Natural Inquirer Scientific Process Module

Unit 1, Lesson 3: The BIG Idea - Thinking About Science and the Environment

Objectives:

- Students will be able to name at least one larger implication of studying science.
- Students will be able to discuss and evaluate verbally what larger concepts are being addressed by scientific studies.
- Students will be able to explain how the larger concept influences how a problem is defined and studied.

Time Needed:

1-2 class periods

Materials (for each student or group of students):

- *Natural Inquirer* monograph or article
- The BIG Idea Graphic Organizer
- Blank paper or notebook
- Writing utensil

As you know, anything can be viewed from different scales. When we consider a health or environmental problem, for example, we can think of its impact locally, nationally, or globally. Science in general, and in this case natural resource science, can be viewed at different scales as well. The larger scale perspective is important, because it provides a context for understanding the more specific topics. Presenting a large-scale perspective helps students to understand that specific learning can be transferred from one situation to another.

Natural Inquirer takes two large-scale concepts and introduces something from each article based on these concepts. At the beginning of each article, students are asked to "Think About Science" and "Think About the Environment." These two sections provide a large-scale context for the student as they learn about a specific research study.

"Thinking About Science" takes a large-scale principle or practice of science from the article and introduces it for student reflection. Topics for "Thinking About Science" are usually a smaller part of the scientific process, such as the idea of using controls or the concept of teamwork in science. As an educator, you could combine this sections from multiple *Natural Inquirer* articles as part of a lesson on the nature of science, without even reading the articles.

"Thinking About the Environment" takes a large-scale environmental principle from the article and introduces it for student reflection. Examples include the idea of biodiversity in ecosystems, the nature of ecosystems, or the concepts of native and nonnative plants and animals.

These large-scale concepts are important because they can help students to understand the implications of the research that they are reading. Additionally, this can help them to see how their present learning can be transferred to new topics.

Methods:

Prep

Familiarize yourself with the chosen *Natural Inquirer* monographs or articles. Make copies of the The BIG Idea Graphic Organizer. Choose an additional *Natural Inquirer* monograph or article that students will not be reading during this lesson.

Note: To limit the number of materials, choose just one *Natural Inquirer* journal. This will enable students to complete this lesson using only one publication. This same publication can also be used for future lessons in the *Natural Inquirer* Scientific Process Module.

Day One

Provide students with the chosen *Natural Inquirer* texts that they will read during this lesson. Flip through the pages with the students to identify the parts of the *Natural Inquirer* article. Remind students that these are the same parts that all scientists use when writing papers about their research. The only difference in *Natural Inquirer*, are the two sections at the beginning titled “Thinking about Science” and “Thinking About the Environment.”

Direct students to read both the “Thinking About Science” and “Thinking About the Environment” sections. Or, alternatively, read the two sections together as a class. After each section, have students fill out the BIG Idea Graphic Organizer. Repeat this for at least two different *Natural Inquirer* monographs or articles.

After students have finished reading and completing the chart, have students play the following game to help reinforce the application of scientific studies to larger ideas and concepts. Ask students to clear their desks, then split the students into groups of four.

Using the edition of the *Natural Inquirer* that students have not yet read, read the “Introduction” section aloud to the whole class. Give each group a minute to brainstorm larger concepts that may apply to the study. At the end of the minute, have each group share the list of ideas they came up with and see which group came up with the longest list. Discuss the answers and see how they apply.