



CAVOC Kindergarten Curriculum

(Cedric A. Vig Outdoor Classroom)

Suggested Schedule

9:00-9:30	Arrival, overview, expectations, rules, housekeeping, questions, break up into three groups.
9:35-10:20	Group 1
10:25-10:40	SNACK/BATHROOM
10:45-11:30	Group 2
11:35-12:20	Group 3
12:25-12:55	LUNCH
1:00-2:00	walk/game/speakers etc.
2:00-	pack up and depart for school

Exploring With Senses

(45 minutes total)

Objectives for Unit

- *Students will use their senses of seeing, touching, smelling and hearing to identify natural objects found at CAVOC.
 - *Students will discuss the kinds of information that these sensory organs provide.
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Objectives for *sense of sight*

- *Students will match colors found in nature.
- *Students will make predictions in the changes of colors through the seasons.

DPI Standards for Environmental Education

A.4.1, A.4.2, A.4.4, B.4.7

Other DPI Standards

Language Arts-L.A.K.C.1, L.A.K.C.2, L.A.K.C.3, L.A.K.C.4

Math-M.K.A.2, M.K.A.4, M.K.A.6, M.K.E.2, M.K.E.3

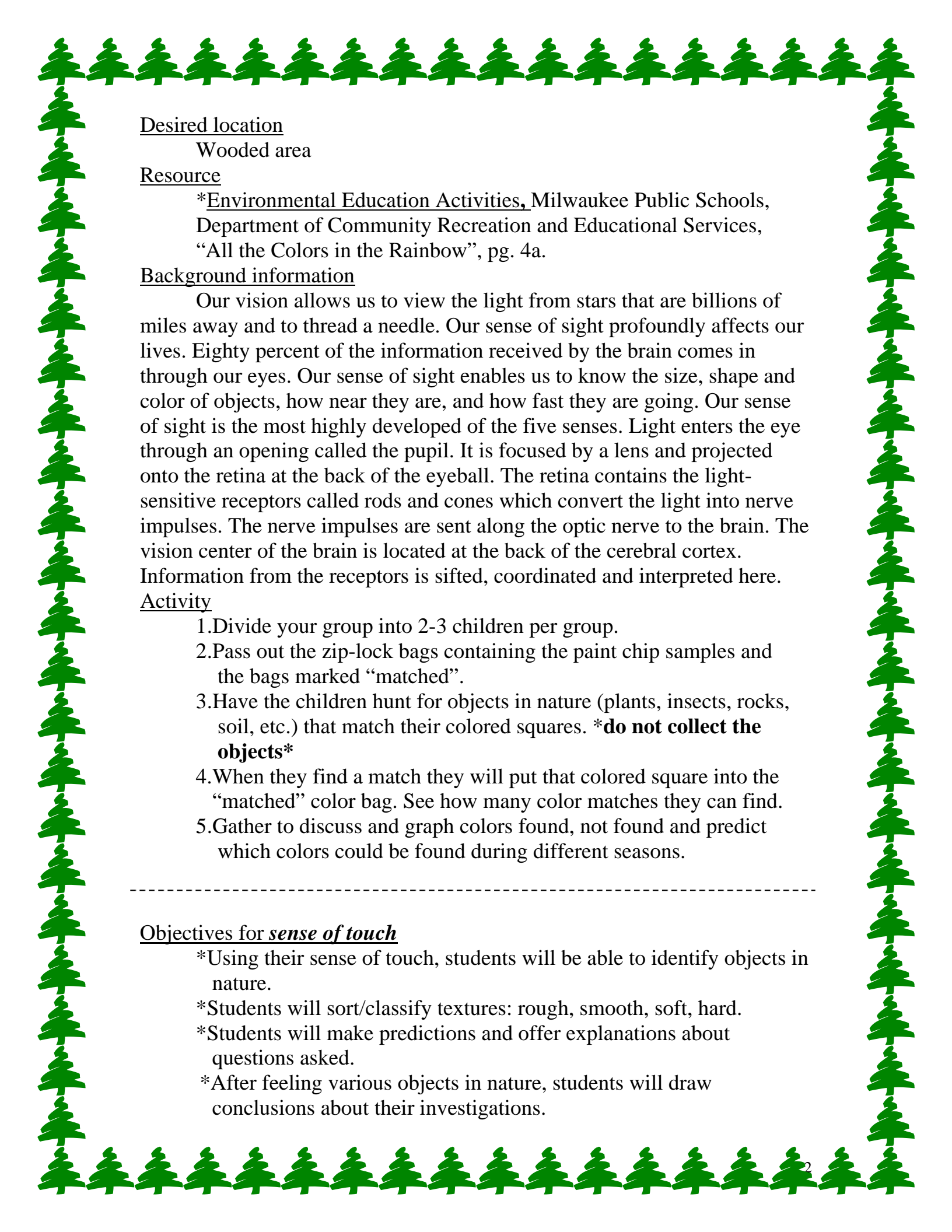
Science-S.K.9, S.K.10

Materials

- *paint chip samples from a paint store
- *small plastic zip-lock bags, labeled “matched colors”
- *chart for graphing results

Approximate time

10 minutes



Desired location

Wooded area

Resource

*Environmental Education Activities, Milwaukee Public Schools, Department of Community Recreation and Educational Services, “All the Colors in the Rainbow”, pg. 4a.

Background information

Our vision allows us to view the light from stars that are billions of miles away and to thread a needle. Our sense of sight profoundly affects our lives. Eighty percent of the information received by the brain comes in through our eyes. Our sense of sight enables us to know the size, shape and color of objects, how near they are, and how fast they are going. Our sense of sight is the most highly developed of the five senses. Light enters the eye through an opening called the pupil. It is focused by a lens and projected onto the retina at the back of the eyeball. The retina contains the light-sensitive receptors called rods and cones which convert the light into nerve impulses. The nerve impulses are sent along the optic nerve to the brain. The vision center of the brain is located at the back of the cerebral cortex. Information from the receptors is sifted, coordinated and interpreted here.

