



«[Science Lesson Plans](#)

## Ecosystem Exploration

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### Description

Students will be able to describe various ecosystems, including how plants and animals interact within an ecosystem. Students will be able to identify carnivores, omnivores, and herbivores.

### Grade Level

4th grade

### Lesson Objective

**1.Student Objective: Student will explain what makes up a system and describe the basic characteristics of an ecosystem.**

**2.Student Objective: Students will learn the different ecosystems support different organisms with different adaptations.**

**3. Student Objective: Students will learn that consumers use other organisms as food; herbivores, carnivores, and omnivores**

### GLEs

Standard 4: Changes in Ecosystems and Interactions of Organism With Their Environments  
 1. Organisms are interdependent with one another and with their environment  
 A. All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem.  
 Scope and Sequence- Interactions Among Organisms and Their Environment  
 a. Identify the ways a specific organism may interact with other organisms or with the environment (e.g., pollination, shelter, seed dispersal camouflage, migration, hibernation, defensive mechanism)  
 b. Recognize that different environments ( i.e. pond, forest, prairie) support the life of different types of plants and animals.  
 2. Matter and energy flow through an ecosystem  
 A. As energy flows through the ecosystem, all organisms capture a portion of that energy and transform it to a form they can use  
 Scope and Sequence- Interactions Among Organisms and Their Environment  
 a. Classify populations of organisms as producers, consumers, decomposers by the role they serve in the ecosystem  
 b. Differentiate between the three types of consumers (herbivore, carnivore, Omnivore)  
 Standard 7: Science understanding is developed through the use of science process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking  
 D. Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific principles (understandings)  
 a. Evaluate the reasonableness of an explanation  
 b. Analyze whether evidence supports proposed explanations  
 E. The nature of science relies upon communication of results and justification of explanations  
 a. Communicate the procedures and results of investigations and explanations through:  
 ⇒ oral presentations ⇒ drawings and maps ⇒ data tables ⇒ graphs (bar, single line, pictograph)

### Depth of Knowledge

Level 2

### Instructional Strategies

- Picture Walk
- Visualization
- Build on prior knowledge-
- Students relate information self -to-text or text-to-text
- Students will learn key vocabulary terms-
- Checking for understanding as text is read
- Retell, compare, and contrast key information

### Time Needed

4 - 5 days

### Materials

**Lesson 1 -**

Book *A House is a House for Me*  
 Sticky notes  
 Chart paper  
 Ecosystem pictures  
 Venn diagram  
 Smart Notebook - ecosystem backgrounds  
 "Owl" chart

**Lesson 2**

Chart paper  
 Mystery bag items-found in lesson  
 Paper Bags  
 Mystery Bag Chart  
 Paper for flip books  
 Flip Book Directions  
 Glue,Markers, crayons, or colored pencils  
 Computer with Internet  
 Internet sites – found in lesson  
 Video on Learn 360  
 Precipitation Data Collection Lab Printout

**Lesson 3**

Book - *Butternut Hollow Pond*  
 Smart Notebook - animal sorting activity  
 Extensions activity supplies – cameras, notebook, poster board, labels, glue, markers

**Academic Vocabulary**

ecosystem, herbivore, omnivore, carnivore

**Lesson Plan****Lesson 1: Parts of an Ecosystem****Day 1**

**Engage** - Picture book- *A House is a House for Me* Create an "OWL" chart with students after completing the read-aloud. Complete only the "O" and "W" of the chart. Afterwards, have students give one example of a system they know about and explain to a partner how the parts of that system work together. (DOK 1)

**Explore**- Display two ecosystem pictures for class to see (see attachment). Have students use sticky notes to record their observations about similarities and differences. Have students place sticky notes on a Venn diagram comparing the two ecosystems. (DOK 2)

**Explain/Elaborate**- What is an ecosystem? Read student textbook pg. 78-79. Go over the Venn diagram & move sticky notes to discuss misconceptions. Also, add to the Venn diagram any other information. Complete the "L" section of the "OWL" chart, adding what has been learned. (DOK 2)

**Evaluate**- Go to Smart Notebook and use ecosystem backgrounds along with another slide of animal, plants, and sun. Pose the question to the class "What do we need to add for this to be a complete ecosystem?" Model for students the desert ecosystem. Then, students will work in partners to correctly create a rainforest or forest ecosystem on the computer. (DOK 2) See attached rubric. **(Students need to save for a later date.)**

**Lesson 2- Types of Ecosystems****Day 2-3**

**Engage**- Watch Learn 360 video on various ecosystems Then, introduce the names of each the different ecosystems. (DOK 1)

