



Biomes: *Discussion Guide*

Overview

Despite their frequent use as synonyms, the terms “biomes” and “habitats” are not identical concepts. A habitat is the place or environment where a plant or animal species lives—it can be characterized by its temperature, moisture, light, and other environmental factors.

A biome, though, is a major community of plants and animals interacting with the environment in which they live. Deserts, grasslands, and rain forests, including the plants and animals that live in these habitats, are all examples of biomes. Even though identical collections of plants and animals do not exist in every biome location, the defining characteristics of a biome are the same around the globe. In different parts of the world, for example, the desert biome can—and most often will—contain different species. However, the desert biome is characterized as being a place with little rain and few plants. All the creatures that live there must be able to survive under these harsh conditions.

To help your students explore the Earth’s biomes, use this discussion guide and related videos and activities

Classroom Discussion

1. Show the segment “Introduction to Ecology: Ecosystems and Biomes” from the *Life Science: Ecology* video.
 - **Vocabulary:** The video defines ecosystems as self-contained environments that have their own local environmental conditions such as temperature, wind, and rain. It goes on to define biomes as larger areas of linked ecosystems with shared characteristics. Ask students to explain the difference between the two terms, using specific examples of ecosystems and biomes that can be found on earth. *NOTE:* Depending on your classroom materials, you may also want to explain or clarify that “habitat” is the place or environment where a plant or animal species dwells—meaning, habitat is part of the definition for both ecosystems and biomes.
 - **Research:** In the video, students learn that “Nothing exists on its own. Change one part of a given ecosystem, and the rest of the ecosystem gets disrupted. A ripple effect is created that often extends to other environments.... Ecology tells

- us our actions have consequences, not only for us, but for every other living organism that shares the planet with us.” Assign student groups to research the consequences of human activities on various ecosystems. Potential topics include suburban growth, logging in the world’s rain forests, and oil exploration. Ask students to report on both the pros and cons of the activity.
2. Show the segment “Adapted Against the Desert’s Heat: Bactrian Camels and Great Gerbils” from the *Biomes: Adapting to Deserts and Other Ecosystems* video. (Access to *unitedstreaming* is required.)
 - **Discussion:** What adaptations help Bactrian camels live in the desert? Name some animals that clearly couldn’t survive the desert’s harsh extremes, explaining why they are poorly suited for the environment.
 - **Activity:** If students were going to travel by camel through the Gobi for a week, what supplies would they need? Have small groups of students create packing lists, dividing the items into “must haves” and “nice to haves.” Make sure that students include how much they will need of each item. For example, how much water would they need for each person and animal.
 3. Show the segments “The Inuit Way of Life” and “Inuit Hunting and Fishing” from the *Biomes: Land of the Inuit* video. (Access to *unitedstreaming* is required.)
 - **Vocabulary:** Using the information on environmental conditions and species given, ask students to determine which biome the Inuit inhabit.
 - **Activity:** Have students create a chart showing the dependence of the Inuit on their ecosystem in which they live. Encourage students to include examples related to food, clothing, and shelter.
 - **Writing:** Ask students to consider how they are much less dependent on their immediate environment for food, clothing, and shelter than the Inuit. What would their lives be like if, like the Inuit, they depended exclusively on local resources? What would they eat? Where would they live? How would they heat their homes? How would they get from place to place? What clothes would they wear? Have students write a one-page essay describing a typical day under these imagined conditions.
 4. Show the longer segment “Changes in the Climate” from the *Biomes: Land of the Inuit* video. (Access to *unitedstreaming* is required.)
 - **Discussion:** Ask students to consider changes the Inuit have seen in the past 40 or so years in their climate and environment? Discuss the consequences of these changes?
 - **Research:** Have students investigate the causes of global climate change as well as the ocean and wind currents that bring so many contaminants to the Arctic. Which nations produce the most greenhouse gas emissions? What is the Kyoto

Protocol? Why is it controversial? The following Web sites are good starting points for students.

- Environmental Protection Agency's Global Warming Kids Site
<http://www.epa.gov/globalwarming/kids/>
- Natural Resources Defense Council's look at climate change
<http://www.nrdc.org/globalwarming/>
- Marian Koshland Science Museum of the National Academy of the Sciences' Global Warming Facts & Our Future
<http://www.koshland-science-museum.org/exhibitgcc/index.jsp>
- World Wildlife Fund's look at climate change
<http://worldwildlife.org/climate/index.cfm>
- **Debate:** Divide the class into two teams—one to debate reasons why the U.S. should join in Kyoto and one to argue the status quo. Give each team time to research and prepare its arguments. Then hold a classroom debate.

Academic Standards

This discussion guide addresses the following national standards:

National Science Education Standards

<http://books.nap.edu/html/nses/html/overview.html#content>

- Life Science: Populations and Ecosystems, Diversity and Adaptations of Organisms
- Earth and Space Science: Structure of the Earth System
- Science in Personal and Social Perspectives: Populations, Resources, and Environments
- Science as Inquiry: Understanding About Scientific Inquiry

Mid-continent Research for Education and Learning (McREL)

<http://www.mcrel.org/compendium/browse.asp>

- Science
 - Life Sciences: Understands relationships among organisms and their physical environment
 - Nature of Science: Understands the nature of scientific knowledge, Understands the nature of scientific inquiry
 - Geography
 - Places and Regions: Understands the human and physical characteristics of place

- Environment and Society: Understands how human actions modify the physical environment
- Language Arts
 - Viewing: Uses viewing skills and strategies to understand and interpret visual media
 - Writing: Uses the general skills and strategies of the writing process, Gathers and uses information for research purposes
 - Listening and Speaking: Uses listening and speaking strategies for different purposes