

LITTLE CRITTERS

First Grade – Rahr Memorial School Forest

ENDURING UNDERSTANDING

There are many small plants, animals, and other objects to observe and learn from in nature. Decomposition is an example of an interesting natural process that is a major part of the food web.

ASSESSMENT

Students will be able to demonstrate their understanding by identifying the parts of an insect, explaining what happens to a dead tree in the forest, creating a nature journal, and discuss the importance of decomposition.

WISCONSIN'S MODEL ACADEMIC STANDARDS

Environmental Education

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

Science

A.4.3, B.4.1, C.4.1, F.4.1

CLASS OUTLINE

- I. Set-up
- II. Sample schedule
- III. Introduction
- IV. Insects
- V. Log Hotel
- VI. Decomposition
- VII. Nature Journals and Sensory Hike
- VIII. Conclusion
- IX. Clean-up

Safety

Optional/ Rainy Day Activities

Additional Information

Resources

MATERIALS

Insects

- insect photos
- egg cartons
- tin foil
- straws
- toothpicks
- crayons
- scissors
- glue
- tape
- aerial collecting nets
- white sheet
- collecting jars
- insect field guides
- School Forest map

Log Hotel

- Log Hotel book
- collecting jars
- spoons
- paper
- clipboards
- crayons
- School Forest map (with locations of logs highlighted)

Decomposition

- decomposers art activity pages
- scissors
- crayons
- glue
- tape
- engraver beetle story
- logs with beetle tunnels
- hand lenses
- paper
- pencils

Nature Journals and Sensory Hike

- monoculars
- paper
- clipboards
- pencils
- rubbing crayons
- colored pencils
- rope
- blindfolds

CLASS PROCEDURES

I. Set-up

After setting up a date with the School Forest secretary, teachers are also responsible for filling out and turning in a field trip request form. Teachers may also schedule a time when the School Forest coordinator can meet with them at school to discuss the visit. Teachers will be asked to teach or co-teach one of the activities while the student groups rotate through the activities during the day. The School Forest coordinator may also be available to teach at one of the stations during the day. Preparation time will be needed to review the activity.

All of the materials needed for this day will be set-up at the School Forest. Teachers will need to bring a few things from school: the School Forest keys, first aid kits, emergency contact information, extra clothing, and any additional activity materials they feel necessary for the class. Students will need to bring a bag lunch (with a drink and nothing that needs a microwave) and adequate clothing for the day.

II. Sample Schedule:

9:00	Depart from school	11:45- 12:20	Lunch
9:30	Arrive at Forest	12:20- 1:15	rotation 3
9:30	Introduction	1:15	switch stations
9:50	split into groups	1:20 – 2:10	rotation 4
9:50 – 10:45	rotation 1	2:10	Gather and clean up
10:45	switch stations	2:15 – 2:25	Conclusion
10:50 – 11:45	rotation 2	2:30	Depart from school forest
11:45	Clean up for lunch	3:00	Arrive at school

III. Introduction

What lives in a forest? List the species that have a home in the forest. Today we are going to be learning about insects and decomposition. We will learn what an insect is and collect some to study. We will be going on a hike to explore the forest with our senses and to create our own nature journals. During one class, you will also explore decomposition. Plus, students will learn about the life inside of a log.

IV. Insects

A. What is an insect

Pass out the photographs of insects so that each child has one. Let them examine their insect photo and compare it with other students. How are insects similar? How are they different? As a large group, list the parts of an insect:

- Six legs – jointed with four main parts
- Three body parts - head, thorax, and abdomen
- Mouth parts - chewing, sucking, piercing and sucking, or absorbing
- Defense mechanisms - stinger
- Eyes – compound eyes, made up of many facets or lenses
- Antennae – detect odors
- Wings – most insects develop wings at some time in their life
- Breathing – through holes in the abdomen called spiracles
- Reproduction – some species have an ovipositor which is a long egg-laying organ

*Note: you may not want to cover *all* of the parts of an insect and just focus on a few.

Discuss what each part looks like and show examples using the insect photos.

