

Rachel Carson Nature Center

Information and Lesson Plans
Bridgewater Elementary School



Compiled by:

Kendra Passow (passow@stolaf.edu)

Tara Ritter (ritter@stolaf.edu)

Grace Wilkinson (wilkinso@stolaf.edu)

Nature Education

Nature education teaches children more than plant identification; Richard Louv, author of *Last Child in the Woods*, says that "thoughtful exposure of youngsters to nature can... be a powerful form of therapy." Research shows that nature can reduce the effects of depression and attention deficit disorder. Nature also encourages movement and exploration, reducing obesity in children. Furthermore, studies show that children who are often exposed to nature have dramatically improved standardized test scores and grade point averages. This is a result of the problem solving, critical thinking, and decision making skills that play in nature fosters. Evidence also suggests that being outdoors stimulates creativity.

Service Learning

What is service learning?

Service-learning is a form of experiential education where learning occurs through a cycle of action and reflection as students work with others through a process of applying what they are learning to community problems and, at the same time, reflecting upon their experience as they seek to achieve real objectives for the community and deeper understanding and skills for themselves.

What are the characteristics of service learning?

- Links to academic content and standards
- Involves young people in helping to determine and meet real, defined community needs
- Is reciprocal in nature, benefiting both the community and the service providers by combining a service experience with a learning experience
- Can be used in any subject area so long as it is appropriate to learning goal
- Works at all ages, even among young children

Service learning in the Rachel Carson Nature Center

Students at Bridgewater Elementary School and surrounding institutions are able to use the nature center as an experiential learning area, but they also have responsibilities as caretakers of this place for future students and the community in general. Service learning projects have included building bluebird houses, creating a trail through the wooded area, planting around the entry sign, constructing sign posts for the guided trail, and picking up trash.

Sources:

Eyler, J., & D. E. Giles, J. (1999). *Where's the Learning in Service-Learning?* San Francisco: Jossey-Bass.

The National Service-Learning Clearinghouse. (1994). *Defining Service-Learning*.

NCSL (National Commission on Service Learning), Learning in Deed. (2002). *Learning in Deed: The Power of Service-Learning for American Schools*.

Rachel Carson Nature Center Internship

Accomplishments:

1. Identification of plants in prairie
2. Photographing of different species
3. Creation of brochure
4. K-5 Lesson Plans
5. 4 in-class lesson experiences
6. Reaction reports for above lessons
7. Construction of mulched trail through woods
8. Grant-writing for service learning funds
9. Regular contact with site coordinators:
 - a. Pam Charlton, *Pamela.Charlton@nfld.k12.mn.us*
 - b. Sarah SwanMcDonald, *Sarah.Swanmcdonald@nfld.k12.mn.us*

Further Plans:

1. Further coordination to fix entry sign
2. Guided trail post construction and placement
3. Bluebird house construction with EBD students
4. Plastics assembly for K-5
5. 2nd grade classroom day

Other Opportunities:

1. Further area maintenance, including box elder control, trash cleanup, re-mulching trail, prairie burn. Contact Prairie Restoration, *jfroyum@prairieresto.com*, or Kevin Larson, *Kevin.Larson@nfld.k12.mn.us*.
2. Work with teachers and students to use nature area. Help coordinate days outside and assist in classroom.
3. Further plant identification, research on land use history.

Lesson Plans

Kindergarten- 5th Grade

Rachel Carson Nature Center Kindergarten Grade Lesson Plan: I Spy

Profile:

Contributors: Grace Wilkinson, Tara Ritter, Kendra Passow

Subject: Science

Grade Level: K

General Description: The students will learn how to observe the natural world by creating viewers, playing games and asking questions about their surroundings.

Standards:

0.4.1.1.1 Use the five senses to observe living and nonliving things.

Objectives:

The students will be able to use all five of their senses to describe their surroundings

They will be able to identify living and nonliving things in the natural world

Procedure:

Time Required: Approximately one hour

Materials/Resources:

Paper towel or toilet paper tubes

Stapler

Natural Materials

String (yarn works best)

In the Classroom:

1. Give each student two toilet paper tubes or one paper towel tube cut in half. These are going to be their binoculars. Staple them together.
2. Have the students decorate their binoculars with markers/crayons or go outside and use natural objects.
3. If you use natural objects have the students know what is living and what is nonliving. (i.e. rocks are nonliving and prairie grass is living).
4. Attach the yarn to the binoculars so that they can go around the neck.

On The Prairie:

1. Take the students out to the prairie and play a game of I Spy. Start as a class and have the students use their binoculars to spot the objects.
2. Have the students work in groups to play the game. You can also have them ask questions as they play such as, "Is the object living?" "Is it a plant or animal?"

Extension Activity:

Play Nature Evidence Bingo with the students in groups. Have them use their binoculars.

Animal Evidence Bingo!!

