

# Natural Inquirer Scientific Process Module



## Unit 2, Lesson 4: Discuss the Findings and Implications

### Objectives:

- Students will be able to read, analyze, and explain information from a science article.
- Students will be able to describe the findings and associated implications from scientific research.
- Students will be able to explain the importance of research and be able to draw conclusions that are connected to a larger environment or science concept.

### Time Needed:

4 class periods

### Materials (for each student or group of students):

- *Natural Inquirer* monographs or articles
- Discuss Findings Graphic Organizer
- Blank paper or notebook
- Writing utensil

As mentioned earlier, the scientific process is cyclical. When scientists discuss their findings and the implications of their findings, they are completing the cycle. In a typical research paper, findings are presented without much commentary. Following the “Findings” section, most scientific papers include a section titled “Discussion.” In this section, scientists discuss what their findings mean. Often, the findings are summarized holistically. This includes comparisons of the findings with earlier findings that were identified during the literature search. By doing this comparison, the findings are placed into the larger scientific context, including what is currently known and often noting how the new findings confirm or challenge existing knowledge.

While not all research papers include an “Implications” section, many do. This part of the scientific process places the research into larger

social context. The implications of the research may make recommendations, based on the findings, about improvements that can be made by an environmental manager, a doctor, or an educator, for example. Often, scientists will not include an “Implications” section, relying instead on the reader to draw their own implications based on the “Findings” and “Discussion” sections. Some scientists feel that identifying implications goes beyond their responsibility as a scientist. Other scientists feel that the identification of implications is an important part of understanding the meaning and potential use of the research findings.

In many research papers, scientists may identify new questions that have been raised as a result of their research. This may be done in the “Discussion” or “Implications” section of a research paper.

In *Natural Inquirer*, the “Findings” and “Implications” or “Discussion” sections are oriented more toward helping the student to understand the research and to place the findings into a larger context.

### Methods:

#### Prep

Familiarize yourself with the chosen *Natural Inquirer* monographs or articles. Make copies of the Discuss Findings Graphic Organizer.

**Note:** To limit the amount of materials, reuse the *Natural Inquirer* publications selected in Unit 1, Lesson 3.

#### Day One

Provide students the chosen *Natural Inquirer* monographs or articles. Students will not be reading the entirety of any article, but will instead focus on reading just the “Findings” and “Discussion” of each article. Depending on which articles you chose, students

should have already read the “Introduction” and “Methods” for the articles.

As students read the each monograph or article, direct them to complete the Discuss Findings Graphic Organizer to the best of their ability. The graphic organizer has an example on it to show how students should be entering information.

## **Day Two**

Provide time for students to complete the graphic organizer as discussed in the previous class. If some students are reading at a higher level, encourage them to choose additional articles and enter that information into the graphic organizer.

Once students are finished with the graphic organizer. Review the graphic organizer as a class. If students had time to do an additional article, ask those students to share what they read with the class. Their classmates should write the information about that article in their graphic organizer (even if they didn't read it).

## **Days Three-Four**

Give students a few minutes to review the information in their graphic organizers. Hold a class discussion about the articles. Ask students to share if they think the implications match the findings, and whether they feel the findings and implications are important. Remind students that they should be backing up their comments with evidence. This is a good opportunity to discuss the idea that people will value different types of science research differently. It is important to study many different things so that we have a greater understanding of the world in which we live.