

Lesson 2: What's in a Forest?

NUTSHELL

In this lesson — located in the classroom and larger school building — students learn that forests have living and nonliving parts by going on a walkabout and playing a game of Forest Memory. An art project and discussion help students make connections between different parts of the forest. Throughout the lesson, students are immersed in the idea that they, too, are part of the forest!

ENDURING UNDERSTANDINGS

- Forests are ecosystems characterized by a dominance of tree cover and they contain a variety of other organisms (e.g., other plants, animals).
- Ecosystem structure consists of different types of organisms (i.e., producers, consumers) interacting with one another and their environment. Humans are part of ecosystems.

ESSENTIAL QUESTION

- How do living and nonliving things interact in a forest ecosystem?
- What living and nonliving things interact in a forest ecosystem?

OBJECTIVES

Upon completion of this lesson, students will be able to:

- List living and nonliving parts of a forest.
- Know that humans are a part of the forest.
- Draw and tell about different parts of a forest.
- Explain how parts of a forest are connected.

SUBJECT AREAS

Arts, Science

LESSON/ACTIVITY TIME

Total Lesson Time: 115 minutes

- Introduction25 minutes
- Activity 135 minutes
- Activity 225 minutes
- Conclusion30 minutes

STANDARDS CONNECTIONS

Standards for this lesson can be viewed online at the LEAF website (www.leafprogram.org).

FIELD ENHANCEMENT CONNECTIONS

This lesson ties closely with *Field Enhancement 2, Sensing the Forest*

BACKGROUND INFORMATION

Communities are groups of plants, animals, bacteria, and other living things interacting together. We are all a part of many communities: the town we live in, the school we work/learn in; even the state of Wisconsin is a large community. We are also part of **forest** communities. Our actions, either directly or indirectly, influence the forest, and the forest influences humans.

Ecosystems are areas that are made of living and nonliving things interacting together. Ecosystems come in all sizes (e.g., forest, meadow, log). There are many different communities within an ecosystem. A forest ecosystem is characterized by a dominance of tree cover. That doesn't necessarily mean that there are lots of trees everywhere you look. It does mean that trees are the dominant plants in the landscape. An **urban forest** community with widely spaced trees is just as much a forest ecosystem as is a heavily wooded forest community with many trees, shrubs, other plants, and animals. Because of all the different animals (including people), plants, bacteria, and insects that can make up a forest, forest ecosystems can look very different.

VOCABULARY TERMS

Community: A group of plants and animals interacting with one another in a given area.

Ecosystem: An area that contains living and nonliving things interacting with each other. Ecosystems can be of any size (e.g., forest, meadow, log).

Forest: An ecosystem that is characterized by a dominance of tree cover and contains a variety of other organisms (e.g., other plants, animals).


Urban Forest: The trees and other living things in a city, town, or neighborhood.

Humans don't always think of themselves as part of the forest ecosystem, but we are. Humans use the forest for its timber resources to build homes. We use wildlife and plants as food sources. Trees and other plants supply us with oxygen. We use the forest for fun and recreation. The urban forests of our towns and cities provide us shade. Every day people use paper, boxes, wood furniture, and wood pencils. Many people have jobs that use and rely on forests. Sometimes those jobs are not even near a forest! People can also contribute to the forest by planting trees, helping to control soil erosion, and maintaining animal populations.


Nonliving parts of forest ecosystems include things like soil, water, rock, decaying organic matter, sun, wind, and temperature. All of these things help determine which living things will grow and where in the ecosystem they grow. The living communities cannot exist without the nonliving components. The nonliving parts of an ecosystem shape where and how the living forest communities will grow.

