

Nature's Inventory



MATERIALS

- 🌿 Clipboard, inventory worksheet and pencil; one set per group
- 🌿 *Travels of William Bartram* excerpt page, one copy per student (For older students, you might choose additional excerpts from his work.)
- 🌿 Insect field guides, one per group
- 🌿 Magnifying glasses or hand lenses, one per group
- 🌿 Viewing Guides, one per student

PREPARATION

Locate a safe area on the school grounds where students may take an inventory of plant and animal species. A wooded area is ideal, but students may also find organisms around paved areas and flowerbeds.

STANDARD COURSE OF STUDY CORRELATIONS:

Science, Grade 6, Goal 1: The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.

1.05 Analyze evidence to explain observations, make inferences and predictions, and develop the relationship between evidence and explanation.

1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations.

1.08 Use oral and written language to communicate findings, and defend conclusions of scientific investigations.

Science, Grade 6, Goal 7: The learner will conduct investigations and use technologies and information systems to build an understanding of population dynamics.

7.01 Describe ways in which organisms interact with each other and with non-living parts of the environment.

7.02 Investigate factors that determine the growth and survival of organisms.

7.03 Explain how changes in habitat may affect organisms.

7.04 Evaluate data related to human population growth, along with problems and solutions.

7.05 Examine evidence that overpopulation by any species impacts the environment.

7.06 Investigate processes which, operating over long periods of time, have resulted in the diversity of plant and animal life present today.

Social Studies, Grade 6, Goal 3: The learner will analyze the impact of interactions between humans and their physical environments in South America and Europe.

3.02 Describe the environmental impact of regional activities such as deforestation, urbanization, and industrialization and evaluate their significance to the global community.

Language Arts, Grade 6, Goal 1: The learner will use language to express individual perspectives drawn from personal or related experience.

1.03 Interact appropriately in group settings by:

- listening attentively.
- showing empathy.
- contributing relevant comments connecting personal experiences to content.
- monitoring own understanding of the discussion and seeking clarification as needed.

INTRODUCTION TO LESSON: Students will complete an inventory of the land around their school after learning about the biodiversity inventory under way at Great Smoky Mountains National Park. They will then write a descriptive passage about the biodiversity of their area, modeled after the writings of early naturalist William Bartram.

BACKGROUND FOR TEACHER: Great Smoky Mountains National Park is one of the most biologically diverse areas on the planet, containing an estimated 100,000 species of organisms. Since 1998, a broad coalition of scientists and volunteers has been taking inventory of all the park species—developing checklists, maps and databases that will describe the park for people around the world. The All Taxa Biodiversity Inventory (ATBI) is a good real-world model for students of science.



Photo courtesy of N.C. Division of Tourism, Film and Sports Development.

In 2001, 52 North American elk were reintroduced into Great Smoky Mountains National Park. For the previous 200 years, no elk had been seen in the park, despite there being a significant population in the 18th century. Elk numbers were diminished upon the settlement of Europeans, who cleared the land for farming and hunted elk for food. Since the reintroduction, the herd is thriving.

engage > Show the video. Pause the program periodically for discussion and to give students time to answer Viewing Guide questions.

explore > Discuss with students how themes in the video relate to their own lives. Possible questions:

- If you were to design a visitors guide for Great Smoky Mountains National Park, what information and advice would you include?
- How is elk society organized? Is it anything like middle-school society? Are people dominant and subordinate like the elk?
- What purpose is served by spending resources to count species in a national park?

explain > Have students work in groups of three or four to take an inventory of plants and animals on the school grounds. Give each group a field guide for identifying insects, clipboard with worksheet, pencil and magnifier. Tell them they are to record their findings using words or sketches. Ask: Must you see an animal to detect its presence? What clues do animals leave? (*Webs, cocoons, tracks, nests, holes, scat, shed skin/feathers, etc.*)

elaborate > Hand out copies of the Bartram excerpt for students to read. Go over the passage together to help students understand his prose.

With student input, make a list of the narrative techniques Bartram used to describe the natural world. Ask students to use their school grounds inventory as the basis for a paragraph about the natural world outside their classroom. Have them choose a focus for their writing, for example, a broad description of the area, a specific description of one particular plant or animal they noted, or even a description of a single square foot of land. If there is time, have students illustrate their writing, just as Bartram did.

evaluate > Collect inventory sheets and writing samples. Compare to see if students were able to capture their scientific observations in prose form.



BEYOND THE CLASSROOM

Have students conduct a biodiversity inventory near their own homes. If students are spread among both rural and urban areas, have them compare their findings.

Additional Resources:

The Travels of William Bartram. Van Doren, Mark, ed. 1955 [facsimile of 1928 first edition]. Dover Publications.

All Taxa Biodiversity Inventory • <http://www.dlia.org/atbi/>

Great Smoky Mountains National Park Web Site • <http://www.nps.gov/grsm/>

Smoky Mountain Black Bears • www.smokymtnmall.com/mall/blackbears/shtml

Elk Reintroduction in Great Smoky Mountains National Park • <http://www.yoursmokies.com/elkinsmokies.html>

Additional Resources:

Bugs in 3-D. Blum, Mark. 1998. San Francisco: Chronicle Books.

Fodor's In Focus Great Smoky Mountains National Park. 2009. New York: Fodor's Travel.

Field Detectives: Investigating Playground Habitats. Gazlay, Suzy. 1998. AIMS Education Foundation.

Insect. Mound, Laurence. 2007. London; New York: DK Publishing.

Insects. (National Audubon Society First Field Guides). Wildon, Christina. 1998. New York: Scholastic Inc.

The Big Bug Search. Young, Caroline. 2003. New York: Scholastic Inc.



Excerpt from
The Travels of William Bartram



“...we left the fields on our right, turning towards the mountains, and ascending through a delightful green vale or lawn, which conducted us in amongst the pyramidal hills, and crossing a brisk flowing creek, meandering through the meads, which continued near two miles, dividing and branching in amongst the hills. We then mounted their steep ascents, rising gradually by ridges or steps one above another, frequently crossing narrow fertile vales as we ascended: the air felt cool and animating, being charged with the fragrant breath of the mountain beauties, the blooming mountain cluster Rose, blushing Rhododendron, and fair Lily of the Valley.”

Reprinted from *The Travels of William Bartram*, p. 287. Edited by Mark Van Doren, Dover Publications. ©1928.