G. Wilkinson

<p>Blue Bird House</p> 	<p>Insect Gall</p> 	 <p>Pocket Gopher Hole</p>	<p>Nest</p> 
 <p>Berries</p>	<p>Ant</p>  <p>Community</p>	 <p>Tracks</p>	<p>Bones</p> 
<p>Insect Chew</p> 	 <p>Bird Call</p>	<p>Feather</p>  <p>OR FUR</p>	 <p>Deer Bed</p>
<p>FREE SPACE!!</p>	 <p>Scat</p>	 <p>Seed Pods</p>	<p>Woodpecker</p>  <p>Holes</p>

Rachel Carson Nature Center 1st Grade Lesson Plan: Camouflage and Habitats

Profile:

Contributors: Tara Ritter, Kendra Passow and Grace Wilkinson

Subject: Science

Grade Level: 1

General Description: Students will be able to describe three major Minnesota habitats both biotically and abiotically. They will experience what it is like to be camouflaged and consider why certain animals are best suited for the habitats that they live in.

Standards:

1.4.2.1.1	Recognize that living things need space, water, food and air.
1.4.2.1.2	Determine ways in which an organism's habitat provides for its basic needs (for example, plants require air, water, nutrients and light; animals require food, water, air and shelter).
1.4.3.1.1	Understand that plants and animals pass through life cycles that include a beginning, development into adults, reproduction and eventually death.
1.4.3.1.2	Recognize that plants and animals pass through the same stages of their life cycles as their parents.

Objectives:

Students will be able to name and describe the three different habitats (forest, prairie and wetland)

Students will be able to name different groups of organisms that live in the habitats

Students will be able to describe how animals camouflage themselves and the adaptive value

Procedure:

This lesson works best when students are split into two groups. The first group can be playing the game while the other group is participating in the activity.

Thicket 360!

1. Begin by asking students if they know what camouflage is and how animals use it.
2. The students will be walking behind the leader on the path who will call out "Thicket 360!," close their eyes, and begin counting to 15 out loud.
3. The students will scatter into the prairie and try to find a hiding spot among the grass in the 15 seconds.
4. The leader will open their eyes and while staying in one spot and rotating 360°, they will call out the names of the students that they can see. Those students are then out and join the leader on the trail.
5. After all the students that can be seen are found, the leader closes their eyes again and counts to 10. The students have 10 seconds to either try to tag the leader ("eating them") or to find a new hiding spot. Everyone must move. Then repeat step 4.
6. After the game discuss why it was easier to see some students (i.e. bright jackets, didn't stay low). Ask the students to name animals that blend in well to their habitats (not all animals do!) Why is that an adaptive trait?

Group Activity (Clearing in the Woods)

1. The second group will be split into three smaller sub groups. Each sub group will be assigned a habitat at the Rachel Carson Nature Center (prairie, forest and wetland).
2. Create motions for each group that represent their habitat (i.e. the forest group stands with their arms up like trees) to signal to the leader that the group is ready to answer the question.
3. Explain to the students that they must discuss the questions as a group and that every member of the group must be able to answer the question if called upon.
4. Ask students a series of questions in a game show like fashion. They will have to huddle to discuss their response and then perform their motion as a group when they are ready to answer. Points

can be awarded as well as students should be called upon randomly to make sure that everyone in the group is sharing and learning.

Possible Questions:

- a. Name a nonliving object commonly found in your habitat
- b. Name 2 plants that live in your habitat
- c. Name a bird that lives in your habitat
- d. Name a mammal that lives in your habitat
- e. If an animal wanted to be camouflaged in your habitat, what color would they need to be?
- f. Line up the three habitats from wettest to driest
- g. Describe what winter in your habitat looks like

Other Possible First Grade Lesson Plan Ideas

Monitor growth of plants

Plants that attract different insects

Rachel Carson Nature Center 2nd Grade Lesson Plan: All About Seeds!

Profile:

Contributors: Grace Wilkinson, Kendra Passow, Tara Ritter

Subject: Science

Grade Level: 2

General Description: Students will begin their exploration of seeds by dissecting a moist lima bean and making observations. Then they will learn the four types of seeds and native examples of each which will be reinforced through an active game. Numerous extension activities include planting their own seeds and collecting seeds from the prairie to be replanted in the spring.

Standards:

2.4.1.1.1 → Describe the behaviors and characteristics of plants and animals at different stages of their life cycles.

2.4.1.1.2 → Describe and sort plants and animals into groups in many ways, according to their physical characteristics and behaviors.

Objectives:

1. Students will be able to identify the four types of seeds.
2. Students will be able to discuss the anatomy of a seed.
3. Students will be able to identify seeds from native Minnesota plants.

Procedure:

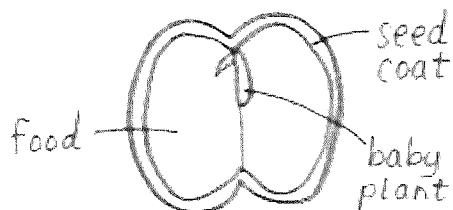
Time Requirement: Approximately 45 minutes in the classroom, 1-2 hours outside

Materials/Resources:

- a. Classroom: Lima beans (one per student) soaked over night, pictures or examples of the four types of seeds, magnifying glasses
- b. To Collect Seeds: Identification tools for the students (example, picture, ect.), Bags
- c. Planting: Individual containers for students, potting soil, seeds, water
- d. For Helicopter Craft: cardstock cut into 1 inch strips, stapler, straws

Classroom Introduction:

1. Begin by asking a few basic questions to help focus the lesson:
 - a. What is a seed?
 - b. What are different types of seeds?
 - c. Where do seeds come from?
2. Remind the students that scientific investigation starts by making observations that use all 5 senses (however, discourage the use of taste in this instance).
3. Give each student a lima bean that has been soaking in water over night and ask them to start making observations. Carefully have the students remove the protective coating and split the seed in half so that they can observe the food source and the sprout.
4. Draw a picture of the seed on the board and ask the students to identify the three components. It is helpful to ask leading questions such as "What do we need to survive? Shelter and food." This should help them to identify the protective layer, the actual sprout and the "food" for the seed before it begins to photosynthesize.
5. Dependent upon time and resources either continue on to the four types of seeds or go to "Planting."