Activity

1. Divide your group into 2-3 children per group.
2. Pass out the zip-lock bags containing the paint chip samples and the bags marked “matched”.
3. Have the children hunt for objects in nature (plants, insects, rocks, soil, etc.) that match their colored squares. ***do not collect the objects***
4. When they find a match they will put that colored square into the “matched” color bag. See how many color matches they can find.
5. Gather to discuss and graph colors found, not found and predict which colors could be found during different seasons.

Objectives for *sense of touch*

- *Using their sense of touch, students will be able to identify objects in nature.
- *Students will sort/classify textures: rough, smooth, soft, hard.
- *Students will make predictions and offer explanations about questions asked.
- *After feeling various objects in nature, students will draw conclusions about their investigations.



DPI Environmental Education Standards

A.4.1, A.4.2, A.4.3, A.4.4

Other DPI Standards

Language Arts-L.A. K.C.1, L.A.K.C.2, L.A.K.C.3, L.A.K.C.4

Math-M.K.A.2, M.K.E.3

Science-S.K.9, S.K.10, S.K.11

Materials

*feely box

*objects from nature (rock, leaf, pine cone, twig, bark, feather etc.)

Approximate time

10 minutes

Desired location

Outdoors

Resource

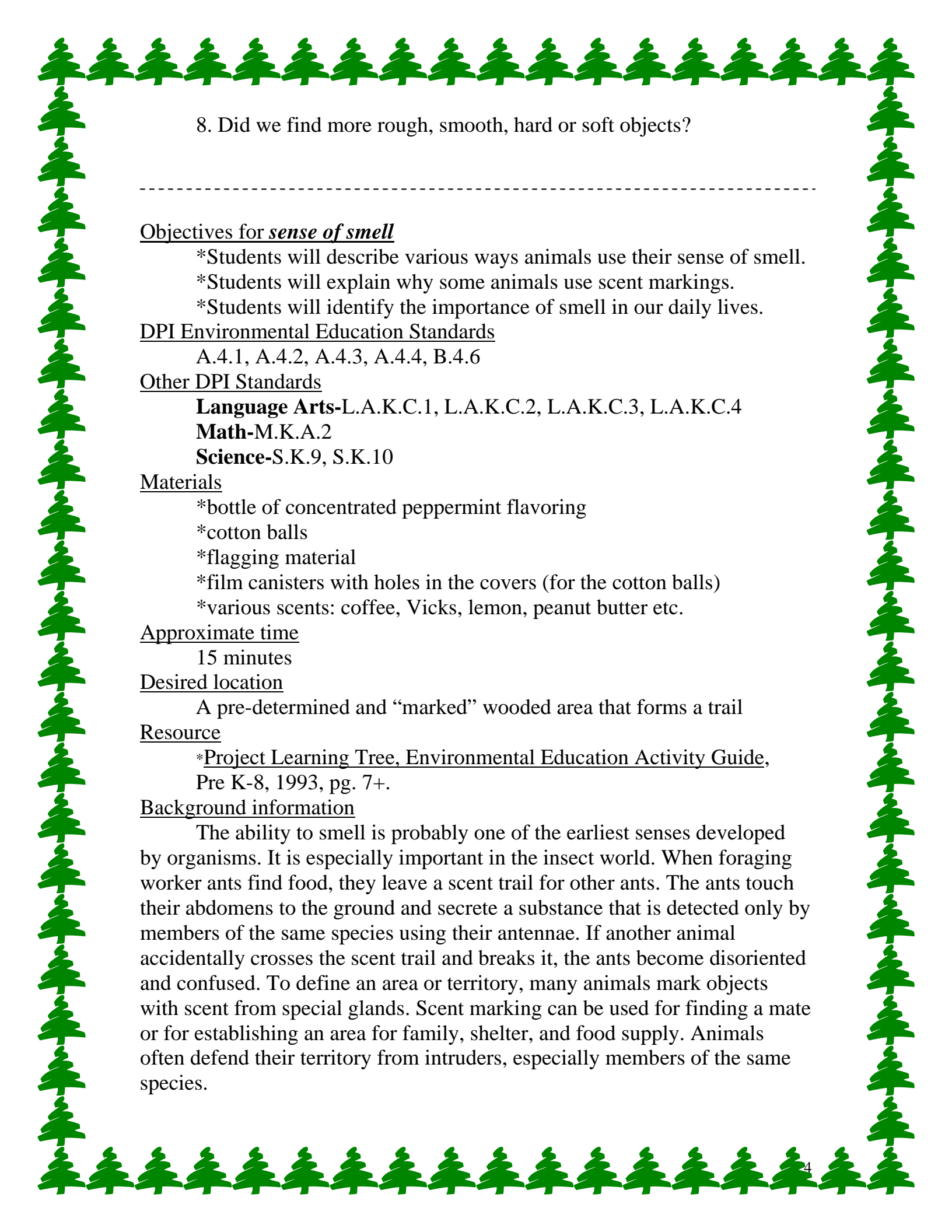
*Adapted from “Sense-able Science”, AIMS, K-1, 1994, pg. 61.

Background information

The sense of touch does not come from one specific location on the body. Our skin is studded with thousands of receptors that detect temperature, pressure and pain. When contact is made with one of the receptors, messages called nerve impulses are sent along nerves to the brain. The brain receives the impulses and commands your body to respond. Over a period of time, some sense receptors may adapt to a certain feel so you no longer notice it. Some areas of our body perceive touch more than others because the density of the receptors in our skin varies tremendously over the surface of our body. A feather may tickle the end of our nose or your lips, but may not tickle our shoulders. A square centimeter area on our fingertip may have dozens of skin receptors, while the same sized area on our back may have less than one. Our skin provides a boundary between the external world and us. It is the largest sensory organ of our body.