**Explore**- Complete the Precipitation/Rain Data Collection Lab. Divide students into partners to complete the lab. See attached lab sheets and website for directions on completing the lab. After completing the lab, discuss the results found. (DOK 3)

**Ecosystem Mystery Bags**- Have 5 mystery bags prepared for students to place their hands in and predict what items are in the bag and what ecosystem they are found in. Students will feel inside the bags and record their predictions on the Ecosystem Mystery Bags Chart. (DOK 2)

**Mystery Bag items (suggestions):** Desert- sand, aloe plant Tundra- ice bags, small stuffed animal Forest- twigs, rocks, moss Tropical Rainforest-feathers, water, fern Grassland- grassland, flower

**Explain /Elaborate** Read pages 80-81 in student textbook. Discuss with class the main ideas of the ecosystems. Review the concept of adaptations. Have students study the ecosystems shown in the textbook and speculate about the adaptations necessary to survive in each of the environments. During this time partner sharing or small group discussion can be used. Using the websites listed, have students further explore/explain the 5 ecosystems by creating an Ecosystems Flip Book. The students will research five ecosystems and record the following information about each: three plants, three animals, and three facts.

<http://www.desertusa.com/survive.html>

<http://www.mbgnet.net/index.html>

<http://www.enchantedlearning.com/biomes/>

**Evaluation**-Line of Learning -"What did you learn about the ecosystems today?"

**Lesson 3- Types of Consumers****Day 4-5**

**Engage-** Read aloud "Butternut Hollow Pond". Use reading strategies to discuss book. Example – partner share, open discussion, visualize, etc.

**Explore-** Use Smart Notebook Picture sorting activity. This activity is on the computer using Smart Notebook. It consists of slides that show a variety of animals, along with three empty slides labeled with animals that eat plants, animals that eat animals, animals that eat both plants and animals. Students will sort the animal pictures into the three groups. **Save this activity for assessment and future use.**

**Explain-** Read pages 84-85 in student textbooks introducing the vocabulary words: omnivore, herbivore, and carnivore.

**Elaborate-** Revisit Smart Notebook picture activity and replace the three slides with the appropriate vocabulary words. The teacher will ask for one example of an animal that fits in each slide. Students will explain why they choose that animal to fit into one of the slides. This will continue until all animals have been sorted. The students will check their picture sort as the class works together. This is a time to alleviate any misconceptions the students may have.

**Evaluation-** Reread "Butternut Hollow Pond". Students will do an independent word sort of "Butternut Hollow Pond." See attached sheet for word sort. Use this word sort as an assessment and to alleviate misconceptions.

**Extension-** Take students to Kansas City Zoo. Divide students into small groups. Students will need a disposable camera and a notebook to record observations and information from plaques at the zoo. After developing pictures, students will create a poster using their pictures and information learned to put animals in to the correct Ecosystems, along with identifying them as a carnivore, herbivore, or omnivore.

**Misconceptions-**Plants and animals can live anywhere. All insects are herbivores. Rainforest are only in South America. The tundra receives a lot of moisture. Deserts are always hot.

**Resources**

 [Butternut Hollow Pond Word Sort](#)

 [Flip Chart Directions](#)

 [Precipitation/Rain Collection Lab](#)

 [Mystery Bag Chart](#)

 [Flip Chart Rubric](#)

 [O.W.L. Chart](#)

 [Desert Background](#)

[Desert Pictures](#)

 [Rainforest Background](#)

 [Rainforest Pictures](#)

 [Forest Background](#)

[Forest Pictures](#)

[Ecosystem-Venn](#)

[Animal Classifications](#)

<http://www.desertusa.com/survive.html>

<http://www.mbgnet.net/index.html>

<http://www.enchantedlearning.com/biomes/>

<http://www.windows.ucar.edu/tour/link=/earth/ecosystems.html&edu=elem>

<http://www.edhelper.com> (Readers Theater on Ecosystems)

Deserts:Thirsty Wonderlands,Rain Forests: Gardens of Green,Temperate Deciduous Forests: Lands of Falling Leaves,Grasslands: Fields of Green and Gold Author -Laura SalasIllustrator - Jeff YeshPublisher- Picture Window Books

**Literature links**

*Butternut Hollow Pond*, Brian J. Heinz, Bob Marstall, Millbrook Press

*A House is a House for Me*, Mary Ann Hoberman, Betty Fraser, Puffin

**Text book link(s)**

<http://www.pearsonschool.com/index.cfm?locator=PSZ1B7>

**Key concepts:** [carnivore](#) [ecosystem](#) [herbivore](#) [omnivore](#)