6. The Four Types of Seeds:

- Introduce the students to the four types of seeds; travelers, poppers, droppers and flyers. Give examples of each kind of seed, preferably Minnesota natives such as milkweed pods (poppers), helicopter seeds (flyers), berries (travelers), and acorns (droppers).
- Have the students try to brainstorm other examples, even if they are non native.
- Play a game of Seed Simon Says:
 - each seed type has a motion: travelers march in place, droppers crouch on the ground, poppers jump in place and flyers spin with their hands above their heads.
 - begin by using the seed types and the basic rules to Simon Says. ("Simon says be a dropper.")
 - Increase the difficulty by only using examples of seeds and the students must respond by performing the motion for that seed type. ("Simon says be a milkweed pod.")

Extension Activities:

Planting:

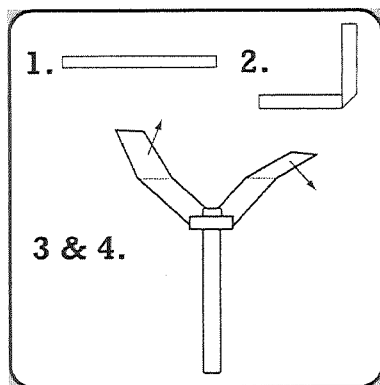
- Give the students a container to plant seeds in. Fill half the container with soil, have the students place their seed in the cup and then cover it with soil.
- Have the students label their container and water it.
- Design an experiment that the entire class can participate in. Either water some and not others, provide different amounts of light or fertilizer. Measure the plants height daily and have the class keep a record of the data.

Helicopter Seed Craft:

Unless it is autumn, it is difficult to find a live example of helicopter seeds in Minnesota. The purpose of this craft is to create a simple device that acts like a helicopter seed.

- Have each student poke a hole through their cardstock strip at the midpoint.
- Push a straw through the hole and staple it to the paper. Place paper clips at both ends of the paper.
- While holding the straw between flat palms, rub your hands together to spin the "helicopter" and release it to fly.

OPTIONAL: Have the students experiment with weight at different points by adding clay.



Similar to the diagram shown here.
Extra folds are optional.

Collecting Seeds on the Prairie:

It is important to only collect native species and to keep the seeds in a cool, dry area for the winter.

- Start by assigning students to groups that are responsible for collecting one to two species
- Have examples or pictures of each seed and plant for the students to bring with them as well as a bag for each group.
- Although the students are only responsible for one to two species, encourage them to look for different seed types in the prairie on their quest for their species.

4. Replant the seeds in the spring either by starting them in spots or spreading them across the prairie. This would also be a good time to revisit what seeds need to grow as well as seed anatomy and types.

Creative Writing:

Have the students chose a type of seed and write a story as a class from the seeds perspective of where it started, how it got into the ground, what it needed to grow and how it produced more seeds. The students should be able to incorporate all of the things that they have learned about seed anatomy, seed types and the life cycle of plants.

Rachel Carson Nature Center 3rd Grade Lesson Plan: Animal/Habitat Interaction

Profile

Contributors: Kendra Passow, Grace Wilkinson, Tara Ritter

Subject: Science

Grade Level: 3

General Description of Lesson:

Students begin by observing animal life in the Rachel Carson Nature Area. Drawing on observations, students design and construct their own animals that are well-suited to live in habitats similar to the nature area (prairie, forest, or wetland). These animals are then “tested” on their survival capabilities through a scavenger hunt where the animals are placed in the nature area. There is also an optional extension of a camouflage game (Thicket 360).

Standards:

Nature of Science and Engineering

3.1.1.2.3 Make notes in order to maintain a record of observations, procedures and explanations.

Life Science

3.4.1.1.1 Describe how the different structures of plants and animals serve the various functions of growth, survival and reproduction.

Objectives:

Students will recognize the components that animals need to survive: food, water, air, shelter, space.

Students will recognize the features of animals that help them survive in their particular habitat (focusing on local habitats: prairie, forest, wetland). This will concentrate in depth on camouflage.

Procedure:

Time required: about 2 hours, either in one day or spread out over two/three days

Materials/Resources:

Construction materials for animals (including, but not limited to:) Scissors, construction paper, cardboard, milk cartons, feathers, string, googly eyes, pipe cleaners, pencils, markers, crayons, paper for student observations/journal/animal descriptions

Preparation for Teacher:

1. make supply baskets for each table for animal construction
2. make an example animal if possible

Step by Step Teacher Procedure:

1. Pass out paper and pencils for students to make observations
2. Explain that they will be going outside into the nature area to observe animal characteristics and will be taking notes
3. Discuss different types of habitats that the nature area has (this may be discussed inside or outside), and characteristics of each:

Prairie: relatively dry, inhabited by tall grasses, flowers, bushes, insects, snakes, foxes...