Activity

1. Have students sit in a circle on the ground.
2. Identify and pass around the various objects found in nature.
3. Encourage the students to focus on the qualities of the objects: smooth, rough, soft and hard.
4. Place all the objects found in nature, into the feely box.
5. Select students to “find the rock”, “find the feather”, “find the leaf” etc.
6. How do the objects feel? Describe their textures.
7. How are the objects the same/different?



8. Did we find more rough, smooth, hard or soft objects?

Objectives for *sense of smell*

- *Students will describe various ways animals use their sense of smell.
- *Students will explain why some animals use scent markings.
- *Students will identify the importance of smell in our daily lives.

DPI Environmental Education Standards

A.4.1, A.4.2, A.4.3, A.4.4, B.4.6

Other DPI Standards

Language Arts-L.A.K.C.1, L.A.K.C.2, L.A.K.C.3, L.A.K.C.4

Math-M.K.A.2

Science-S.K.9, S.K.10

Materials

- *bottle of concentrated peppermint flavoring
- *cotton balls
- *flagging material
- *film canisters with holes in the covers (for the cotton balls)
- *various scents: coffee, Vicks, lemon, peanut butter etc.

Approximate time

15 minutes

Desired location

A pre-determined and “marked” wooded area that forms a trail

Resource

*Project Learning Tree, Environmental Education Activity Guide,
Pre K-8, 1993, pg. 7+.

Background information

The ability to smell is probably one of the earliest senses developed by organisms. It is especially important in the insect world. When foraging worker ants find food, they leave a scent trail for other ants. The ants touch their abdomens to the ground and secrete a substance that is detected only by members of the same species using their antennae. If another animal accidentally crosses the scent trail and breaks it, the ants become disoriented and confused. To define an area or territory, many animals mark objects with scent from special glands. Scent marking can be used for finding a mate or for establishing an area for family, shelter, and food supply. Animals often defend their territory from intruders, especially members of the same species.



Activity

1. Beforehand, scent-mark trees that lie roughly in the same line to form a “trail”. Moisten a cotton ball with peppermint oil and rub it on the bark around the tree at the nose level of the students. Mark the trees as close to the time of the activity as possible because the peppermint oil will evaporate.
 2. Have students identify the scents in the various film canisters. (Do not have them lift the covers off). Discuss how we use our sense of smell in everyday life.
 3. Ask students how animals rely on their sense of smell. (give examples.) What purpose does smell serve for animals? (It helps them find food, detect danger, find a mate, and identify another animal’s territory.)
 4. Tell the students to imagine an insect called the “Peppermint Beetle” that lives in the area that they are visiting. This flying beetle marks with a peppermint scent on the trunks of trees.
 5. The students can work in teams of 2-3. Tell them to use their sense of smell (their noses) to find the trees that the beetle has visited. If they find a tree that they agree has been marked by the beetle, they are to tie a length of their flagging tape around the tree.
 6. When the scent-marked trees have been identified, have the students walk the scent trail left by the “Peppermint Beetle.” Ask the students why the beetle might have marked this area? (to find food? another beetle?)
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Objectives for *sense of hearing*

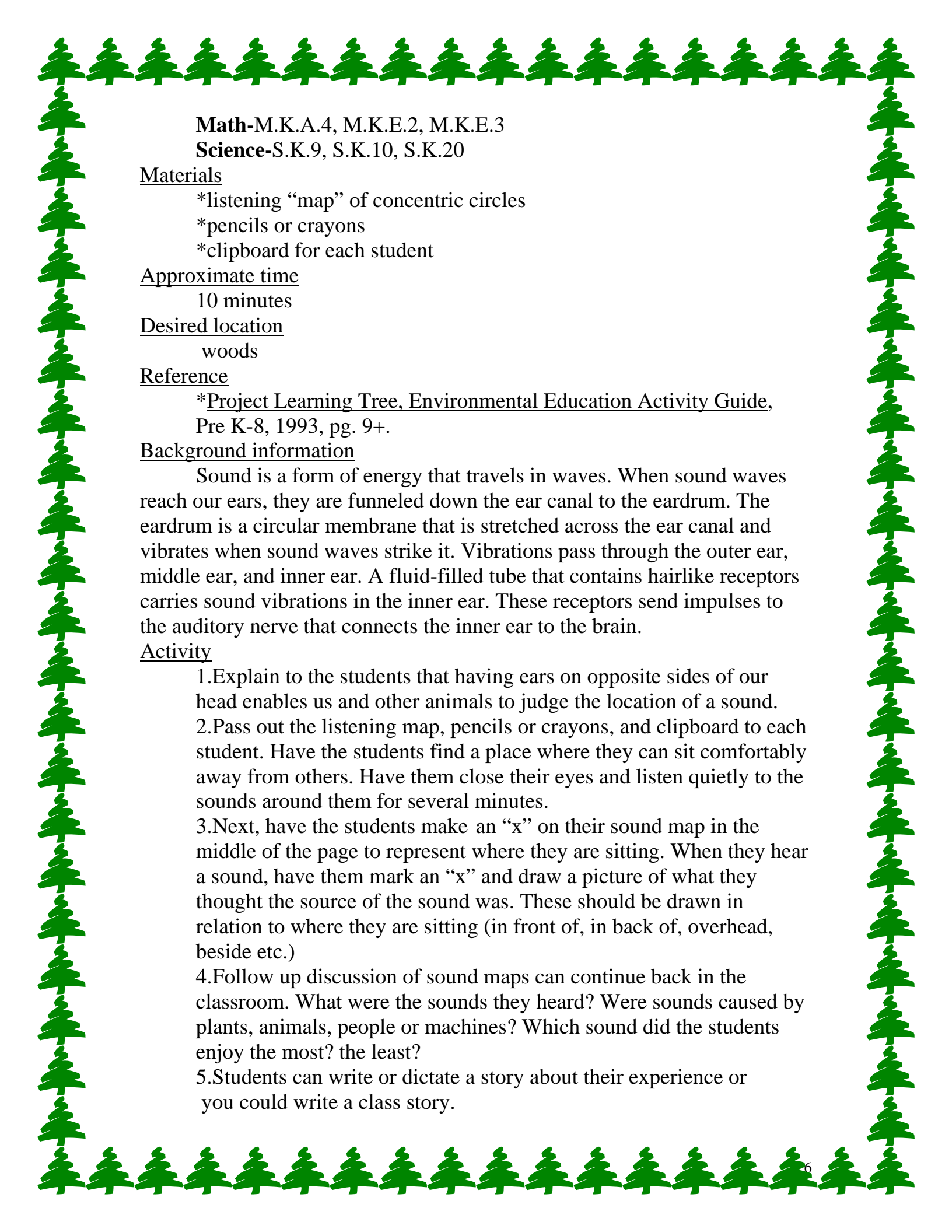
- *Students will listen for sounds in the outdoors.
- *Students will attempt to identify the source of these sounds.
- *Students will identify the location of these sounds in relevance to where they are sitting.
- *Students will appreciate the animal habitats that they are visiting.
- *Students will discuss how it is our responsibility, as stewards of our environment, to sustain these habitats.

