



Natural Inquirer Scientific Process Module



Unit 3: Lesson 1: Reviewing the Scientific Process

Background: Throughout Units 1 and 2, the scientific process was presented along with other relevant topics, such as what it means to be a scientist. In this unit, you will help your students to put this information together; and then they will put it to work as they conduct their own scientific process in the following month-long project (Unit 3: Lesson2).

At this point, your students should be ready to begin a research journey based on the activities presented in units 1 and 2. In your professional training, you may have learned that the scientific process is a specific set of steps. In the previous units presented here, the scientific process was presented more organically and less like a series of succinct steps. You may want to combine your existing knowledge of the scientific process with what you have learned here as you review the scientific process with your students.

Although many hands-on science activities omit the first part of the scientific process as described here and begin with data collection, it is best to include as many of the given scientific process activities as you can. This will help your students to think critically about their scientific endeavor, and will challenge them to design their own data collection and analysis rather than to simply follow directions.

At this point, you should review the background sections of all previous units and lessons. This will help to refresh your memory before reviewing the scientific process with your students. If you have had your students create a science process portfolio, you may also have your students review their portfolios as a part of the review process.

The purpose of this lesson is to help your students to see and understand the scientific process in its entirety.

Objectives:

- Students will be able to identify the different parts of the scientific process and understand how they relate to “doing science”
- Student will be able to read, analyze, and explain scientific information

Time: 1-2 class periods

Materials:

- *Natural Inquirer* journals
- Paper
- Pencils

Procedure:

1. Begin the class by reminding students that they are going to create a *Natural Inquirer* article based on their own research. However, before they begin this activity, the class is going to read one more *Natural Inquirer* article and review the steps in the scientific process.
2. Pick an article to read. As you read together as a class, stop after each section and review the important parts of each process.
 - Thinking about Science- explains application of a larger science concept such as the importance of team work in science
 - Thinking about Environment- explains application of environmental theme or idea
 - Introduction Section- provides background research and defines the problem
 - Method Section- explains how scientists try to answer the problem
 - Findings Section- tells what the scientists discovered
 - Implication Section- describes what all the findings mean
3. At the end of the class, have students reflect on what they have learned about the scientific process.
4. Ask students to take out a sheet of paper and write down any questions or things they don't understand. Tell them that they do not have to put their name on the sheet. All comments will be anonymous.
5. Collect these sheets and go over any areas where students have concern or are confused.

Assessment:

Class discussion and participation can be used as an informal assessment. Additionally, if you would like to do some form of formal assessment you could give a short quiz on the different parts of the scientific process.

Modifications:

The anonymous comment sheets at the end of the class will allow you to help students that may be having trouble, but are too shy to ask. For students seeking an extra challenge, they may want to use their research from this project and enter a science fair. Ideas and guidelines for science fair projects are provided under extra resources.

Extra Resources:**Successful Science Fair Projects**

<http://faculty.washington.edu/chudler/fair.html>

The Scientific Process

<http://bioweb.wku.edu/courses/Biol450/Process.html>

Scientific Process Log

http://whyfiles.larc.nasa.gov/text/educators/tools/pbl/scientific_process.html