Forest: relatively dry, characterized by presence of trees, inhabited by deer, squirrels, birds...

Wetland: wet, characterized by presence of both water and soil, inhabited by birds (ducks), fish, insects, cattails...

4. Discuss what animals need to survive: food, water, air, shelter, space
5. Bring students outside, ask them to look for animal life and record observations-what helps them survive in their habitat?
 - a. what do they eat?
 - b. what do they use for shelter? etc.
6. Bring students back inside, and ask them to report their findings
7. Introduce the idea of camouflage
 - a. how does camouflage help animals to survive?
 - b. what types of camouflage do animals in each habitat in the nature area (prairie, forest, wetland) utilize?

8. Ask students to construct their own animals that would be well-suited to survive in these habitats and have them record animal characteristics (show example)
 - a. how should they look?
 - b. what shelter do they use?
 - c. what do they eat?
 - d. how are its other needs met by the environment?
9. After completion of the animals, have an assistant hide their animals in a small area in the nature center
10. Bring the students outside and ask each student to find one animal
11. Discuss which were easiest to find and why
12. Lead-in to optional enhancement game: Thicket 360 (see below)

Assessment

Assessment Types: question-and-answer sessions, hands-on experiment, class discussion

Assessment Plan:

During the class discussion of animal characteristics and observations, a general verbal assessment is conducted with the students to determine mastery of standards.

The student projects will be assessed on the application of discussed requirements for animal survival-are there reasonable expectations that the animal will be able to survive in the nature area based on student assignation of diet, shelter, physical characteristics, etc.?

Enhancement

Extension activity: Thicket 360 game

Procedure:

1. The class is classified as "prey" and the teacher is the "predator"
2. When the teacher yells "Thicket 360!" the students run and hide in the prairie grasses while the teacher closes his/her eyes and counts to 15

3. At the end of 15 counts, the teacher yells "Thicket!" again and looks around to see who has done a good job of hiding
4. All easily visible students are named off, and these students are "out" and must come sit by the teacher
5. After all "out" students are seated, the teacher yells "Thicket 360!" again, the students have 10 counts this time to run **toward** the teacher with the objective of tagging him/her and thereby reversing the roles of the predator and prey
6. At the end of 10 (fast) counts, the teacher yells "Thicket!" again and the students must hide, now closer to the teacher
7. The teacher points out the easily visible students again, and the next group of students that is "out" must sit with the rest of the "out" students
8. This procedure repeats until the teacher is tagged by a student-a winner is declared!
9. Class discussion
 - a. Who was really good at hiding?
 - b. Who was really easy to see?
 - c. What made the difference (color of clothing, size of student, use of surroundings, etc.)?

Extension: Creative Writing

Ask the student to write a story about their animal. Components of the story should include how the animal interacts with its environment, life history characteristics as well as basic story components (plot, beginning, middle and end ect).

Service Learning Component: Habitat clean-up or enhancement. Have the students build bird houses for their own backyards, put out bird feeders, ect.

Rachel Carson Nature Center 4th Grade Lesson Plan: Deadly Links

Profile:

Contributors: Grace Wilkinson, Tara Ritter, Kendra Passow

Subject: Science

Grade Level: 4

General Description: Beginning with observation and classification, students will be create a food web and then through an active game illustrate the effects of predators on prey. They will understand how energy flows through an ecosystem, what it means to be a top predator and how pollutants and humans impact ecosystems.

Standards:

Service Learning

Objectives:

Students will have a true introduction to the impacts of humans on whole systems at a level that they will be able to help control.

Students will be able to identify food webs in familiar ecosystems

Students will be able to describe effects that pollutants can have on entire ecosystems, not just one species or plant or animal

Procedure:

Time Required: Approximately one hour

Materials/Resources:

Plastic soda bottle caps or milk jug caps. Lima beans or marbles work as well (at least 10 per student participating) Mark ½ of the caps with a black X

Means of distinguishing between the different functional feeding groups, jerseys or cloth headbands work best

Open area (approximately 15m x 15m)

In the Nature Center:

1. Describe what a food web is and how scientists use them to study ecosystems. Discuss food webs in terms of energy flow through a system and energy requirements of organisms at each level.
2. Introduce terms such as:
 - a. Plant: organism that photosynthesizes to create its own food using energy from the sun
 - b. Herbivore: an organism that consumes plants as its energy source
 - c. Carnivore: an organism that consumes other animals as its energy source
 - d. Omnivore: an organism that consumes both plants and animals as its energy source
3. Send the students out in teams to the three different ecosystems in the nature center and have them work together to create a food web for that ecosystem based upon what they observe and already know. You can have them write down questions to be researched on the computer or in the library (i.e. Is a leech a carnivore?)