DPI Environmental Education Standards

A.4.1, A.4.2, A.4.3, A.4.4, E.4.1, E.4.2

Other DPI Standards

Language Arts-L.A.K.B.1, L.A.K.B.2, L.A.K.B.3, L.A.K.B.4,
L.A.K.B.8, L.A.K.C.1, L.A.K.C.2, L.A.K.C.3,
L.A.K.C.4



Math-M.K.A.4, M.K.E.2, M.K.E.3
Science-S.K.9, S.K.10, S.K.20

Materials

- *listening “map” of concentric circles
- *pencils or crayons
- *clipboard for each student

Approximate time

10 minutes

Desired location

woods

Reference

*Project Learning Tree, Environmental Education Activity Guide,
Pre K-8, 1993, pg. 9+.

Background information

Sound is a form of energy that travels in waves. When sound waves reach our ears, they are funneled down the ear canal to the eardrum. The eardrum is a circular membrane that is stretched across the ear canal and vibrates when sound waves strike it. Vibrations pass through the outer ear, middle ear, and inner ear. A fluid-filled tube that contains hairlike receptors carries sound vibrations in the inner ear. These receptors send impulses to the auditory nerve that connects the inner ear to the brain.

Activity

- 1.Explain to the students that having ears on opposite sides of our head enables us and other animals to judge the location of a sound.
- 2.Pass out the listening map, pencils or crayons, and clipboard to each student. Have the students find a place where they can sit comfortably away from others. Have them close their eyes and listen quietly to the sounds around them for several minutes.
- 3.Next, have the students make an “x” on their sound map in the middle of the page to represent where they are sitting. When they hear a sound, have them mark an “x” and draw a picture of what they thought the source of the sound was. These should be drawn in relation to where they are sitting (in front of, in back of, overhead, beside etc.)
- 4.Follow up discussion of sound maps can continue back in the classroom. What were the sounds they heard? Were sounds caused by plants, animals, people or machines? Which sound did the students enjoy the most? the least?
- 5.Students can write or dictate a story about their experience or you could write a class story.



Characteristics of Living Things

Plants

Objectives

- *Students will describe the general structure of a tree.
- *Students will explain how different parts of a tree help the tree function.
- *Students will identify a seed as a part of a plant.
- *Students will recognize that seeds grow into plants.
- *Students will compare different kinds of seeds and plants.

DPI Environmental Education Standards

A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.4.3

Other DPI Standards

Language Arts-L.A.K.A.2, L.A.K.C.1, L.A.K.C.2, L.A.K.C.3,
L.A.K.C.4

Math-M.K.A.4, M.K.A.6, M.K.E.2, M.K.E.3

Science-S.K.3, S.K.4, S.K.5, S.K.10

Phy. Ed.-P.E.D.K.2

Materials

- *a variety of local leaves and seeds (pine cones, acorns, maple seeds etc.)
- *magnifiers
- *laminated poster of plant (tree) parts
- *visuals for tree play
- *map to locate hummock (blow-down)
- *old socks (provided beforehand by students)
- *metal pans/tins (provided beforehand by students)
- **How a Seed Grows* by Helene Jordan, 1992.
- **Ten Seeds* by Ruth Brown, 2001.

Approximate time

45 minutes

Desired location

A weedy field and wooded area

Resources

- *Project Learning Tree, Environmental Education Activity Guide, "Tree Factory", pg. 223+ Pre K-8, 1993.
- *Primarily Plants, a Plant Study for K-3, AIMS activities, pg.66, 1990.



*The Outdoor Classroom, Experiencing Nature in the Elementary Curriculum, pg. 23, Indiana Department of Education.

*Environmental Education Activities, Milwaukee Public Schools, Department of Community Recreation and Educational Services, “Grow a Sock”, pg. 28a.

Background information

Plants play a very important part in our environment. They provide us food, medicine, oxygen, energy, and beauty. Their roots help stabilize and hold the topsoil in place. When plants die they decompose and enrich the soil with minerals. They also help collect and store water so that animals and people can have water to drink and use. Without plants, all life on Earth would end. They are the only living organisms that can collect and store the sun’s energy (photosynthesis). Through this scientific process, plants directly or indirectly provide energy for all animals and people. Plants are everywhere. You will even find them growing in cracks in sidewalks. Trees are also plants. Children may not perceive trees as being plants with definite functioning parts. Use this lesson to help children recognize that trees have parts comparable to those of smaller plants. They are large solar (sun) collectors. While visiting the outdoor classroom, you will be surprised to see where they grow. Notice how most of them climb toward the sun. They are reaching out to capture the sun’s energy. Observe their colors. The green you see (chlorophyll) is the energy the plant has made by collecting the sun’s energy, water, minerals, and carbon dioxide. Notice how animals depend on plants for survival. See birds building nests, squirrels gathering nuts, spiders spinning webs, rabbits nibbling on plants, grasshoppers hopping, and bees gathering nectar from flowers.