MATERIALS LIST

For Each Student

- Crayons or markers
- Copy of Student Pages  **1-3, Forest Memory**. Use heavy paper or mount them on construction paper so the pictures do not show through.
- Sheet of paper (8.5" x 11")

For the Teacher

- One copy of Student Pages  **1-3, Forest Memory**
- Tape/poster putty
- One ball
- Marker board or chart paper and markers


PROCEDURE

Introduction - Living and Nonliving Walkabout

1. Tell students to look around the room and spot some living things. (*The aloe plant, pet fish, students.*) Explain that all of these things are part of your classroom community. Tell them they are members of lots of communities: some small like the classroom, some big like Wisconsin.
2. Now ask students to look around the room and spot the nonliving things. (*Chairs, books, posters.*) Explain that these things influence the living community in the room. Ask if you would be able to act as a classroom community working together to learn if there were no books or chairs. (*Maybe, but it wouldn't be the same.*) Tell the students that a community (living things) combined with the nonliving things it uses is called an ecosystem.

3. Tell students they'll be going on a walkabout, looking around the school for living and nonliving things. They'll need to have sharp eyes ready to spot as many living and nonliving things as they can. When you return to the room, you'll be asking them to share living and nonliving parts of the school ecosystem that they spotted. They could come up with things such as: (living) kids, teachers, principal, janitor, gerbils, plants and (nonliving) chairs, gymnasium, tables, backpacks, books.
4. Upon your return from a 5- to 10-minute walk around your school, gather as a group in the classroom. Let students take turns sharing what living and nonliving things they saw. Ask them these questions: What does that person or thing do for our school community? (The lunch lady feeds the students, the books in the library help students learn.) Why is it important? (The students couldn't get to school without the bus driver, if there weren't any chairs, everyone would have to sit on the floor.) Help students to realize the importance of the item or person not only to them, but also to others (big kids too) in your school. Be sure that someone points out that they, as kindergartners or first graders, are part of this larger community and play a very important role. Without kids, what would teachers do? Without both the living and nonliving parts, school just wouldn't be the same.

Activity 1 - Forest Memory Game

1. Remind students of what they learned about the roles of living and nonliving things in the walkabout they did in the introduction. Tell them that, not only are they an important part of the school, town, and state, but they are also an important part of the forest ecosystem. Explain that a forest is an ecosystem with trees (remember that an urban forest is a forest too). Help them understand that even when we are in school, we are part of a forest ecosystem. We may use wooden furniture or play under the shade of a tree, and we certainly use paper! Those are all uses we have for forests and forest products.
2. Today the class will be playing Forest Memory. Ask students if they've ever played the Memory game before. As this is a fairly common game, the responses will probably be yes, but a simple explanation can follow. In Forest Memory, cards are turned upside down and spread out so that you can't see their pictures. Two or more friends play together and take turns. The first person flips over one card, looks at the picture, and then tries to flip over the matching picture. If you get a match, then you can put that pair of cards next to you, away from the other cards. If you do not get a match, you put the cards back where you got them and try to remember what they were in case you need one of those pictures to make a match later in the game.
3. Show students Student Pages  **1-3, Forest Memory**, that you have copied for each of them. Explain that all the pictures are things that are part of the forest (sometimes in a finished/manufactured form). Just like our school, some of the parts are living and some are nonliving, but they are all important and work together! These pictures need to be given some color because the forest isn't just black and white. Tell the students that they will color the Forest Memory. Explain that there are also boxes that say "Me" and they need to draw a picture of themselves in these boxes because they are a part of the forest, too.

4. Explain that there are no matches on their sheet, but they will be playing with a partner. When your cards and someone else's cards are all out, there will be two of each picture. Pass out the sheets to students. Have them use their crayons or markers to color their Forest Memory and then their scissors to cut them out. Make sure they initial or somehow mark the front of their cards so they can collect their own when they switch partners. Instruct them to raise their hands to show you their work when they are done.
5. Once all the students' Forest Memory are ready, discuss as a group the roles the things on the cards have in the forest. Pair students, have them find a quiet place to play, and let them begin. After everyone has played a round, have students pick up their own cards and regroup with another partner. Continue as time and the interest of the students allows.
3. Show students the two columns on the board labeled "Living" and "Nonliving." Explain that all parts of the forest fit under one of these two labels. Have a volunteer place a Forest Memory card on the board. Guide the student through the correct placement of the card. Ask why the student thinks that part of the forest ecosystem is important, **but don't discuss the why's at this time.**
4. When all the cards are on the board, ask students to make connections between the different forest parts and draw these connections on the chart. For example: Why is the beetle important to the bird? (*Food.*) Draw a line between the bird and beetle. Why is the dead tree important to the beetle? (*Food and/or shelter.*) Draw a line between the dead tree and the beetle. Why is the river important to the tree? (*Water for the tree to grow.*) Draw a line... Why is the tree important to the house? (*Wood from the tree becomes part of the house.*) Why is the tree important to the family? (*For the house, their shelter, furniture, the food on their table, etc.*) Links can be made at least one way (sometimes both ways) between each of the forest parts.

