
Diversity of Life in Habitats

Grade 2



Enduring Understanding

Many different types of plants and animals live in the same habitat.

Essential Questions

How would you describe major water-ecosystems?
How would you describe major dry land-ecosystems?
How are different ecosystems similar and/or different?

Objectives

1. Concept Objective: Understand that ecosystems support a diversity of plants and animals.
2. Lesson Content: Different types of plants and animals survive within their water and/or dry-land ecosystems.
3. Skill Objective(s)
 - a. Describe major water-related ecosystems and provide some examples of animals and plants that live in each.
 - b. Describe major dry-land ecosystems and examples of some animals and plants that live in each.
 - c. Compare and contrast water-related and dry-land ecosystems.
 - d. Record information in a table on different types of plants and animals found in an ecosystem.

Key Vocabulary

An **ecosystem** is many communities of plants and animals and their environment.

A **habitat** is the natural place where a plant or animal lives and grows.

Diversity is many different kinds of things in a group.

Time Required

3-4 daily lessons: 1-2 in class, 1 on a trip to the Kenilworth Aquatic Gardens, 1 after the trip

Materials

1. Books about different ecosystems, for example: *Life in the Oceans* by Lucy Baker, *Swamp Life* A Dorling Kindersley Book, *The Great Kapok Tree* by Lynne Cherry, *The Water Hole* by Graeme Base, *Rain, Rain, Rain Forest* by Brenda Guiberson, *Way Out In The Desert* by T.J.Marsh
2. Posters or photographs of different types of ecosystems
3. Large chart paper
4. Sticky notes
5. Ecosystem Recording Sheet (sample provided)
6. If possible, cameras or paper and pencils for the field trip to Kenilworth Aquatic Gardens
7. Venn Diagram

Background

- Water -related ecosystems include those with fresh water or salt water. Examples include ponds, marshes, swamps, streams, rivers, and oceans.
- Dry-land ecosystems include deserts, grasslands, rain forests, and forests.
- There are distinct differences among pond, marshland, swamp, stream, river, ocean, desert, grassland, rainforest, and forest ecosystems.
- A population is a group of organisms of the same kind that lives in the same place. Examples of a population are a flock of swans in a pond, a school of fish in a river, and a herd of cattle in the grassland.
- A community is all of the populations that live together in the same place. An example of a dry-land community would be a forest made up of trees, squirrels, worms, rabbits, and hawks. An example of a water-related community would be an ocean made up of fish, crabs, and seaweed.
- At the Kenilworth Aquatic Gardens it is easy to see and explore the different pond, marsh, river, and forest habitats.

Procedures/Activities

Prior to the trip to the Kenilworth Aquatic Gardens:

1. Begin a discussion with the students about the different places where animals and plants make their homes. Guide the discussion to ecosystems such as forests, deserts, etc. As students offer their ideas, begin recording a list of those places. Using a globe, ask students if they think there are other places in the world where plant and animals make their homes, lead the discussion to the different types of water ecosystems, such as oceans, lakes, ponds, etc.
2. Introduce the definition of the word ecosystem and discuss how ecosystems can be divided into water and land ecosystems. Have the class sort the different ecosystem names recorded in the class generated list into two groups, under the headings water and land ecosystems.
3. Introduce the word diversity and discuss its meaning. Select one type of ecosystem that you will use to model the lesson to the class. Begin by reading a book aloud (either one of the suggested books for this lesson, or books available to you in your classroom or school library) and identifying the different types of life (plants and animals) found in your ecosystem. Mark each important fact (plant or animal types) that you find with a sticky note in the book.
4. Using a blank Ecosystem Recording Sheet (provided), model how you would transfer the information written on your sticky notes into the graphic organizer. Write the important information under the correct headings using numbered or bulleted lists.
5. Using books, either some of the suggested books for this lesson, or books available to you in your classroom or school library, students will begin to explore different types of plants and animals that they see living in different types of ecosystems. Split the class into groups of 3 -4 students. Have each group read a book (or several books) with examples of the types of plants and animals that live in one specific ecosystem (ie - one group reads about deserts, one group about rainforests, etc). These will become your *Expert Groups*. As students read/look at the pictures of the books, they will keep track of different types of animals and plant life that lives in their particular ecosystem. **The standard does not focus on the specific names of plants and animals living in different habitat, rather it focuses on the diversity present in those habitats.* Students should mark/tag the pages that show specific animals or plants with sticky notes and write the name of the particular plant or animal on that sticky note.

