, but if they need guidance, they can answer the following questions:
 - What 3 objects will I choose?
 - How long are the objects?
 - How tall are the objects?
 - How wide are the objects?
 - How will I record my results?
 - How do my results compare with others?
 - How will my results change if I measure in centimeters?
 - Lab Sheet: https://srcds-my.sharepoint.com/:b:/g/personal/climert_santarosa_k12_fl_us/EVdMaHrzvBRGnTXq8bBaA4gBtf2rPPNl1y8_ulfTdC0lnQ?e=oAsYOa

Optional Extension Activity: Interactive Glossary

Students can update the following terms in the interactive glossary in the back of their textbook:

Investigate, hypothesis, draw conclusions, communicate – students are to use what they have learned to complete the “Your Turn” sections – using their own words.

Lesson 5- Inquiry Lesson – Essential Question: How Do We Solve a Problem?

Students can write this essential question in their notebooks.



Digital Lesson: 12 slides to introduce lesson content.



[Inquiry Lesson - How Do We Solve a Problem?](#)

Teacher View of Digital Lesson


Guided Inquiry Lesson – How Do We Solve a Problem? - You want to organize art supplies in your classroom. Design and build a holder to keep them organized. Pgs. 37-40

- a. Materials: scissors, glue, tape, string, cardboard, construction paper, can, cartons
- b. Time: 40 minutes
- c. Prep: Materials can be added or deleted from this list based on what you have on hand. Walk children through the steps of the design process, from discussion to drawing to building, BEFORE their work.
- d. Expected Results: Children should discover that building a physical model is a way to solve a problem.
- e. No lab sheet needed – Inquiry lessons are located directly in the consumable textbook.

End of Unit Review & Assessment

Enduring Understandings

Revisit the Essential Questions – Post the Essential Questions and use the following prompts to guide discussion about related claims, evidence, and reasoning.

Lesson/Essential Question		 Claims • Evidence • Reasoning
L1	How Do We Use Inquiry Skills?	• Make a claim that identifies how we can use an inquiry skill to observe.
L2	How Do We Use Science Tools?	• Cite evidence that identifies three science tools.
L3	What Tools Can We Use?	• Make a claim about science tools and how they help us learn about the world.
L4	How Do Scientists Think?	• Cite evidence for the claim that scientists follow steps when solving a problem.
L5	How Do We Solve a Problem?	• Make a claim about the steps in solving a problem.

This can also be done using the Science Notebook.



Science Notebook

You may use the following strategy after children complete the unit or after each lesson.

- Have children review and edit the responses to Essential Questions they drafted at the beginning of the unit. Suggest they cross out sentences or ideas that are unnecessary or inappropriate.
- Have children generate three questions about a topic from this unit they wonder about or would like to find answers to. Challenge them to research and report on the answers they find.

<i>Essential Questions</i>	<i>My Answers and Ideas</i>
<i>How Do We Use Inquiry Skills?</i>	
<i>How Do We Use Science Tools?</i>	
<i>What Tools Can We Use?</i>	
<i>How Do Scientists Think?</i>	
<i>How Do We Solve a Problem?</i>	

Unit 1 Benchmark Review – pgs. 41-44

Unit 1 Test and Performance Assessment – Link to Unit 1 Assessment Guide – Quiz for Lessons 1-5, Benchmark Assessment, Performance Task

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