B. Collection

Go to a place to observe insects:

- listen quietly for different insect sounds
- turn over any flat stones or logs and observe any creatures. Replace carefully!
- Look for insects and watch them in their environment

- Spread out a white sheet in an area with tall plants. Walk through the plants towards the sheet and observe what hops or crawls onto the sheet in front of you.
- Place the white sheet under a branch or bush and gently shake the branch. Watch what falls onto the sheet.
- Gently use aerial nets to collect insects. Note: when using the nets, please review safety with students. Slowly use the net and do not pick up anything heavy with it. Do not reach with your hand into the net instead dump the net out onto the white sheet to see what you caught.
- After gathering the insects in small containers, divide the students into small groups to study them with hand lenses. How does the insect move? What color(s) is it? What do you think it eats? Where do you think it lives?

C. Make an insect

Each student will design and construct an insect. Review the parts of the body. Use a 3-part section from an egg carton as the body of the insect. Now, let the students be creative with the supplies given to make their insect. Place the insects in paper bags with the student's name on it when you are done.

V. Log Hotel

A. Log Hotel

Read the book Log Hotel by Anne Schreiber to the class. Talk about the different things that can be found in a log. Hike into the woods to a place where there are many fallen trees.

B. Examine life in and under a log

In small groups, have students gather around a rotting log and close their eyes.

Direct students to:

Listen - as they tap the log, does it sound hollow or solid?

Smell – does the log smell wet or dry? What does it smell like?

Feel – does it feel hard or soft, wet or dry, rough or smooth?

Now have the students open their eyes and predict what is inside of the log that we might see. Then have the students explore the log. They may pull off a piece of bark to look inside. You may want to collect small creatures in a pan or container. Use the magnifiers to look at them more closely. Return the log pieces and their inhabitants when you are finished. Ask each group what they found in and around their log. Sit in a large circle. Ask each child to complete the following sentence: "One thing that surprised me about rotting logs was ____."

C. Write about and draw your own log hotel

This activity does not have to be done during this class. It could be done back at school if you run out of time.

Pass out paper, crayons, and pencils to all of the students. If it is a nice day, this can be done outside using clipboards to write on. Students will now create their own log hotel on paper. They should also write a sentence or two about their log hotel. Who lives there? What is growing on or around it?

VI. Decomposition

A. What is decomposition

Discuss decomposition with the students. Decomposition is the break down of material back into food for plants. If things did not decompose we would have dead stuff up to our eyeballs! Discuss the importance of decomposition to the food web. (See the Additional Information sections of this lesson plan for more details.)

B. Nature's recyclers art activity

Pass out the nature recyclers art pages. Students can color their critters page and the forest scene page. Then, have them cut out their critters and tape or glue them onto the forest scene. Remind students to think about where the critters would live in the forest.

C. Engraver beetle story

The objective of this activity is to examine bark beetle tunnels and learn about the insect's life cycle. Tell the students that they will be examining evidence of an organism that helps start the process of decay in a dead tree. Explain the brainstorming rules: all ideas count, no ideas are wrong, there's no debating now. Divide the students into small groups and give each group samples of bark beetle engravings to study. Ask the groups to think of theories about how the patterns were created. Why and how were the tunnels made? Why do the branch tunnels get wider as they get further from the center? Now, read the Engraver Beetle story (in the back of this lesson plan) aloud and help the children see the evidence in their engraving samples. Discuss how the work of the bark beetles helps the process of decomposition by making places for water and fungi to get into the log.

VII. Nature Journaling and Sensory Hike

A. Nature Journaling

At the start of this class, spend some time preparing the nature journals. You may want to start with one page and then bring extra paper on your hike for the students to use as they fill up their sheets. Ask the students if they know what a journal is. Encourage the students to draw and write about what they see outside. They can focus on small things like an ant and a leaf, or on big things like a tree and the sky. You may want to include the other activities in this lesson with the nature journaling. Hike away from the buildings and explore. Discuss the use of descriptive words and looking carefully and quietly at nature.

B. Sensory Hike

Look over a map and decide on a trail to take away from the buildings. During this hike, discuss how we can use all of our senses to explore nature. Start by stopping at a pine (long needled) tree and tasting a few green needles. Talk about what it tastes like. Discuss eating natural plants. Children should **never** eat anything in nature unless an adult tells them that it is safe to eat. And the adult should actually look it up in a book or ask an expert first. You must be very careful. (You may choose to omit this activity from the lesson.)

Now, experience the forest without using your eyes. Line the class up, extend the rope, and have each student grab onto the rope. Then pass out the blindfolds and ask each student to put one on. Students will need to walk slowly and hold onto the rope. The teachers will lead the class using the rope. Walk slowly. Quietly listen for different sounds of the forest. Feel the ground under your feet. Is the ground soft or hard? Is it bumpy or smooth? What do you hear? Remove the blindfolds.