6. Groups will then transfer their notes into one row of the Ecosystem Recording Sheet about the diversity of life in their particular ecosystem. This information will be used to teach the other students in their class about the facts that they learned.

7. Divide your class into groups again; each group should include one expert from each different habitat. Each expert will present the information they learned about the different types of plants and animals they found living in their specific ecosystem to their group. As they present to their group, the other students should take notes, filling in the remaining parts of the Ecosystem Recording Sheet with the information being presented by their classmates.

8. After everyone presents, lead a whole group discussion about the big idea of how diverse life is in each ecosystem. Discuss how some ecosystems have several habitats in them (ie - a forest can have land animals that live in trees and water animals that live in rivers, and animals that use both).

During the field trip at Kenilworth Aquatic Gardens:

1. Come to the Gardens for a tour of the ponds, wetlands and/or forest. As students go on their tour, stop in several locations to discuss what type of habitat the students think they are in and justify their answer by explaining how they know. Give the students time to point out the different types of plants they see, animals they may find and sources of water that exist.

2. *If possible*, have students use cameras to take photographs of different types of plants they observe. Instruct them to take photos of a variety of different types of plant (and, if possible, animal) life. If cameras are not available to you, have the students bring their science notebooks or small books of white paper that they could use to sketch/list the different types of plants and animals they observe in each habitat.

3. As you go on your tour and students take notes, be sure to remind students to identify which habitat they think they are in at the time and to label their pictures/lists with the name of the habitat.

After the trip to the Kenilworth Aquatic Gardens:

1. Now it's time to design! Have students review the notes that they took prior to their trip and during their trip to the Aquatic Gardens. In a class discussion, compare the types of plants and animals that they were able to observe. Review the concept that diversity of life was observable both in reading about ecosystems and visiting a habitat.

2. Using a variety of different types of materials for students to use to create a model of one particular type of ecosystem. Students can choose from the ecosystem in which they were the expert, one they learned about from another expert, or the habitats from the Aquatic Gardens. Students should create their own model, including some examples of plants and animals found in those places. **Here you can have students create dioramas, drawings, pop-up books, clay figures or any other variety of models.*

3. Once all the models are completed, students will choose two ecosystems to do a comparison. Using a Venn Diagram, students will record what they have learned about two different ecosystems (of their choice). They should explain what is similar and what is different about the two ecosystems.

Assessment

Notes recorded in expert groups, information collected during the field trip, notes taken in Venn Diagram to compare two different ecosystems.

Diversity in Ecosystems

Ecosystem Name	Is it wet or dry or both?	Names of some animals who live here	Names of some plants who live here	Other Interesting Facts

Links to Next Generation Science Standards

For more information: <http://nstahosted.org/pdfs/ngss/20130509/topic-grouped/2ndGrade.pdf>

2. Interdependent Relationships in Ecosystems

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<p>Students who demonstrate understanding can:</p> <p>2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. [Assessment Boundary: Assessment is limited to testing one variable at a time.]</p> <p>2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.*</p> <p>2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats. [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]</p> <p>The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i>.</p>		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2) <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1) Make observations (firsthand or from media) to collect data which can be used to make comparisons. (2-LS4-1) <p style="text-align: center;">-----</p> <p style="text-align: center;"><i>Connections to Nature of Science</i></p> <p>Scientific Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. (2-LS4-1) 	<p>LS2.A: Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> Plants depend on water and light to grow. (2-LS2-1) Plants depend on animals for pollination or to move their seeds around. (2-LS2-2) <p>LS4.D: Biodiversity and Humans</p> <ul style="list-style-type: none"> There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) <p>ETS1.B: Developing Possible Solutions</p> <ul style="list-style-type: none"> Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary to 2-LS2-2) 	<p>Cause and Effect</p> <ul style="list-style-type: none"> Events have causes that generate observable patterns. (2-LS2-1) <p>Structure and Function</p> <ul style="list-style-type: none"> The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2)
<p><i>Connections to other DCIs in second grade: N/A</i></p> <p><i>Articulation of DCIs across grade-bands: K.LS1.C (2-LS2-1); K.ESS3.A (2-LS2-1); K.ETS1.A (2-LS2-2); 3.LS4.C (2-LS4-1); 3.LS4.D (2-LS4-1); 5.LS1.C (2-LS2-1); 5.LS2.A (2-LS2-2); (2-LS4-1)</i></p> <p><i>Common Core State Standards Connections:</i></p> <p><i>ELA/Literacy –</i></p> <p>W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1),(2-LS4-1)</p> <p>W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS2-1),(2-LS4-1)</p> <p>SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2)</p> <p><i>Mathematics –</i></p>		