

Field Enhancement 2: Sensing the Forest

NUTSHELL

In this lesson – located in a schoolyard, park, or forest with two or three trees close together – students learn about living and nonliving parts of the forest through a series of sensory activities. The lesson concludes with each student using his or her senses of touch, smell, and hearing to investigate a tree while blindfolded.

ENDURING UNDERSTANDING

- 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

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

OBJECTIVE

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

- Identify living and nonliving parts of a forest.

SUBJECT AREAS

Arts, Science

LESSON/ACTIVITY TIME

Total Lesson Time: 80 minutes

- Introduction5 minutes
- Activity 110 minutes
- Activity 215 minutes
- Activity 310 minutes
- Activity 410 minutes
- Activity 520 minutes
- Conclusion10 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 **Lesson 2, What's in a Forest?**

BACKGROUND INFORMATION

What makes a living thing different from a nonliving thing? Living things have special needs and abilities that nonliving things do not have. Living plants need sun, space, nutrients, air, and water, and living animals need water, food, shelter, air, and space in order to carry on the essential activities of life. Living things can metabolize food, which means they can turn food into the energy needed to carry on life activities. These activities include growth, reproduction, and adaptation to the environment. Nonliving things do not share these characteristics. They do not have special needs. In addition, they do not need to produce energy because they do not grow, reproduce, or adapt to their environment.

Living things are indeed different from nonliving things. However, living and nonliving things are still related. An **ecosystem** is an area that contains living things interacting with one another and their nonliving environment. The living parts, or organisms, of a forest ecosystem include things such as trees, plants, bacteria, insects, and animals. The nonliving parts of a forest ecosystem include things such as soil, water, rock, decaying organic matter, sun, wind, and temperature. These nonliving things help determine which living things will grow and where in the ecosystem they will grow.

VOCABULARY TERMS

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

PROCEDURE

Introduction - Living and Nonliving Basics

1. Take students to an open area outdoors (ideally with trees and other natural objects nearby).
2. Discuss with your students that forests have different parts: some parts are living and some are nonliving. Ask your students to tell you how living things are different from nonliving things. (*Living things eat and move. Nonliving things do not. Living things have needs like food, water, and space. They can also change food into energy. They grow, reproduce, and adapt to their environment. Nonliving things do not have needs, they cannot reproduce, nor can they adapt to their environment.*)
3. Tell your students that they are going to use their senses to investigate different parts of the forest and decide which parts are living and which parts are nonliving.

Activity 1 - What Do Sounds Look Like?

1. Form a circle with your group. Have everyone stand facing the inside of the circle.
2. Hand each student a small piece of paper and a few crayons. Tell the students that they are going to draw a picture that shows what sounds look like.
3. Ask your students to listen to the sounds around them without talking for 30 seconds.

MATERIALS LIST

For Each Student

- One small piece of paper (4" x 5")
- Crayons

For Every 2 students

- Blindfold

For the Class

- Four touch objects, each with a different texture. Here are some ideas:
 - Smooth: plastic cup, book cover
 - Pointy: pencil, thumb tack, push pin
 - Rough: sandpaper, scrub brush
 - Soft: pillow, stuffed animal
 - Sticky: tape, glue stick, clay
- Scented candle (optional)

For the Teacher

- Paper
- Pencil

TEACHER PREPARATION

Visit the teaching site in advance and decide on locations for each of the activities. Find a place for a short walk on which you could stop frequently and smell different things from nature.

SAFETY PRECAUTIONS

Visit the teaching site ahead of time to locate any hazards, such as hanging branches, protruding tree roots, holes, poison ivy, or stinging nettle. Encourage students to walk, not run, at all times when in a forested area. Students who are leading blindfolded partners should be instructed on how to properly guide and care for their partners.

4. Have the students raise their hands to tell you about one sound they heard. Call on three students and discuss the qualities of the sounds they share. For example, was the sound loud or soft, high-pitched or low-pitched? Was the sound heard only once or was it repeated? Was it made by something living or nonliving? (*Answers will vary depending on the sound being discussed.*) For the first two sounds discussed, show the students how they might make marks on their paper that go with the sounds. Dots might represent a tapping sound, straight lines might represent the sound of wind, and a wavy line might look like the sound of a bird's song. For the third sound discussed, ask students for their ideas on what kind of mark should go with the sound. **NOTE:** If drawing symbols is too abstract for your students, have them draw things such as birds or leaves to represent what they hear.
5. Explain to your students that they are each going to make their own drawing of the sounds they hear. Make sure they understand that there is no right or wrong answer. Each paper will look different when they are done. Remind them that there should be no talking during this activity because they will be listening carefully to the sounds around them. Ask the students to take two big steps backward, turn around, and sit down facing the outside of the circle. Allow them several minutes to listen and make marks on their papers.
6. Ask the group to return to their original circle and sit down facing the inside. Lead a discussion about their listening experience. Begin by asking one student to explain his or her drawing to the group. When that student is finished, ask the rest of the students if they

heard any of the same sounds. If so, ask one or two of those students how they depicted the sounds on their paper. If there is time, continue to ask other students to explain their drawings to the group. Prompt students by asking if they heard the sound of wind in the trees, branches scraping, birds, etc. Throughout the discussion, be sure to ask students to tell you which of the sounds were made by living things and which were made by nonliving things.