Plant Parts

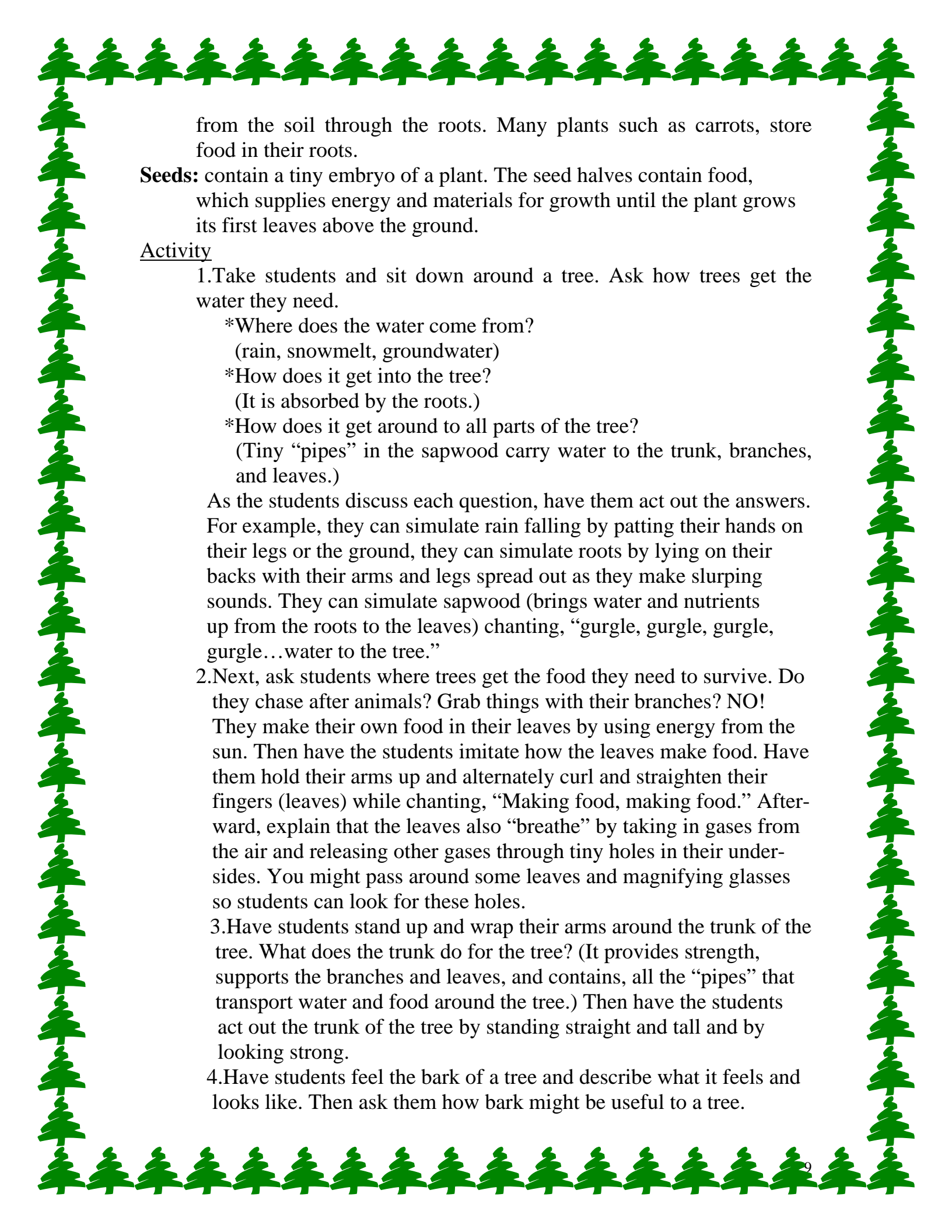
Leaves: are the parts of the plant where food is made by photosynthesis.

Leaves take in carbon dioxide from the air and energy from sunlight. During photosynthesis, the leaves use light energy to change carbon dioxide and water into sugars (food).

Flowers: are the reproductive parts of a plant. Flower petals and the flowers’ smell attracts bees and insects to pollinate the flower. After pollination, the petals fall away and seeds develop in the part of a flower called the ovary. The ovary itself usually becomes what we call fruit.

Stems: support the upper parts of plants. Water and dissolved nutrients from the soil travels up the stem in a system of tubes. Food from the leaves travel down the stems to the roots. Stems also store food.

Roots: of plants anchor the plants in the soil. Water and minerals are taken



from the soil through the roots. Many plants such as carrots, store food in their roots.

Seeds: contain a tiny embryo of a plant. The seed halves contain food, which supplies energy and materials for growth until the plant grows its first leaves above the ground.

Activity

1. Take students and sit down around a tree. Ask how trees get the water they need.

*Where does the water come from?

(rain, snowmelt, groundwater)

*How does it get into the tree?

(It is absorbed by the roots.)

*How does it get around to all parts of the tree?

