Natural Inquirer **Scientific Process Module**

Unit 2: Lesson 5: Tables, Charts, and Graphs

Background: When scientists present their findings, they use aids that summarize the data and the findings. These aids include, for example, tables, charts, graphs, photographs, illustrations, maps, and text. Tables usually include numbers that summarize the data or present the results of statistical analyses. Scientist should use the data presentation aid that most clearly and easily presents the findings to the reader. Often, these aids are shown as evidence of the analytical results. Because a typical research project collects too much data to share all of the data with the reader, the accurate summarization of data and findings using these aids is also an important part of maintaining credibility in the scientific process.

You may want to stress the importance of understanding tables, charts, graphs, illustrations, and maps to your students. For your visually and spatially-oriented learners, the use of these aids will be a welcome relief from the text. It is also important for your students to practice creating their own visual presentation aids, as they will do in this activity.

Objectives:

- Students will be able to read, analyze, and explain information from a science article.
- Students will be able to explain a variety of graphs
- Students will be able to create graphs based on scientific findings

Time: 2 class periods

Materials:

- *Natural Inquirer* journals
- Paper/ Graphing Paper
- Pencils

Procedure:

1. Choose an article in one of the *Natural Inquirer* journals that has a bar graph or pie graph in the article.
2. Read the article together as a class and spend some time discussing the graph and what it means.
3. Then have students create their own graph based on scientific information. You can use information from a topic the students are studying in class or you can use one of the

many Factivities in the *Natural Inquirer* that focuses on making graphs. Some suggestions for Factivities are:

a. Urban Forest Edition-
    i. p. 14 (after calculating the average temperatures create a line graph of the results)
    ii. p. 49
    iii. p. 59 (after calculating the averages for each picture create a pie chart that shows the results)

Assessment:
The graph can be used as a formal assessment. The graphs that the students create should be included in their scientific process portfolios. Class discussion and participation can be used as an informal assessment.

Modifications:
Students that have trouble reading can be paired with a reading buddy. Students who would like an extra challenge or to incorporate technology into the lesson, ask students to create a graph on the computer using Excel or another computer program or create their graphs online using certain web sites such as the one listed below in extra resources.

Extra Resources:

Create Simple Graphs Online
http://nces.ed.gov/nceskids/graphing/

Using Excel Tutorial
http://www.utexas.edu/its/training/handouts/UTOPIA_ExcelGS/