Activity 2 - Living and Nonliving Connections

1. Gather students together. Pass out your (teacher) Forest Memory. There is a card labeled "Me," which needs a picture of you colored on it, or a photograph of the class. If you would like to make your own forest parts, or run extra copies so that every student gets one, feel free, but it is not necessary.
2. Once the cards are passed out, remind students that not only are they a part of the classroom, the school, the town, and Wisconsin, but they are also a part of the forest! Explain that all the picture cards you just handed out are the same pictures they used in Forest Memory. They are all part of the forest. Just like our school, some parts are living, and some are nonliving. They are all important and work together.

**"Love the trees
until their leaves fall off,
then encourage them to try
again next year."**

★ Chad Sugg ★

Conclusion - Forest Parts Connections

1. Have students draw a picture of their favorite part of a forest ecosystem. Allow for a brief brainstorming session that will spark their memories and creativity in developing a wide spectrum of forest parts. Allow children to use crayons or markers to create this picture on a blank 8.5" x 11" sheet of paper. Tell them that you'll be asking them to explain what this favorite part is and you hope to see many original, creative, and fun favorites!
2. When students finish their pictures, bring them back together as a group. Reiterate how we all are part of the classroom, school, and forest. While the students are sitting in a circle, have them turn their pictures so that others in the circle can see what they created. Ask for a volunteer to stand up and tell everyone what his or her picture is of or about. Remind the students how things need each other, such as the human needs the house or the bird needs the beetle. Question the student, to "prime the pump" for others to follow: How is this a part of the forest community? Do trees need it to live? Do animals need it to survive? Do humans use it? Give this person a ball and invite him or her to roll it to someone who is holding a picture that is related to his or her picture. Ask the person picked to stand up and explain what his or her picture is. Question this student in a similar manner, or develop a connection, relationship, or dependence between these two forest pictures. Instruct the second person to roll the ball to someone else. Have the first two children continue to stand. Continue this invisible "web-making" until all students in the circle are standing, each having found a connection elsewhere in the group.
3. Upon conclusion, ask students to tell you how everyone got to stand. (*Possible answers: Someone else picked me... Ask why?: Her deer needed to drink from my river, My tree was a part of his house.*) Ask students if they think all of the parts somehow need each other. (Yes.) Tell students that if they're standing, they are (and the ideas in their pictures are) an important part of the forest!

CAREERS

The career profile in this lesson is about Eric Gustafson, Research Ecologist, USDA Forest Service, and is found on page 37. A careers lesson that uses this information begins on page 80.

SUMMATIVE ASSESSMENT

Take students on a walkabout of the schoolyard. Have them identify living and nonliving parts. Discuss how these parts are connected and depend on one another.

SOURCES

- Helms, J. A. (1998). *The Dictionary of Forestry*. The Society of American Foresters.
- Miller, G. T. (1991). *Environmental Science – Sustaining the Earth*. Belmont, CA: Wadsworth Publishing Company.

Career Profile

Eric Gustafson, Research Ecologist

This is Eric Gustafson. Eric is a research ecologist. It takes a lot of work to make sure the forest is healthy and can be used for the things we need. An ecologist looks at how the whole forest works. A research ecologist is a special kind of ecologist who uses a computer to predict how different choices might change the forest in the future. Eric uses his computer to figure out what might happen to a forest if we take care of it in a certain way. He tries to figure out what our actions will do to plants, animals, and the people who use and visit the forest. After he does his computer research, he talks to other scientists and people who work in forests about it so they can decide what is best for them to do.