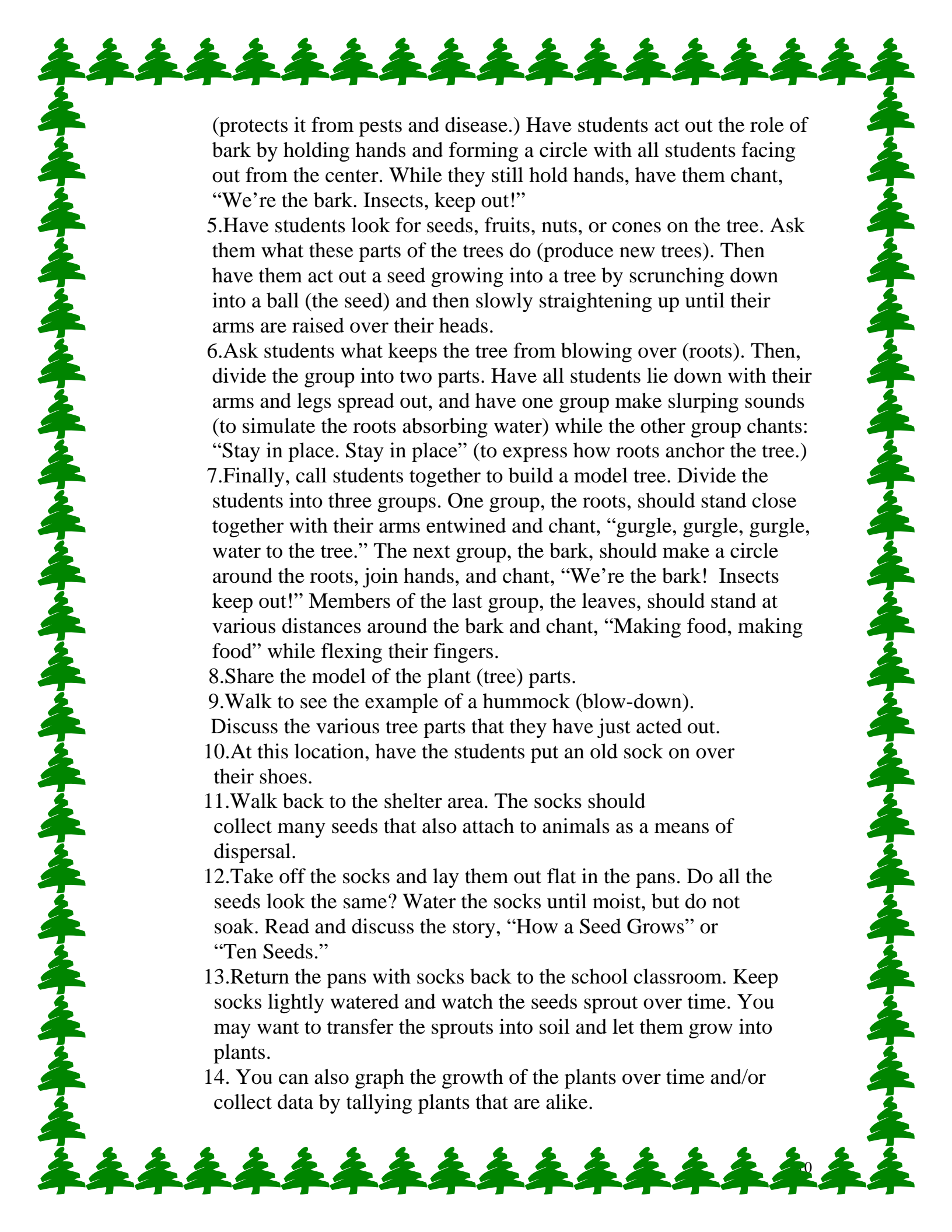
(Tiny “pipes” in the sapwood carry water to the trunk, branches, and leaves.)

As the students discuss each question, have them act out the answers. For example, they can simulate rain falling by patting their hands on their legs or the ground, they can simulate roots by lying on their backs with their arms and legs spread out as they make slurping sounds. They can simulate sapwood (brings water and nutrients up from the roots to the leaves) chanting, “gurgle, gurgle, gurgle, gurgle...water to the tree.”

2. Next, ask students where trees get the food they need to survive. Do they chase after animals? Grab things with their branches? NO! They make their own food in their leaves by using energy from the sun. Then have the students imitate how the leaves make food. Have them hold their arms up and alternately curl and straighten their fingers (leaves) while chanting, “Making food, making food.” Afterward, explain that the leaves also “breathe” by taking in gases from the air and releasing other gases through tiny holes in their undersides. You might pass around some leaves and magnifying glasses so students can look for these holes.

3. Have students stand up and wrap their arms around the trunk of the tree. What does the trunk do for the tree? (It provides strength, supports the branches and leaves, and contains, all the “pipes” that transport water and food around the tree.) Then have the students act out the trunk of the tree by standing straight and tall and by looking strong.

4. Have students feel the bark of a tree and describe what it feels and looks like. Then ask them how bark might be useful to a tree.



(protects it from pests and disease.) Have students act out the role of bark by holding hands and forming a circle with all students facing out from the center. While they still hold hands, have them chant, “We’re the bark. Insects, keep out!”

5. Have students look for seeds, fruits, nuts, or cones on the tree. Ask them what these parts of the trees do (produce new trees). Then have them act out a seed growing into a tree by scrunching down into a ball (the seed) and then slowly straightening up until their arms are raised over their heads.

6. Ask students what keeps the tree from blowing over (roots). Then, divide the group into two parts. Have all students lie down with their arms and legs spread out, and have one group make slurping sounds (to simulate the roots absorbing water) while the other group chants: “Stay in place. Stay in place” (to express how roots anchor the tree.)

7. Finally, call students together to build a model tree. Divide the students into three groups. One group, the roots, should stand close together with their arms entwined and chant, “gurgle, gurgle, gurgle, water to the tree.” The next group, the bark, should make a circle around the roots, join hands, and chant, “We’re the bark! Insects keep out!” Members of the last group, the leaves, should stand at various distances around the bark and chant, “Making food, making food” while flexing their fingers.

8. Share the model of the plant (tree) parts.

9. Walk to see the example of a hummock (blow-down).

Discuss the various tree parts that they have just acted out.