At the Game Site:

1. Before you play the game, have the class construct a simple three level food web for a wetland that includes plants as the base, herbivores in the middle, and carnivores at the top. Be sure to list species for each group.
2. Assign half of the class to be plants (i.e. cattails, reeds, algae. Two thirds of the remaining students will be herbivores (i.e. muskrats, ducks, insects) and the rest will be carnivores (i.e. fox, coyotes, crayfish). (If 24 students, 12 plants, 8 herbivores, and 4 carnivores)
3. Explain to the students that each soda cap (or lima bean or marble) strewn about the “ecosystem” represents energy from the sun that plants can collect in order to grow. Only plants are able to

utilize this energy directly so they are the only ones that can pick the soda caps up off the ground.

4. Herbivore, which will be sent into the “ecosystem” after the plants have been in and collecting energy for 45 seconds, will tag the plants in order to “eat” them and take all of their soda caps. The herbivores will try to collect as many soda caps in this manner as possible and the plants will return to collecting soda caps from the ground after they are tagged.
5. The carnivores, which will enter the “ecosystem” about a minute after the herbivores, will tag the herbivores in order to collect their soda caps, or “energy.” The carnivores can stockpile their energy outside of the ecosystem because they will be collecting many soda caps. After an herbivore is tagged and gives up their soda caps, they may tag another plant to collect more. In the same manner, even after the plants have been tagged they should continue to collect more soda caps.

HELPFUL HINTS:

- a. Review with each group right before you send them in who they are allowed to tag, who can tag them, and that they should continue to collect soda caps after they are tagged.
 - b. Feel free to take some of the stockpiled soda caps and toss them back into the ecosystem or keep some in reserve before the beginning of the game in order to do so.
6. Stop the game at this point and ask the students a few discussion questions:
 - a. Who has the most soda caps? (carnivores) Why?
 - b. How did the energy from the sun flow through the system?
 7. Repeat the game, switching the students who were plants with those that were carnivores or herbivores. Mention to the students this time that there are two different types of soda caps in the ecosystem, one kind blank and one type with a black X. Encourage them to collect both kinds.
 8. At the end of the repeat ask the following question:

Who has a soda cap with a black X on it in their hands right now? Who had one at any point during the game?

Explain to the students that the black X soda caps represent pollution in the ecosystem and that anyone who has one is diseased or dead. Discuss where pollution comes from, how it flows through the system and biomagnifications (the concentration of pollutants in the top predator)

Service Learning:

Now that the students understand how different anthropogenic inputs can negatively effect an ecosystem and different sources of those inputs, brainstorm a project for the class to minimize those inputs. Some examples would be:

- Educate the community (create flyers or create a report)
- Organize a clean up day in the nature center and around the schools
- Research plants that are good buffers against chemical toxins and plant native species in the prairie

Rachel Carson Nature Center 5th Grade Lesson Plan: Observation and Experimentation

Contributors: Tara Ritter, Kendra Passow, Grace Wilkinson

Subject: Science

Grade Level: 5

Instructional Setting: Small Group, Whole Class

Student Population: At grade level

General Description of Lesson:

Students will observe life in the prairie and formulate questions. From there, the teacher will choose a question that the class will attempt to answer by formulating an experiment for further study in the nature center.

Content Standards Strand/Domain: Investigation and Experimentation

Content Standards:

Nature of Science and Engineering

5.1.1.2.2 Refine and refocus broad and ill-defined questions so that they are answerable using a scientific investigation

5.1.1.2.3 Identify and collect relevant evidence, make systematic observations and accurate measurements, and identify and control variables in a scientific investigation.

Objective(s) of lesson:

Students will learn to intelligently observe and form questions about nature, as well as learn to create experiments to help answer their own questions.

Time Required: 1 class period(s) of 40 minutes and additional time for experiment.

Materials and Resources used by teachers and students:

Paper and pencil to write down observations.

Other materials will depend on the final experiment chosen, but possibilities include: measuring tools, calculator, charts

Preparation for Teacher:

Come up with possible questions and experiments that would be feasible in case the students need guidance.

Step by Step Teacher Procedure:

1. Explain that students will be going outside to make observations in the nature center. Encourage them to formulate at least three questions each.
2. Explain that their questions will lead to an experiment, so they should also brainstorm ways that they could find answers to their questions.
3. Hand out writing materials.
4. Go outside. If time allows, walk through the nature center as a class. Then give the students 15 minutes on their own to walk around and develop questions.
5. Meet back inside and share questions. Pick out one or two that the class will test.
6. Formulate a testable experiment to answer the chosen question over a period of time. Sample experiment might be testing how temperature and rainfall are correlated to plant growth. See extension.

Assessment Type(s): Observations, Projects, Journals

Assessment Plan:

Students will keep a journal of their observations in the prairie for the teacher to view. The teacher will also look at any experimental data or record keeping to track progress.

Enhancement**Notes, tips, suggestions and/or extension activities:**

Sample experiment: testing how temperature and rainfall are correlated to plant growth.

A student may ask the question why plants grow in the spring and die in winter. Develop an experiment to measure temperature, rainfall, and plant growth. Set up a rain-gauge and thermometer in the prairie and have groups check levels daily/weekly. Students will be split into groups and each group will be in charge of measuring a particular plant's growth. Keep data on temperature, rainfall, and plant growth on a chart in the classroom. The chart can either keep track of the data graphically or in a numerical table. At the end of the school year, evidence should show that plants grow more with increased temperature and rainfall. After this answer becomes apparent to the class, they should put the information together in a way that it can be presented to others. This will show that they understand the correlation between the variables.

