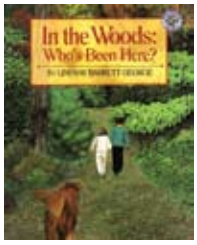
Into the Woods

By Karen Ansberry and Emily Morgan

In today's electronic age of video games and mp3 players, children are not spending as much time outdoors as past generations did. Many fear that as a result children are becoming increasingly alienated from the natural world. This month's trade book–inspired investigations encourage students to experience the excitement and mystery of their local ecosystems firsthand. In the process, they develop their skills of observation and learn to become better stewards of their environment.

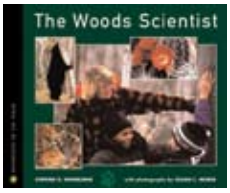
This Month's Trade Books



In the Woods: Who's Been Here?
By Lindsay Barrett George.
Mulberry Books. 1995.
ISBN 0688161634.
Grades K–4

Synopsis

Cammy and William don't see any wildlife as they walk through the woods, yet there are signs everywhere that animals have been around. They find such clues as an empty nest, a fallen branch with the bark gnawed off, bleached bones, and more. Each observation prompts the question, "Who's been here?" with the answer revealed on the following page.



The Woods Scientist
By Stephen R. Swinburne.
Houghton Mifflin. 2002.
ISBN 061804602X.
Grades 4–6

Synopsis

This title from the excellent Scientists in the Field series features the work of Sue Morse, a forester, habitat ecologist, professional tracker, and passionate student of the woods. Readers experience the thrill of scientific discovery through her eyes and learn about the factors that led her to dedicate her life to wildlife conservation.

Curricular Connections

The National Science Education Standards (NSES) suggest that students in grades K–4 learn to ask questions about objects, organisms, and events in the environment, particularly questions that they can answer using reliable sources of scientific information and their own observations. In the primary grades, students should also develop such simple skills as observing and measuring to gather data and using magnifiers to extend the senses. In the K–3 lesson, students read the story and then explore "mystery objects" collected from the local ecosystem. Next, they explore a natural area outdoors, record their observations, and create a class book containing their own questions and answers about local wildlife.

In the 4–6 lesson, students learn about nature and conservation through the eyes of a real scientist. The NSES advise that students in grades 5–8 develop understanding of science as a human endeavor. Underlying this standard is the idea that women and men of various backgrounds, interests, talents, qualities, and motivations choose science as a career and devote their entire lives to studying it. Following this recommendation, students first read about the personal background and work of environmental ecologist Sue Morse, who has dedicated her life to conserving wild habitats. Next, they take a walk outdoors "in the shoes" of an environmental ecologist and then research local conservation efforts.

Check your district policy on taking students outside during the school day or away from the school grounds before doing the following outdoor activities.

For Grades K–3: Who's Been Here?

Engage:

Introduce the book *In the Woods: Who's Been Here?* and build connections by talking about a time students may have walked in the woods or other natural area. *What wildlife or evidence of wildlife did you notice?* Explain that when you walk in the woods, you sometimes see wildlife, but more often you see *evidence,* or clues, that some animal has been there. Read the book aloud, prompting students to infer from the text and illustrations what animals had visited each area. Ask, "What can you observe in the picture? What clues can you get from the text? Which animals could have been here? Why do you think so?" Then reveal the picture of each animal.

Explore:

Tell students that they are going to solve some mysteries just as the children in the book did. In advance, collect some "mystery objects" from your local ecosystem, such as plant galls, interesting seed pods, owl pellets, tree bark with bark-beetle tunnels, and so on. (If you cannot collect these items yourself, try borrowing some materials from a natural science professor or a museum.) Divide students into small groups and give each group a "mystery object," a hand lens, a ruler, and an O-W-L (Observations, Wonderings, Learnings) chart (see NSTA Connection). Share some of your observations and wonderings about one of the objects: "This gall has a tiny hole in it, I wonder if something was living inside it?" Then ask students to observe, measure, and discuss the objects with their groups as they fill in the first two columns of the chart. Invite students to share some observations and wonderings about their objects.

Explain:

Give each group some clues about their object—pictures, readings, or verbal hints. Have students write the information from their clues in the "Learnings" column of their chart. Invite each group to explain their inferences about the identity of their object and additional wonderings that were generated from the new information. Then reveal what the "mystery" objects are, where you collected the objects, and any additional information about them. Students can add this information to the "Learnings" column of the O-W-L chart.

Elaborate:

Take students outdoors to observe nature closely (to a park or on a walk around the school grounds). Give each student a hand lens and a 1 m length of string to outline a circle on the ground. Explain that they will be working like scientists to draw pictures of what they see inside the circle and record their observations and wonderings. Then go outside and have students sit motionless for a while, listening and watching silently. *What do you hear, see, and smell? Do you see any evidence of wildlife?* Have them observe the living and nonliving things within their circle and make careful notes and drawings. Back in the classroom, share their observations and wonderings.

Evaluate:

Discuss that questioning is very important in science. Questions help lead scientists to answers about the world. Scientists don't always find the answers to all of their questions, but they ask a lot of questions anyway. Help students create a "Question Book" about wildlife. In advance, collect a variety of nonfiction books and magazines on native wildlife. Invite students to read silently or in pairs, generating questions on sticky notes that they place on the pages of the book as they read. After reading time, have the class discuss some of the books and articles they read and their questions.