In order for Eric to do his job he has had a lot of training. He has a PhD. That means he went to school for eight more years after he graduated from high school! He even taught at a college for six years. He also is part of groups of scientists that have meetings so they can learn things from each other.

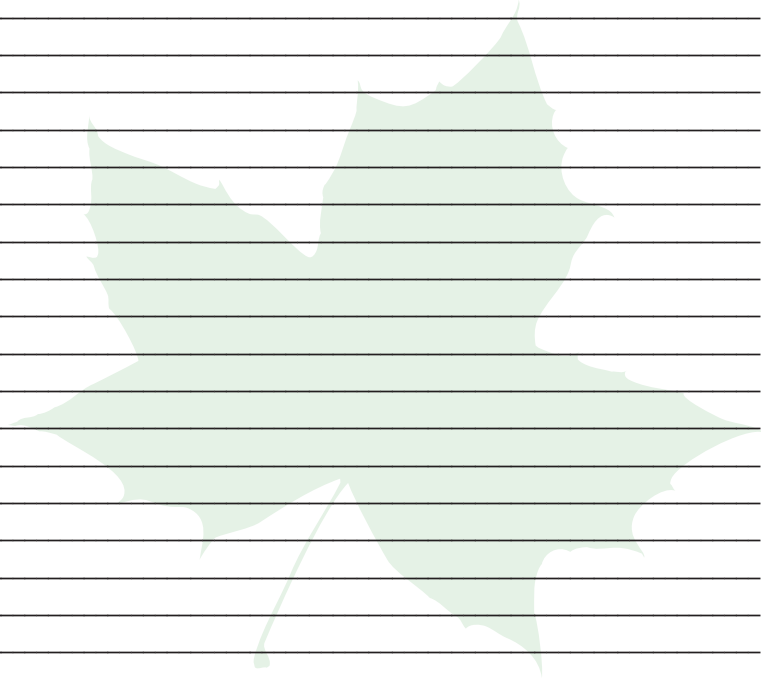

Eric says his favorite parts of his job are computer programming, using computers to do statistical analysis (that means figuring out what's going to happen), and writing.

He works for the United States Forest Service right here in Wisconsin. Wisconsin has a large national forest that is taken care of by the U.S. Forest Service. If you want to become a research ecologist, Eric says you should try get good grades in school and work hard in your math and science classes. He also says, "Learn to be interested in the natural world, and look for interesting and unusual things whenever you are outside."