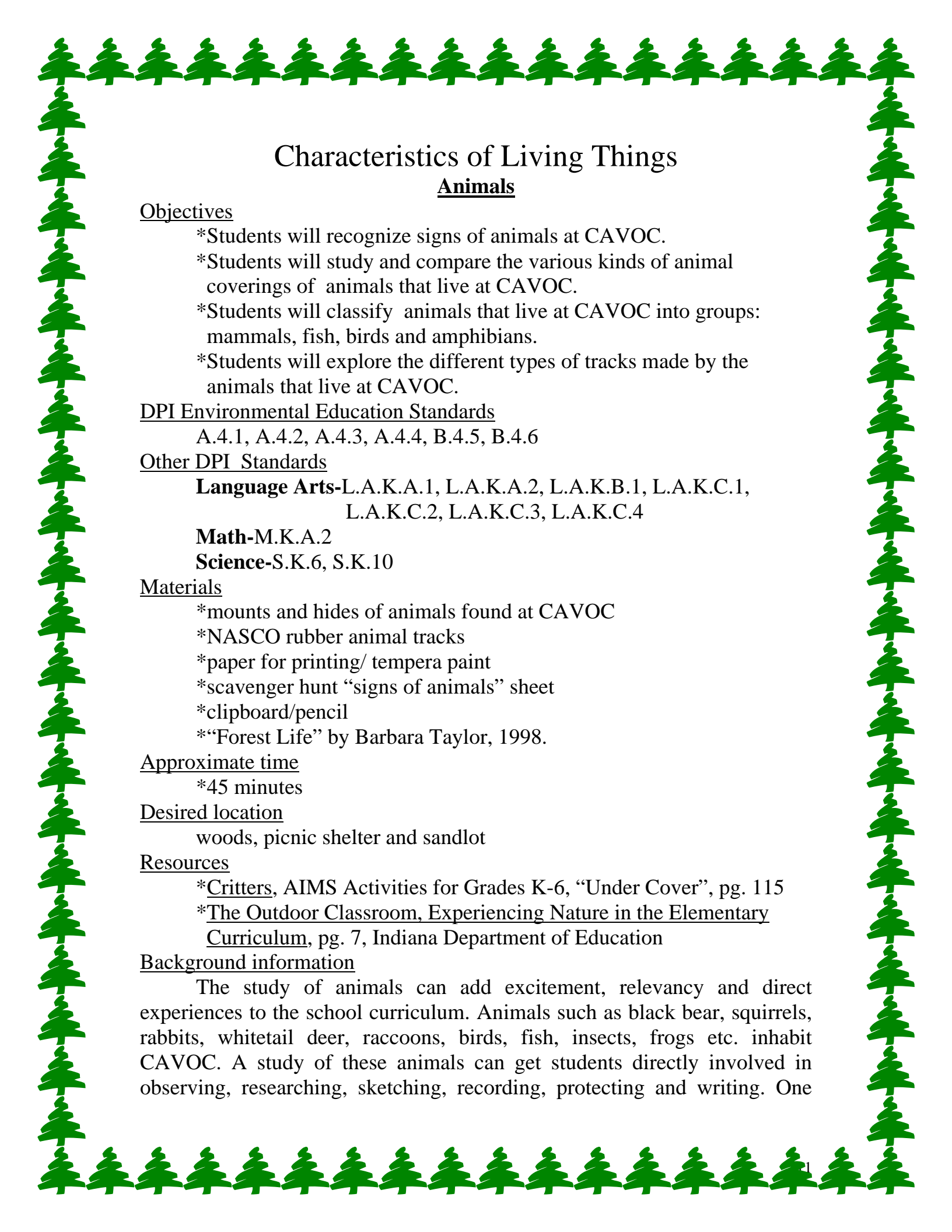
10. At this location, have the students put an old sock on over their shoes.

11. Walk back to the shelter area. The socks should collect many seeds that also attach to animals as a means of dispersal.

12. Take off the socks and lay them out flat in the pans. Do all the seeds look the same? Water the socks until moist, but do not soak. Read and discuss the story, “How a Seed Grows” or “Ten Seeds.”

13. Return the pans with socks back to the school classroom. Keep socks lightly watered and watch the seeds sprout over time. You may want to transfer the sprouts into soil and let them grow into plants.

14. You can also graph the growth of the plants over time and/or collect data by tallying plants that are alike.



Characteristics of Living Things

Animals

Objectives

- *Students will recognize signs of animals at CAVOC.
- *Students will study and compare the various kinds of animal coverings of animals that live at CAVOC.
- *Students will classify animals that live at CAVOC into groups: mammals, fish, birds and amphibians.
- *Students will explore the different types of tracks made by the animals that live at CAVOC.

DPI Environmental Education Standards

A.4.1, A.4.2, A.4.3, A.4.4, B.4.5, B.4.6

Other DPI Standards

Language Arts-L.A.K.A.1, L.A.K.A.2, L.A.K.B.1, L.A.K.C.1,
L.A.K.C.2, L.A.K.C.3, L.A.K.C.4

Math-M.K.A.2

Science-S.K.6, S.K.10

Materials

- *mounts and hides of animals found at CAVOC
- *NASCO rubber animal tracks
- *paper for printing/ tempera paint
- *scavenger hunt “signs of animals” sheet
- *clipboard/pencil
- *“Forest Life” by Barbara Taylor, 1998.

