

# BIRDS, BUGS, AND JOURNALS

## Fourth Grade – Rahr Memorial School Forest

### ENDURING UNDERSTANDING

Birds and insects play an important role in the environment. A nature journal is a tool we can use to learn more about our surroundings.

### ASSESSMENT

Students will be able to demonstrate their understanding by creating and using a nature journal, carefully collecting invertebrates, identifying different bird species, properly using binoculars to view wildlife, and discussing the importance of animals in the School Forest environment.

### WISCONSIN MODEL ACADEMIC STANDARDS

Science

C.8.1, E.8.1, F.4.4

Environmental Education

B.4.12, B.8.3, B.8.5

English Language Arts

B.8.1, C.8.1

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### CLASS OUTLINE

- I. Set-up
- II. Sample schedule
- III. Introduction
- IV. Nature Journals
- V. Birding
- VI. Insects and decomposition
- VII. Swamp Study
- VIII. Conclusion
- IX. Clean-up

Safety

Optional/ Rainy Day Activities

Additional Information

Resources

School Forest map

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### MATERIALS

#### Nature Journals

- paper
- scissors
- pencils
- colored pencils
- clipboards
- crayons
- tape

#### Swamp Study

- dip nets
- collecting bins
- collecting jars
- ice cube trays
- ladles
- spoons
- Pond Life books
- identification sheets

#### Insects and Decomposition

- collection jars
- aerial nets
- white sheet
- insect i.d. books

#### Birding Hike

- bird field guides
- clipboards
- investigations sheets
- pencils
- bird calls tape
- cassette tape player
- monoculars or  
binoculars

### 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 should 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 can also teach at one of the stations during the day if available. Preparation time will be needed to review the activity.

All of the materials for this day can be set-up at the School Forest. Please let the School Forest Coordinator know of the class needs. Teachers should bring a few things from school: first aid kits, emergency contact information, extra clothing, and any additional activities 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	Welcome and Intro.	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
11:45	Clean up for lunch	3:00	Arrive at school

## III. Introduction

During this day at the School Forest, the students will explore terrestrial and aquatic insects, make their own nature journals, and use binoculars to get a close-up view of birds. Remind students of the expectations for the day.

## IV. Nature Journals

### A. Making a nature journal

Discuss what is a nature journal... or just what is a basic journal. What is the difference between a diary and a journal? Make your nature journals using paper, crayons, and colored pencils. Hand out clipboards and pencils to all of the students.

### B. Journal hike

Take the class on a hike away from the buildings. Stop along the trail at various points to work in the journals. At each stop you may want to provide a structured writing activity or you may encourage free writing. Some ideas for journal activities include sketching a natural object, writing a letter to your favorite forest animal, poetry, and leaf rubbings. Encourage students to sit alone and quietly while they are working in their journals and to look at the smallest details. Observation skills are key. They can write about what they see, feel, smell, and hear. They can make notes of questions about nature that they may have. Discuss the importance of leaving nature undisturbed. Stop for writing time in many different locations. Discuss what people worked on and things that you experienced.

## V. Birding

### A. Birding techniques

Start this class by listening to the bird calls tape. Then talk with students about bird characteristics. Ask the students what birds they know about. Discuss birding techniques, such as, being quiet, walking slowly, and looking all around you.

## B. Binoculars

The binoculars are an expensive piece of equipment. The string should remain around the students' necks throughout the class. Everyone will need to set-up the binoculars for themselves. First, adjust the distance between the eye pieces. Then, adjust the right eye piece. Finally, adjust the focus to view an object. Teach the students to stare at an object and continue staring at it while they bring their binoculars up to their eyes (this way they will not "lose" what they wanted to view).

## C. Hike, look, and listen

Take the students outside to learn more about the birds that live at the School Forest. Stop at the bird feeders and identify some of the birds that you see. The teacher may carry a bird identification book and possibly give copies to the chaperones to help with identification.

You may wish to use the "Bird Investigation" study sheets to help students focus on what they are seeing. Pass out clipboards, a study sheet, and a pencil to each student or have them work in groups. The study sheet is a tool to learn about where birds are located. Are they always flying? Do certain types of birds stay on the ground?

If you are having a hard time finding birds in the forest, spend more time at the birdfeeders. Having the class sit quietly will help the birds adjust to humans and they will continue to use the feeders while you watch. Remember to also look for bird nests. Search high and low in the trees and bushes. There is a bird nest on the north side of the Ehlert Lodge that can also be studied.

Finally, discuss the importance of birds in our environment. What do we get from birds? How can we help to protect them?

# VI. 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

Have the students help you to draw an insect on the chalkboard. Discuss what each part looks like and show examples using the insect photos.