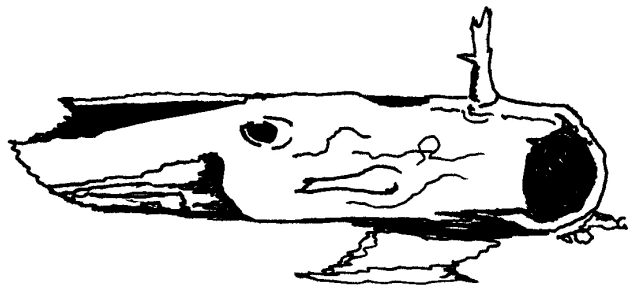
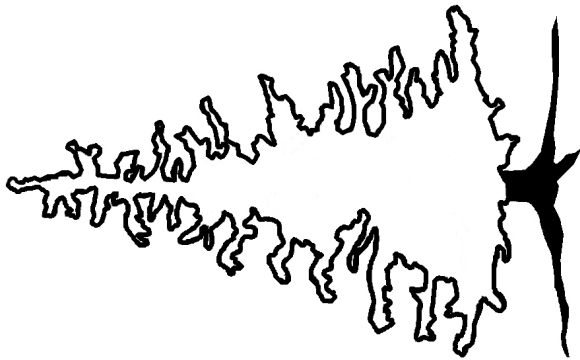
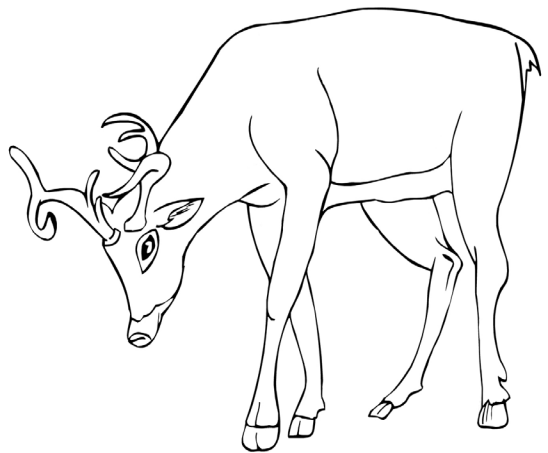
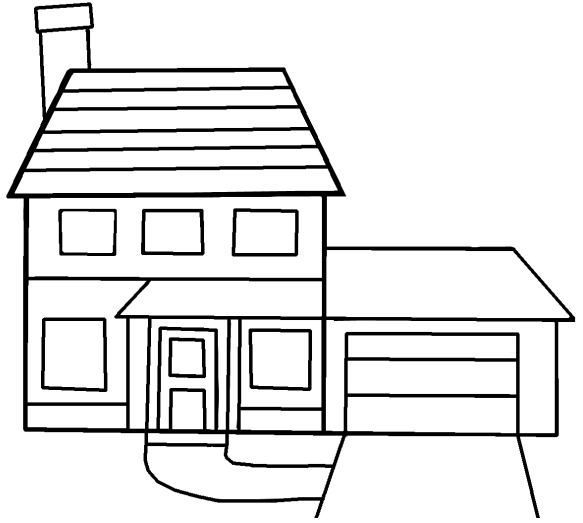
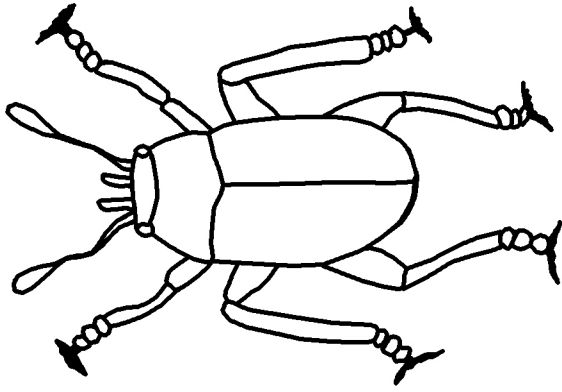
Eric uses his computer to figure out what might happen to our forests with the choices we make.

