

# Studying Habitats

## Lesson Plan

**Grade Level:** 3-5

**Curriculum Focus:** Ecosystems and Biomes

**Lesson Duration:** Three class periods

### *Student Objectives*

- Study examples of different habitats, each of which has distinct features and distinct plant and animal populations.
- Complete a research project on one type of habitat.

### *Materials*

- Discovery School video on *unitedstreaming: Habitats of the World*  
Search for this video by using the video title (or a portion of it) as the keyword.

Selected clips that support this lesson plan:

- Grasslands
- Temperate Forest
- Tropical Rainforest
  
- Research materials on various habitats
- Computer with Internet access
- Various materials needed by groups for their specific projects (see Procedures)

### *Procedures*

1. Tell students they are going to form groups to research different habitats of the world. On the chalkboard, write the names of the different habitats students will investigate: grasslands (or savanna), temperate forest, tropical rain forest, desert, polar ice, tidepools. Then divide your class into six groups, assigning each group one of those habitats to research.
2. To begin, each group will produce a report on its habitat including the following information:
  - A physical description of the habitat
  - Examples of the habitat (geographical locations)
  - Examples of animals and plants that live in the habitat

3. In addition, each group will be given a specific project that will require the group to show how the animals in the assigned habitat are adapted for life there. Following are projects for each group:
- Grasslands (savanna): Research the speeds of animals that live in the African grasslands. Project: Create a display that compares the different speeds of these animals. Write an explanation for why speed is important for survival in the grasslands. (There are few trees or places for animals to hide in grasslands habitats. Therefore, speed is important for both predators that are hunting and animals that are fleeing predators.)
  - Temperate forest: Explain to students that in the winter, less water is available for trees to take in through their roots, because much of the water in the ground is frozen. Since trees lose water through their leaves, losing leaves is a way for a tree to conserve water. Coniferous trees do not lose nearly as much water through their needles as deciduous trees lose through their leaves. Project: Put a twig from a coniferous tree (cone-bearing tree with needles instead of leaves) in a cup of water, and tightly fasten a clear plastic bag around its needles. Put a twig from a deciduous tree (leafy tree that loses its leaves in the fall) in a cup of water, and tightly fasten a clear plastic bag around the leaves. Observe what happens. Draw pictures and write an explanation for what you observed. (There will be more water droplets on the inside of the bag covering the leaves, showing that leaves lose more water than do needles.)
  - Tropical rain forest: Describe the three main levels of the rain forest—canopy, understory, and forest floor. Project: Make a diagram or model showing examples of animals and plants that live on each level. Choose an animal or plant from each level and explain how it is adapted to its particular place in the tropical rain forest. (Canopy examples: monkeys can use arms and legs and sometimes even tails to swing from branch to branch; birds such as parrots have specialized feet with two curling front toes and two curling back toes to help them hang on to branches. Understory example: snakes such as boa constrictors spend their days curled around branches or vines. Forest floor example: jaguars' spots help them to be better hunters by making them hard to see among the speckled shadows of the rain forest floor.)
  - Desert: Choose a desert animal or plant. Project: Make a model of it, draw it, or describe it. Explain how it is particularly well adapted to survive in a place where there is very little water. (Plant example: the saguaro cactus has an expanding trunk that allows it to take in a great deal of water when water is available. The saguaro has stored-up water during the long desert dry periods. Animal examples: many desert animals dig burrows in the sand to stay cool in the intense heat; many desert animals sleep during the day and are active at night, when the temperature is lower.)
  - Polar ice: Research both the polar bear (North Pole) and the penguin (South Pole). Project: Draw or make a model of each animal. For each animal, explain at least three ways—physical or behavioral characteristics—in which it is well adapted for life in a very cold and snowy climate. (Polar bear examples: two layers of fur and an extra layer of fat under its skin keep it warm; ears are very small so that very little heat can escape from them; paws are huge to help spread out its weight over the snow and keep it from sinking in; it builds

snow dens to keep its babies warm in winter; it has white fur that helps it blend in to its surroundings.)