Activity 2 - Feel the Forest

1. Keep your students in a circle. Explain that in the next activity they will be exploring with their sense of touch. Point out the boundaries you expect them to stay in during this activity. The size of the boundaries will depend on the amount of space you have to work with and the density of the trees in the area. The most important thing is that students are not close to roads or other hazards and that you can see and help everyone in your group.
2. Pair students with someone standing next to them and pass one of the four touch objects around the circle (see the Materials List). For example, your first object may be a stuffed animal. Ask the students to describe how the stuffed animal feels. (*Answers can vary, but help them zero in on its softness.*) Ask them if they think they can find anything that is soft within the boundaries that you described. (*Answers can vary.*) Have the students work with their partner within the boundaries to find as many soft things as they can in two minutes. Remind them to leave the objects where they find them. Tell them that when you clap your hands three times, it is time to return to the circle.

3. After two minutes of exploration, clap three times to call your students back to the circle. Ask the students to raise their hands if they would like to tell the group about something soft they found. (*Possible responses include grass, leaves, and flowers.*) As each student shares, ask him/her to tell you if that object is living or nonliving.
4. Repeat steps 2 and 3 with three more touch objects.
5. Review with your students how they used their sense of touch to learn about different parts of the forest, both living and nonliving.

Activity 3 - Forest-scented Candle

1. Ask your students if they have ever smelled a scented candle. (*Most will answer yes.*) Tell students they are going to pretend that their class gets to come up with a scent for a brand-new candle. Hopefully, they can come up with a candle that no one else has thought of before. Tell students they need to conduct some research with their noses. Explain that they are going to take a short walk, stopping frequently to smell as many different things as they can. Each time the group stops to smell something, students will vote on whether they think it smells good or bad. Explain that you will make a list of all the things that smell good, and that is how the group will come up with a new scent.
2. With your students lined up behind you, begin your walk. When you find something to smell, point it out to the group and walk past it slowly, allowing each student the chance to smell it. What you find to smell will vary depending on your site. Ideas include: flowers from different trees and plants, fresh leaves from different trees and plants, bark from different trees, dirt, mud, rotting leaves, sand, wood chips, gravel, mushrooms, a rotting log, water from a pond or river or puddle, and plants that are growing in the water. Remind students to use their noses, not their fingers, to explore each item. When everyone in line has had the chance to smell the item, stop walking and take a vote. Ask those students who thought the item smelled good to raise their hands. Then ask those who thought it smelled bad to raise their hands. If most of the students thought it smelled good, put that item on your list.
3. Continue your hike, stopping along the way to smell 10 different items. When your hike is over, have your students form a circle. Read them the list of items that smelled good. Ask the group to identify which items on the list are living things and which are nonliving things. Tell your students that their research is now complete. It is time to come up with a new scented candle. Work together to come up with a name for the candle that combines all or most of the items on your list. For example, if everything on your list was from something living, you might name your scent "Sprout of Life." If your group liked the smell of mud and wood chips, you could call your candle "Mud Chips." If the group only liked the smell of flowers, you might call your new scent "Flowerific." Encourage your group to be creative.

Activity 4 - Colorful Forest

1. Stay in a circle and explain to students that when most people look at the forest, the first color that comes to mind is green. Although there is a lot of green in a forest, many other beautiful colors exist as well. Tell the group that during this activity, they will try to find as many different colors in the forest as they can. Remind the group to stay inside the boundaries you established in Activity 2. When they hear you clap three times, that means it's time to return to the circle.
2. Ask the group to look at the colors on their clothing and pick out one color. Then send them out searching for something that is as close to that color as possible. After the students share their discovery with one other student, they can go on to find another color from their outfit. Allow three minutes for students to discover as many colors as possible.
3. Clap three times to bring the group back into a circle formation. Lead the group in a discussion about their discoveries, asking several or all students to share. Ask what colors they found on living things. (*Answers will vary based on the space you are working in.*) Nonliving? (*Again, answers will vary.*)
4. Be sure the guides know that they have an important job, making sure their partner stays safe at all times. Ask the guides to lead their blindfolded partners up to the tree and help them stay safe during their exploration. As the blindfolded students explore, ask them questions to keep them thinking about what the tree is like. (The students should think about the answers in their head but not share them at this time.) Examples include: How does the bark feel? How does the bark smell? How do the leaves feel? How do the leaves smell? What are the branches like? What does the ground smell like at the base of the tree? What does the ground feel like? Listen to the tree, what do you hear? After three or four minutes, ask the guides to lead their partners back to the starting point and remove their blindfolds.
5. Now the partners will switch roles and repeat step 4.
6. When everyone is finished exploring, gather the group in one big circle and lead them in a discussion about their experiences. Ask if a tree is a living or nonliving thing. (*A living thing.*) Ask what they noticed about the tree by listening to it. (*One of the branches creaks, the leaves rustle in the wind, there is a bird singing from one of the branches, etc.*) Ask what they notice about the tree by touching it. (*The bark is rough, the branches are thick, the leaves are smooth, etc.*) Ask what they noticed about the tree by smelling it. (*The bark smells like wood, the leaves smell fresh, etc.*)

Activity 5 - Blindfold Exploration

1. Before leaving your circle from Activity 4, pair students up.
2. Hand each pair a blindfold. Explain to your students that during the next activity, they will explore by listening, touching, and smelling but not seeing.
3. Lead your group to a tree, or better yet, a small area that has several trees. Help your students make a circle around at least one tree. If there are several trees in a small area, break the students up to form circles around two or three trees. Blindfold one member of each pair. The other students will act as guides.

Blindfold Alternative

Do the activity without blindfolds. Let half of the group explore the tree(s) at a time. Ask the discussion questions from step 6 above. Also ask what students noticed about the tree by looking at it. (*The bark is grayish brown; the leaves are starting to turn colors; when the wind blows, the leaves shake, etc.*)