Approximate time

*45 minutes

Desired location

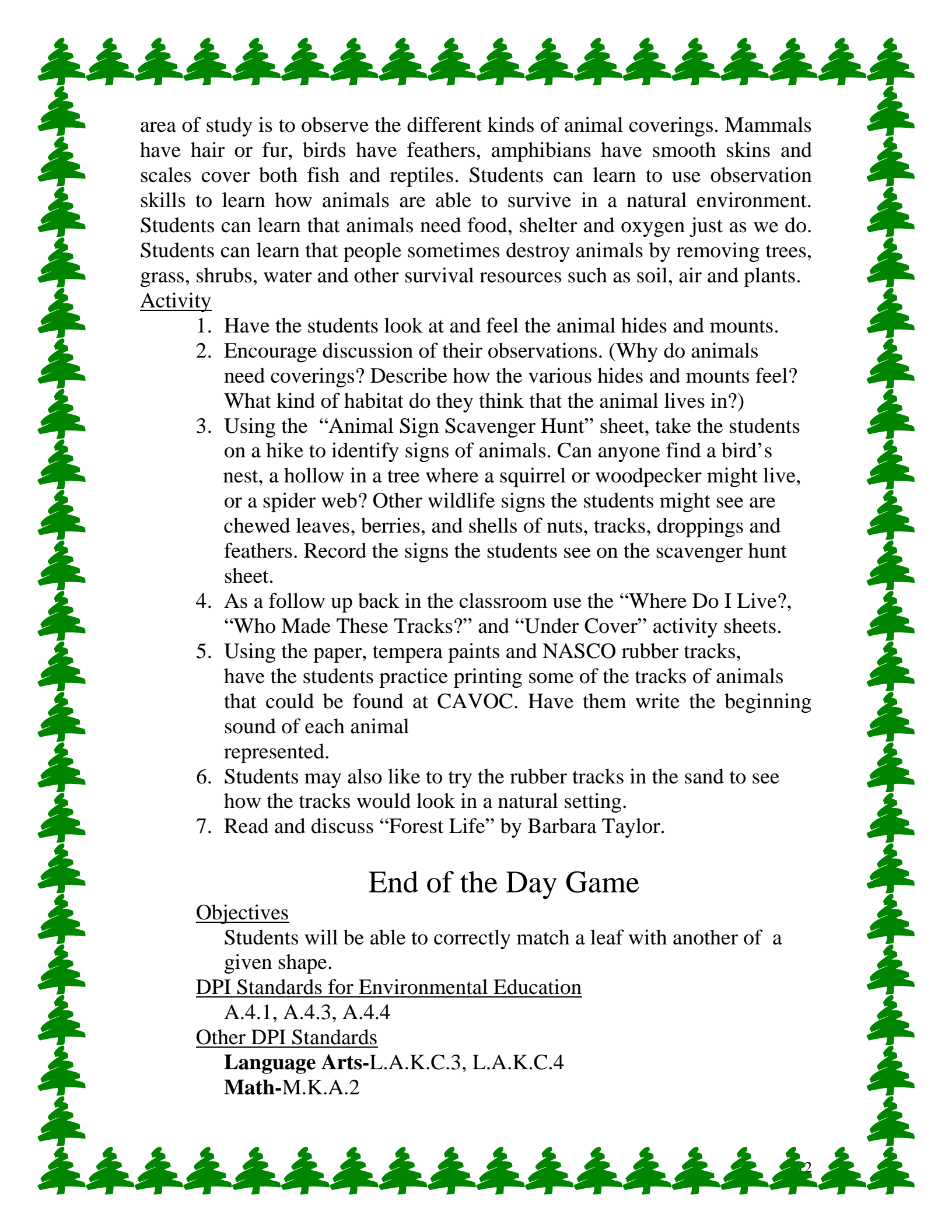
woods, picnic shelter and sandlot

Resources

- *Critters, AIMS Activities for Grades K-6, “Under Cover”, pg. 115
- *The Outdoor Classroom, Experiencing Nature in the Elementary Curriculum, pg. 7, Indiana Department of Education

Background information

The study of animals can add excitement, relevancy and direct experiences to the school curriculum. Animals such as black bear, squirrels, rabbits, whitetail deer, raccoons, birds, fish, insects, frogs etc. inhabit CAVOC. A study of these animals can get students directly involved in observing, researching, sketching, recording, protecting and writing. One



area of study is to observe the different kinds of animal coverings. Mammals have hair or fur, birds have feathers, amphibians have smooth skins and scales cover both fish and reptiles. Students can learn to use observation skills to learn how animals are able to survive in a natural environment. Students can learn that animals need food, shelter and oxygen just as we do. Students can learn that people sometimes destroy animals by removing trees, grass, shrubs, water and other survival resources such as soil, air and plants.

Activity

1. Have the students look at and feel the animal hides and mounts.
2. Encourage discussion of their observations. (Why do animals need coverings? Describe how the various hides and mounts feel? What kind of habitat do they think that the animal lives in?)
3. Using the “Animal Sign Scavenger Hunt” sheet, take the students on a hike to identify signs of animals. Can anyone find a bird’s nest, a hollow in a tree where a squirrel or woodpecker might live, or a spider web? Other wildlife signs the students might see are chewed leaves, berries, and shells of nuts, tracks, droppings and feathers. Record the signs the students see on the scavenger hunt sheet.
4. As a follow up back in the classroom use the “Where Do I Live?”, “Who Made These Tracks?” and “Under Cover” activity sheets.
5. Using the paper, tempera paints and NASCO rubber tracks, have the students practice printing some of the tracks of animals that could be found at CAVOC. Have them write the beginning sound of each animal represented.
6. Students may also like to try the rubber tracks in the sand to see how the tracks would look in a natural setting.
7. Read and discuss “Forest Life” by Barbara Taylor.

End of the Day Game

Objectives

Students will be able to correctly match a leaf with another of a given shape.

DPI Standards for Environmental Education

A.4.1, A.4.3, A.4.4

Other DPI Standards

Language Arts-L.A.K.C.3, L.A.K.C.4

Math-M.K.A.2



Phy. Ed.-P.E.A.K.1, P.E.B.K.3, P.E.D.K.1, P.E.G.K.2

Materials

- *Different types of leaves from CAVOC; four of each type.
(can be from conifers and deciduous trees)
- *Another set of leaves for the “leader” of the game.

Approximate time

- *depends on if you do this activity along with a guest speaker and a hike.

Desired location

The sand area in back of Rominsky Lodge

Resource

- *The old version of “Project Learning Tree”, Activity Guide K-6, 1987.

Activity

1. Divide the classes into four teams.
2. For each team, make a leaf pile consisting of one leaf from each of the trees represented.
3. Place this pile at a set distance in front of each team.
4. The leader holds up a leaf and yells “GO”!
5. At the signal, the first student in each team runs to the leaf pile, finds the leaf that the leader has and holds it up to be identified.
6. A point is awarded for each leaf correctly identified.
7. The leaves are returned to the piles, and the players run back to the end of their line so that the next player from their team can test his or her identification skills.
8. Game ends when everyone in line has had an opportunity to identify a leaf.
9. Compare team points.