## B. Search

Go to a place to observe and collect 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. 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)

### D. Log study

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. Discuss what was found in and around the logs.

If you have time, lead a discussion about how insects affect our lives both positively and negatively.

## VII. Swamp Study

### A. What is a swamp

This entire lesson can be done on the trail to the pond. Start the class by discussing what a wetland is. A wetland is a land area that has a high water table with unique plants and animals. Wetlands play a very important role in the ecosystem by holding water, filtering, catching and storing pollution, and providing homes and food for animals. There are many different types of wetlands: bogs, marshes, fens, swamps, and prairie potholes. What would you call this wetland? It is a swamp. Discuss what a swamp is. A swamp is a wetland that has trees.

### B. Invertebrate collection and identification

As a class, conduct an inventory of the plants and animals of the swamp. Collect invertebrate animals from the water and put them in a bin (with about 1 to 2” of water). Use the identification guides to determine what animals you are collecting. Read more about the animals on the back of the identification sheets. If you have time, graph the quantity of the different species found in the water. You can use the ladles and ice cube

trays to separate the species for this activity. When you are done studying the animals, put them back into the water.

### C. Discussion

Discuss the importance of wetlands and how we can protect them. Ask the class: Where did you find most of the animals? Where did you find most of the plants? Which types of animals were caught most often? Which ones were hardest to find? Who found an animal that nobody else found? What organism would you like to be if you could live in the water for a day? And why?

Also, discuss human impacts on wetlands. Have the students heard of pollution? What would pollute the School Forest wetlands? (Nearby farms, the highways and roads, hikers.)

## VIII. Conclusion

After learning about so many different things by experiencing nature, discuss the day with the students. What did they learn? What was something new to them? What was their favorite part of the day? After doing this, discuss future actions. Students can continue their research from the day back at school and teach other people about what they learned. During this day at the School Forest, students learned about so many things that humans have an effect on. Discuss what humans do to hurt or help wildlife, plants, and the forest. Encourage students to take good care of our earth, by giving example.

## IX. Clean-up

- Return supplies to building
- Take garbage out to dumpster
- Close windows, 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 upstairs in 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.

## Optional / Rainy Day Activities

If the weather is not good, make sure students are prepared with proper clothing. It is encouraged to still go outside for a hike and enjoy the rain if it is a safe thing to do. Please let the School Forest Coordinator know if you will need any equipment or supplies for additional activities. These activities can be used to add on to or replace the outdoor activities and can also be set-up in stations indoors. *They would also make great activities to do back at school.*

- Rain measurements – place measuring cups out in different locations to gather rain, compare the amount of rain collected in the different areas
- Water cycle game or art activity – learn about the water cycle, make your own water cycle
- 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, 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
- Food web activity – use string to show the dependence of different natural things on each other
- Watercolor painting - Start the class by having the students sit alone and quietly look around at what they see. Then bring the class back together to have a discussion on what they saw. Talk about watercolor painting. The students can now sit alone and paint what they see in the swamp. Try to focus on a few painting attributes such as the horizon line and dimension. Look over what the students are working on. Assist those students that need help. Review the importance of looking at small details.

#### Additional Information

- Bird Investigation data sheet, on next page
- Insect Study data sheet, on next page

#### Resources

Basile, Carole G., Jennifer Gillespie-Malone, and Fred Collins. Nature at Your Doorstep: Real World Investigations for Primary Students. Teacher Ideas Press, Englewood, Colorado. 1997.

Cornell, Joseph Bharat. Sharing Nature with Children. Ananda Publications, Nevada City, CA. 1979.

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

Project WILD Aquatic Education Activity Guide. Bethesda, MD 1992.

Rockwell, Robert E., Elizabeth A. Sherwood, and Robert A. Williams. Hug a Tree and Other Things to do Outdoors with Young Children. Gryphon House, Inc. Beltsville, Maryland. 1996.

Outdoor Biology Instructional Strategies. “What Lives Here?” Delta Education, New Hampshire, 1980.

Lesson plan written by Patty Brodeen Maher, School Forest Coordinator, Manitowoc Public Schools. March, 2005, revised July, 2008.

Group \_\_\_\_\_

# Insect Study



Weather today: \_\_\_\_\_

What was the most common insect you found? \_\_\_\_\_

What was the most interesting insect you found? \_\_\_\_\_

Pick one insect to study at each stop:

Location where you found insect:

Drawing of insect:

Description: \_\_\_\_\_  
\_\_\_\_\_

Location where you found insect:

Drawing of insect:

Description: \_\_\_\_\_  
\_\_\_\_\_