- Tidepool: Explain how a tidepool is formed, and describe several animals that are found in tidepools. Project: Make two models of a tidepool—one at high tide and one at low tide. Use sand, rocks, salt water, and other materials (e.g., modeling clay) for your models. Draw at least three tidepool animals and explain how they survive in a constantly changing habitat (sometimes wet, sometimes dry). (Examples: periwinkles, limpets, and barnacles attach themselves to rocks by suction so they will not be swept away when the tide goes out; the incoming tide brings food to clams, oysters, and mussels—all they have to do is open up their shells and tiny bits of animals and plants flow in.)
4. Give students one class period to research information for their reports and assignments, and at least one more to complete their assigned projects.
  5. When students have completed their assignments, have each group present its project to the class.

### **Discussion Questions**

1. Compare a cheetah to a top athlete. In what types of sports would cheetahs excel?
2. Many trees grow in the temperate forest. Talk about several ways in which the animals that live in the temperate forest depend on trees.
3. The tropical rain forest is home to more species of animals than any other habitat, and yet the rain forest is in danger because so many rain-forest trees and other plants are needed for many products we use. Can you devise a plan to preserve the rain forest without depriving human beings of products on which they depend?
4. Humans, as well as animals, live in the desert. Compare and contrast the ways in which humans and animals have adapted to life in this habitat.
5. Many scientists believe that, as a result of global warming, the polar ice cap is beginning to melt. Discuss what the effects that the melting of the polar ice cap might have on the rest of the world. Can anything be done to stop or slow down the process of global warming?
6. Imagine that you are a tidepool animal, and describe a day in your life in the tidepool. What difficulties do you have to overcome? What are the positive aspects of life in a tidepool?

### **Assessment**

Use the following three-point rubric to evaluate students' work during this lesson.

- 3 points: Students fulfill all requirements of assignment; project carefully prepared; group works well together; presentation well organized.
- 2 points: Students fulfill most requirements of assignment; project satisfactorily prepared; group works well together most of the time; presentation satisfactory.
- 1 point: Students fulfill few requirements of assignment; project carelessly prepared; group has problems working together; presentation disorganized.

## Vocabulary

### **canopy**

*Definition:* The thick layer of leaves at the top of trees in the rainforest.

*Context:* Many rainforest animals live in the canopy.

### **carnivores**

*Definition:* Animals who eat flesh.

*Context:* In the grasslands of the Serengeti, you will find animals that are carnivores, herbivores, and scavengers.

### **circulate**

*Definition:* To move in a circle, circuit, or orbit.

*Context:* The cooler air and water from Antarctica circulate around the globe, helping to regulate the temperatures of the whole Earth.

### **decomposes**

*Definition:* Rots and decays; breaks down into smaller pieces.

*Context:* When a tree or plant dies naturally in the forest, it decomposes.

### **evaporates**

*Definition:* Changes into vapor, removes, dissolves, or disappears.

*Context:* When it doesn't rain for months at a time in the marshes, much of the water evaporates and many of the plants die.

### **herbivores**

*Definition:* Animals who eat plants.

*Context:* In the grasslands of the Serengeti, you will find animals that are carnivores, herbivores, and scavengers.

### **peninsula**

*Definition:* An area of land surrounded on nearly all sides by water.

*Context:* The Olympic Peninsula in Washington state receives about 12 feet of rain each year.

## Academic Standards

### **National Academy of Sciences**

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K-12. To view the standards, visit <http://books.nap.edu>.

This lesson plan addresses the following science standards:

- Life Science: Diversity and adaptations of organisms; populations and ecosystems



### **Mid-continent Research for Education and Learning (McREL)**

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit <http://www.mcrel.org/compendium/browse.asp>.

This lesson plan addresses the following national standards:

- Science – Life Science: Understands the structure and function of cells and organisms.
- Science – Life Science: Understands relationships among organisms and their physical environment.
- Geography – Physical Systems: Understands the characteristics of ecosystems on Earth's surface.

### **Support Materials**

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>