At some point on your hike, stop and do a "silent sit." Space the students out along the trail and have each of them sit, facing the forest, and look and listen to the forest. Do this for about 5 minutes. Once you are back together as a group, discuss what people saw and experienced. Did anyone see or hear something they have never seen or heard before? What sounds could you hear? Could you hear the waves on Lake Michigan?

Another activity that you can do during this hike is using touch to examine nature. Find different textured objects to feel and compare. Use descriptive words to describe the

objects. Does all bark feel the same? Are all leaves the same shape? Does the soil on the trail feel different than the soil in the forest?

C. Leaf rubbing

Show the students how to do a leaf rubbing in their nature journal. Pass out crayons and set the boundaries for the activity. Let students explore to find different types of leaves to use.

D. Monoculars

Pass out a monocular for each student. Ask them to put the strap around their neck. Show the students how to focus the monoculars by slowly turning the eyepiece. Explore the tree tops or watch the birds at the feeders. Return monoculars to the carrying cases when you are finished with this activity.

VIII. Conclusion

Discuss what the students learned during the day at the School Forest. Review material from each of the lessons. Customize the discussion to the students and the time of year of the visit.

IX. Clean-up

- Return supplies to building
- Take garbage out to dumpster
- Close windows, shut off all water, shut off all lights, lock doors, shut driveway gate
- Give the School Forest Coordinator feedback on how to make this trip better in the future

Safety

While at the School Forest, teachers should carry first aid kits. You can bring these from your school or use the ones at the School Forest. The first aid stations can be found in the Ehlert Lodge office, ELC classroom, and the upstairs of the Krejcarek Building. Please report any safety issues to the School Forest Coordinator.

Students should be supervised at all times. If you decide to go off trail, go in a clear area where branches cannot swing back and hit someone. Be aware of the plants you are traveling around so as not to pass by thorn covered plants or poison ivy. When in the swamp area, review safety guidelines and watch students at all times.

Rainy Day/ Optional Activities

- Metamorphosis – there are three different types of metamorphosis that an insect can go through in its life depending on what type of insect it is.
 - Gradual metamorphosis – for example, silverfish – when the young emerge from the egg they look similar to an adult, except smaller. As the insect grows and molts, it grows larger.
 - Incomplete metamorphosis – for example, grasshopper, dragonfly, cicada, stinkbug – when the young emerge from the egg, they look similar to an adult except they do not have wings yet and are smaller. As the insect grows and molts, wings appear.
 - Complete metamorphosis – for example, butterfly, moth, bee, ant – this is the most advanced form of metamorphosis and involves four distinct life stages: the egg, larva, pupa, and adult. After the insect hatches from the egg it is called a larva. The larva molts a few times, and eventually forms a pupa. The larva breaks down in the pupa and reforms itself into the adult.
- Rain measurements – place measuring cups out in different locations to gather rain, compare the amount of rain collected in the different areas
- Leaf sorting and graphing - collect leaves from outside, sort, and then graph the different types of leaves
- Writing and drawing – sit near a window and watch the rain, then write about or draw the rainy scenery
- Touch and feel – explore the textures of antlers, feathers, bones, insect trails in wood, fur, and bark

- Aquatic organisms – examine the collected aquatic organisms (the coordinator will gather ahead of time) and notice how they move, where they live, their body parts
- Skull study – explore different types of skulls, learn about meat versus plant eaters
- Animal Charades- play a game of charades using School Forest animals as the topic
- Food web activity – use string to show the dependence of different natural things on each other

Additional Information

Bark Beetle Story – see following pages

Rotting logs, forest floor, and insect lives are the topics covered in the additional information found on the following pages.

Decomposition: see the “Diagram of a Rotting Log” page near the back of this lesson plan.

Resources

Herman, Marina L., Joseph F. Passineau, Ann L. Schimpf, and Paul Treuer. Teaching Kids to Love the Earth. Pfeifer-Hamilton, Duluth, MN. 1991.

Leslie, Clare Walker and Charles E. Roth. Keeping a Nature Journal. Storey Books, Pownal, Vermont. 2000.

Lindelbach, Jenepher and Lisa Purcell. Hands-On Nature. Vermont Institute of Natural Science, Woodstock, Vermont. 2000.

Project Learning Tree. The Changing Forest: Forest Ecology. Washington D.C. 1996.

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