Lesson Plan Reaction Reports

First Grade Habitat Lesson Reaction Report

1. Intro and Questions

- a. What are the three habitats at the Rachel Carson Nature Center?
- b. What does each habitat have that others don't?
- c. What animals live in each habitat?
- d. Why are these animals suited to live in their habitat?
- e. What do animals need from their habitat to survive?
- f. What would happen to a species if its habitat were destroyed?
- g. What sorts of things could destroy a habitat?

2. Go to forest to observe that habitat

3. Go to wetland to observe that habitat

4. Go to prairie to observe that habitat

5. Play "Thicket 360"

6. Follow-up questions from the game

- a. Who was easiest to see?
- b. Who was hardest to see?
- c. How do animals use camouflage in the wild?

Evaluation

Q. What went well?

A. The kids already knew some basic information about habitats, so it was easy for us to jump right into the questions, and they could answer most of them on a basic level. This allowed us to help them answer the questions in more detail and give them further information. The game also went well, because it allowed the kids to move and camouflage themselves, which they liked because it kept them actively involved and paying attention. They also liked moving around to observe each of the different habitats.

Q. What could have gone better?

A. We taught this lesson to 5 different first grade classes, but we only got 3 sessions to teach it in. This means that we had more than an entire class to teach at once. Keeping the attention of that many kids at once was a bit out of our realm, and for that reason not everyone was always paying attention. We couldn't individually interact with each child, therefore there were some who were off playing with sticks or the mulch rather than listening to the lesson. We could have also foreseen the weather conditions better – it was fairly cold but we didn't think to get the kids their coats, so we rushed a little bit so that they could get back inside sooner.

First Grade Seed Pod Collection Reaction Report

1. Intro and Questions

- a. Where do plants come from?
- b. What seeds do you eat?
- c. Where do seeds come from?

2. Look at lima beans that have soaked overnight

3. Questions

- a. What do seeds need to grow (look at lima bean sprouts - parts of seed)?

4. Students plant own beans

5. Questions

- a. Why do we collect seeds?
- b. When/where do we collect seeds?
- c. What grows in our prairie?

6. Explain seed collection and going outside

7. Go outside

- a. Collect milkweed, Indian grass, gramma grass, bluestem, germander, coneflower.
- b. Collect leaves and grasses for art project

8. Questions

- a. Where are the seed pods on each of these plants?
- b. What are we going to do with all of these plants?

9. Art project

- a. leaf rubbings
- b. leaf stampings

Evaluation

Q. What went well?

A. The kids were very willing to answer questions we asked them and participated actively in all the activities. They were excited with the hands-on lima bean planting, and they all seemed excited to go outside. I was surprised at how much they already knew about parts of a seed and seeds' growing requirements. Furthermore, the kids successfully found each of the species that we were trying to find in the prairie, and understood where the seed pods on each plant were. The art project allowed the kids to have a concrete reminder of the field trip, and we hung a leaf mural outside the classroom.

Q. What could have gone better?

A. For some of our questions we didn't have answers written out, and just waited for the kids to volunteer answers. Had we done a little more research, maybe we could have supplemented the kids' answers with a little extra information. Classroom management was a bit shaky, and sometimes it was hard for us to get the kids' attention. When we were outside, we found our target species almost immediately, and the rest of the time was basically spent walking around the prairie. The immersion in the prairie was definitely an important aspect of the field trip, but perhaps we could have planned a few more concrete tasks to do outside.

Second Grade Seed Lesson Reaction Report

1. Intro and Questions

- a. Where do plants come from?
- b. What seeds do you eat?
- c. Where do seeds come from?

2. Look at dry lima beans

3. Look at wet lima beans

4. Questions

- a. What does a seed need to grow?
- b. What are the three parts of a seed?

5. Talk about the four types of seeds

- a. Flyers (cattails)
- b. Travelers (burrs)
- c. Poppers (milkweed)
- d. Droppers (acorns)