NOTES

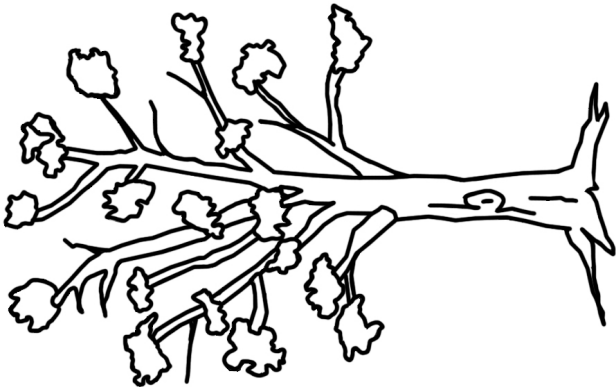
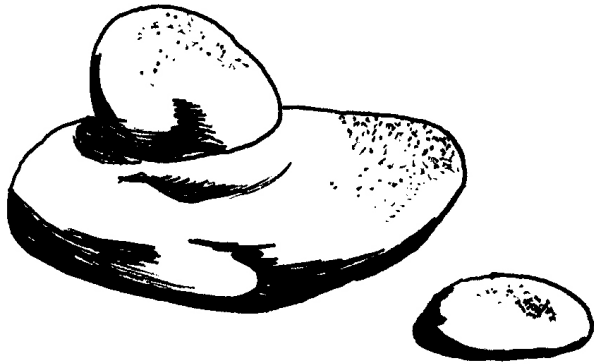
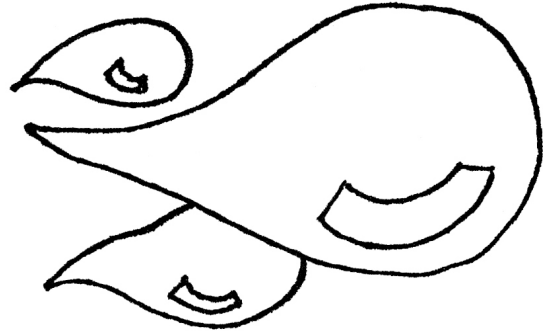
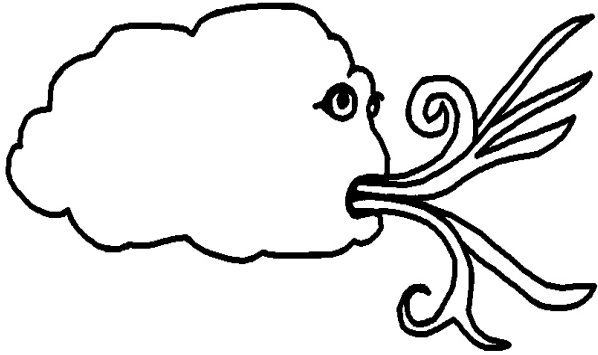


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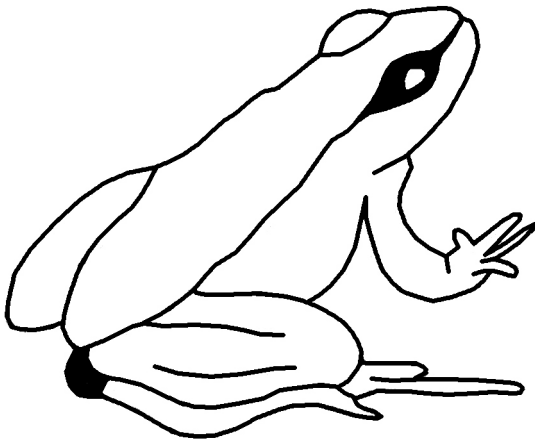
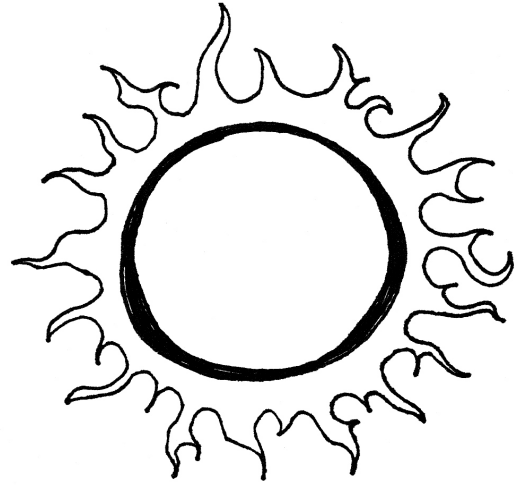
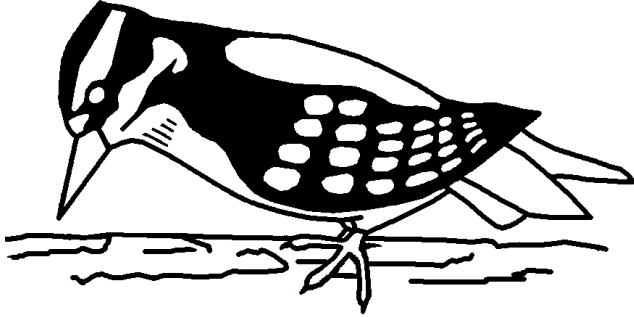
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