Next, have each student choose a native animal they read about, make a detailed drawing of it, and write two or three interesting questions about it. Collect all of the student pages and bind or staple them together in a book. As students do more reading, they may discover answers to some of the questions. Encourage them to write the answers and sources on the backs of the book pages.

NSTA Connection

Click on this article at *www.nsta.org/elementaryschool#journal* for an O-W-L student page.

For Grades 4–6: The Woods Scientist

Engage:

Have students discuss the following questions: *What do scientists do? Where do scientists work? What do scientists wear? What characteristics do you need to be a scientist?* (You may also want to have students "Draw a Scientist" to determine their perceptions of scientists before reading *The Woods Scientist*.) Tell students that you would like to share with them a book about a scientist who works outdoors, studies animals, wears hiking boots and comfortable clothes, and uses clues to solve mysteries. Introduce *The Woods Scientist*, and explain that the book is about Sue Morse, who is a forester, ecologist, professional tracker, and passionate student of the woods. Tell students that as they are reading, you would like them to jot down any traits or characteristics Sue has that make her well-suited to her job. (See pp. 4–9 about Sue's background and interests.) After reading, make a list of her characteristics on the board. These may include: curious, athletic, loves learning and books, cares about animals and nature, and so on. Discuss how these characteristics help Sue succeed in her profession, as well as which of these characteristics the students share. Next, tell students that Sue has dedicated her life to conserving wildlife. Ask them to listen while you read pages 10–13 for ways in which wildlife is being harmed by humans and ways in which Sue is helping wildlife. Finally, have students listen for ways Sue uses her scientific skills of observing and inferring to "read the forest" as you read about the black bear mystery (pp. 15–23) and the bobcat mystery (pp. 33–35).

Explore/Explain:

Tell students that they are going to have the opportunity to solve some mysteries from the local ecosystem, just as Sue Morse solved the mysteries of the bear bite marks and the multiple bobcat tracks. (Do the "Mystery Objects" activity as discussed in Explore and Explain sections of the K–3 activity on the previous page.)

Elaborate:

Next, tell students that they are going to "walk in the shoes" of a Woods Scientist by going outdoors to observe human impact on a natural place. Have students record observations in a journal as they answer questions such as: What wildlife can you observe? What clues or evidence do you see that wildlife has been there? What evidence of human impact can you see? How could this area be conserved? After the nature walk, have students research local environmental conservation efforts. The Nature Conservancy website *(www.nature.org/wherewework/northamerica/states)* and your state's Department of Natural Resources website are both useful resources.

Evaluate:

Refer back to the questions you asked students at the beginning of this lesson: "*What do scientists do? Where do scientists work? What do scientists wear? What characteristics do you need to be a scientist?*" Have students write about how their perceptions of scientists may have changed after reading about Sue Morse and participating in these activities. (You may also want to repeat the "Draw a Scientist" activity and have students analyze if or how their drawings may have changed.) Students can also create posters, brochures, or bulletin boards describing how people can help conserve local ecosystems.

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Resources

National Research Council (NRC). 1996. *National science education standards*. Washington DC: National Academy Press.

Connecting to the Standards

This article addresses the following *National Science Education Standards* (NRC 1996):

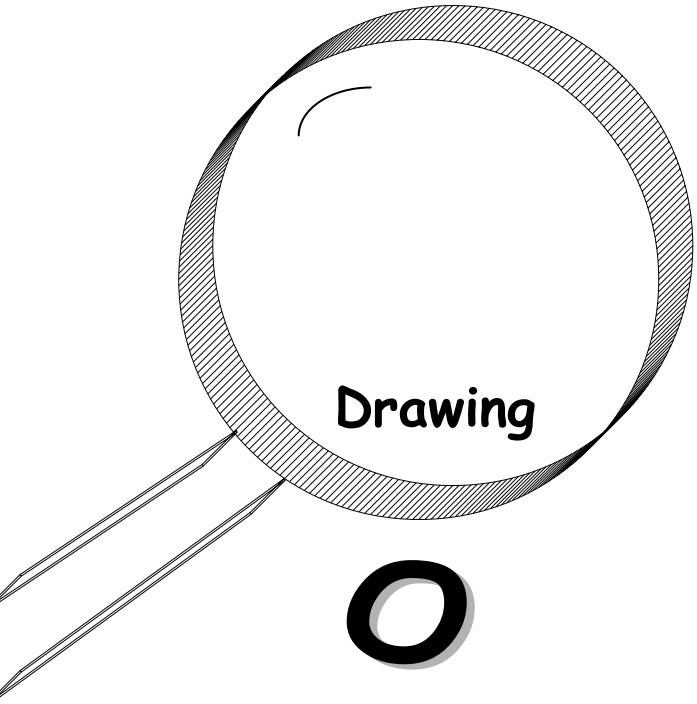
Content Standards

Standard A: Science as Inquiry

- Abilities necessary to do scientific inquiry (K–4)

Standard G: History and Nature of Science

- Science as a human endeavor (5–8)



Name: _____

My Mystery Object

O W L

What do you **OBSERVE** about the object?	What do you **WONDER** about the object?	What did you **LEARN** about the object?