6. Simon says with the four seed types

7. Review everything we've learned

Evaluation

Q. What went well?

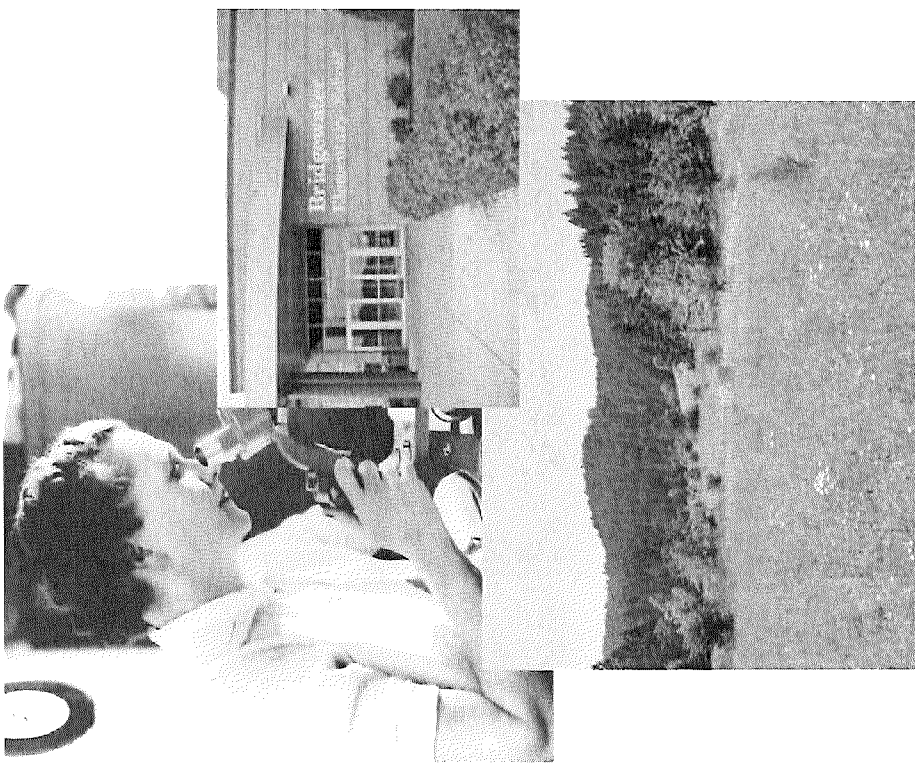
A. The kids were very attentive and had already learned seed basics. Therefore they easily understood what we had to teach them and picked up on concepts quickly. They were extremely polite when looking at the lima beans and cleaned up after themselves. Our biggest success was probably the Simon Says game, because the kids got to move and do the actions of the different seed types. This interaction kept them attentive and excited. By the time the review came around, they thoroughly understood everything we had taught them.

Q. What could have gone better?

A. We were not able to bring the kids outside to the prairie. Bridgewater elementary has a rule that kids cannot go outside in the winter unless they have their boots, and not all of the students had their boots at school. If we had given the teacher further notice, she could have instructed the kids to bring their boots and we could have done a nature walk to find seeds.

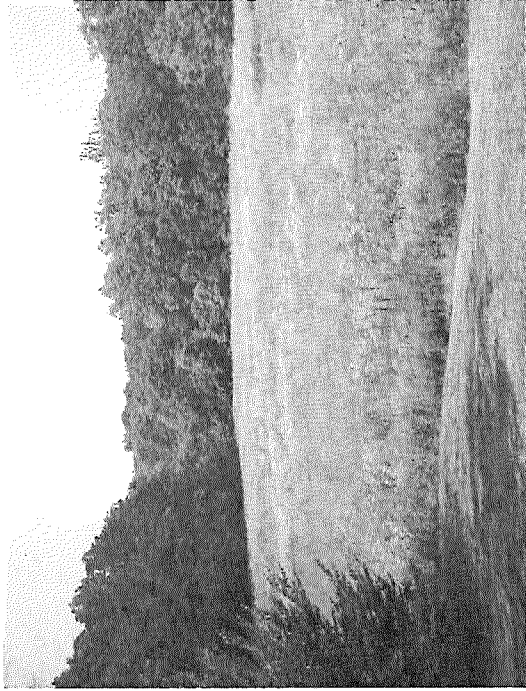
Guided Trail Brochure

Rachel Carson Nature Center Guided Trail



*“Those who contemplate the beauty of
the earth find reserves of strength that
will endure as long as life lasts.”*

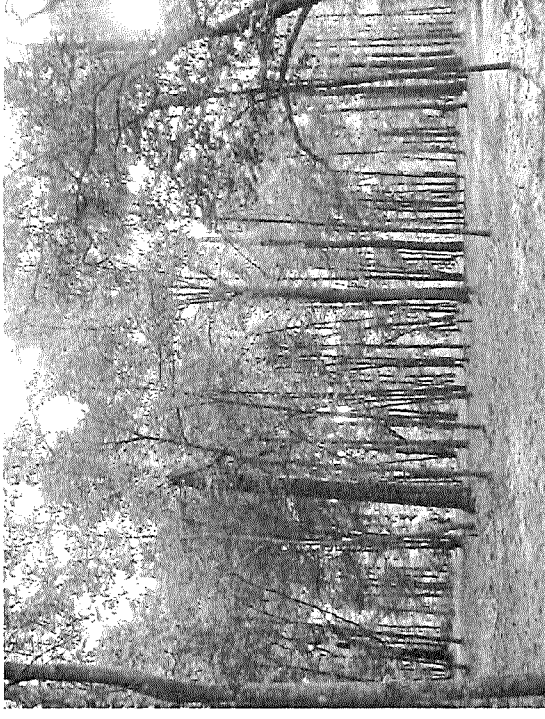
-Rachel Carson



1. Prairie Vista Point

Welcome to the Rachel Carson Nature Center! Take a look at the prairie ahead of you. It is important because...

1. It provides nutrients to the soil. Some prairie plants die each year and their roots decompose, which makes the soil very fertile. Fertile soil allows for many different plants to grow, including crops that we harvest and eat.
2. It provides a habitat for certain animals. Many insects, butterflies, songbirds, deer, rabbits, and other species rely on prairies for food and shelter.
3. It is beautiful. Nobody wants to live in a world of all concrete and buildings. Prairies are important for us to explore in, so that we understand the natural beauty in life.



10. Forest Vista Point

The forest you are standing in is a deciduous forest. Deciduous means "falling off or out at a certain season," which is what the leaves on the trees do when the winter comes.

The deciduous forest does not have many small plants, but there are a lot of trees. The trees have thick bark barriers to protect them from harsh weather and animals.

There are many animals in the forest. A lot of the animals eat nuts and acorns, which they get from the trees. A few common animals found in the deciduous forest are deer, squirrels, mice, raccoons, snakes, songbirds, frogs and many types of insects.

Take a moment to see if you can find any signs of animal life before you leave the forest!

8. Bur Oak Tree

The Bur Oak Tree is native to the Midwestern U.S. and southern Canada. It is a large deciduous tree growing up to 100 feet tall. Its trunk can have a diameter of up to 10 feet, making it one of the largest oak trees. The bur oak commonly lives to be 200 to 300 years old. The tree's seeds are large acorns, which can be up to 2 inches long. It is a fire-resistant tree, which makes it suited for prairies, which are regularly burned. Many animals use the bur oak for food; American black bears like the acorns, and deer and porcupine eat the leaves, twigs, and bark.



2. Purple Coneflowers

Purple coneflowers are native to the Midwestern and southeastern United States. They grow to be 2 to 3 feet tall. They are drought tolerant flowers and love the sun, which makes them perfectly suited for their prairie habitat. Their seeds are housed in the center of each flower. The centers are cone-shaped, which is how these flowers got their name. Bees and butterflies are attracted to coneflowers.



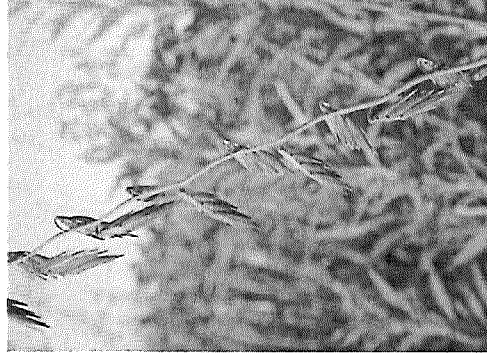
9. Boxelder Tree

Boxelder Trees are a type of Maple tree. They are native to the Midwestern United States. They usually grow in wet deciduous forests, but they are also a highly invasive species and will grow in most disturbed sites. These trees have a relatively short life compared to other types of trees, and their wood is very soft. They often have branches sprouting along the trunk, because the trees re-sprout in places where they have been damaged.

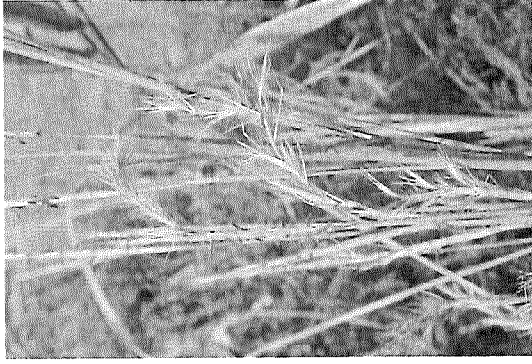


3. Side-oats Gramma Grass

Side-oats gramma grass is common along the Mississippi and Illinois rivers. It grows almost exclusively in prairies. The grass grows from 2 to 2.5 feet tall. Side-oats gramma grass gets its name because the leaves of the grass grow on one side of the stem. It is light green during the spring and summer, but in fall it turns tan. It enjoys sun and dry soil. Grasshoppers and songbirds feed off the grass.



4. Little Bluestem



Little Bluestem is a prairie grass particularly predominant in the Midwestern United States. The grass is 2 to 3 feet tall and tufted at the ends. Little Bluestem needs a lot of sunlight to grow, and it prefers dry soil. The grass is blue in the spring and summer, but it turns a brilliant red during the fall. Many types of caterpillars and grasshoppers eat the grass, and tree sparrows eat the seeds.

6. Goldenrod

Goldenrod is a prairie plant native to North America. It can grow up to 1.5 meters tall. The bright yellow flower heads bloom in late summer and produce heavy pollen. A casual observer may notice round, swollen lumps on goldenrod stems. These are called galls and they are the homes of two different types of insects that are parasites on the goldenrod. Inside the galls are moth or fly larvae. The moths or flies will emerge in late summer through a hole at one end of the gall.



5. Common milkweed

Milkweed is native to most of North America east of the Rocky Mountains. It grows in sandy soils and appreciates lots of sunlight. It grows from 1 to 2 meters tall and has a very hairy stem. The plant produces a white, milky substance when broken. It holds its seeds in large seed pods. Several insects live off the plant, including the monarch butterfly and the milkweed beetle.



7. Indian Grass

Indian grass is native to the U.S. and grows well in prairies. It grows to be 3 to 7 feet tall and has a distinct golden color. It has flowering tufts at the top of the plant, and leaves sprout from the bottom of the plant. It prefers sun and sandy soils. Grasshoppers eat Indian Grass, and it provides good cover for birds and other animals in the prairie.

