

# Biomes of the World

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**Strands** Life Systems; Ecosystems

**Topic** Investigating adaptation and change

**Primary SOL** LS.9 The student will investigate and understand how organisms adapt to biotic and abiotic factors in an ecosystem. Key concepts include

- differences between ecosystems and biomes;
- characteristics of land, marine, and freshwater ecosystems; and
- adaptations that enable organisms to survive within a specific ecosystem.

**Related SOL** LS.4 The student will investigate and understand how organisms can be classified. Key concepts include

- the distinguishing characteristics of domains of organisms.

LS.6 The student will investigate and understand that organisms within an ecosystem are dependent on one another and on nonliving components of the environment. Key concepts include

- interactions resulting in a flow of energy and matter throughout the system;
- complex relationships within terrestrial, freshwater, and marine ecosystems; and
- energy flow in food webs and energy pyramids.

LS.8 The student will investigate and understand interactions among populations in a biological community. Key concepts include

- the relationships among producers, consumers, and decomposers in food webs.

## Background Information

A *biome* is a geographic area with certain unique characteristics and unique animal and plant communities. Biomes contain smaller *ecosystems*. Rainfall and temperature, as well as species of organisms, are the main factors that determine the type of biome found in a specific region. This activity is meant to be a culminating activity for students. After defining *biome* and *ecosystem* and the relationships that occur in each, students will prepare a graphic organizer and poster.

## Materials

- Access to Internet, other resources, and world map
- Copies of the attached “Biomes Graphic Organizer” and “Checklist for Biome Poster”
- Poster board
- Markers, colored pencils, or crayons

## Vocabulary

*abiotic factors, adaptations, biome, biotic factors, carnivore, climate, community, consumers, decomposers, desert, ecosystem, food pyramid, food web, forest, freshwater environments,*

*grassland, habitat, herbivore, marine environments, omnivore, population, producers, terrestrial environments, tundra*

### **Student/Teacher Actions (what students and teachers should be doing to facilitate learning)**

1. Distribute copies of the two attached handouts. Have students use the Internet and/or other resources to research and complete the “Biome Graphic Organizer.” Students may be placed in smaller groups to research one specific biome. These groups may then report their findings to the entire class so that all students may fill in the organizer.
2. Next, have students choose one biome for the subject of a poster. Students may work in groups and create one specific biome poster for each group. Students should include the information from the graphic organizer and checklist on the poster. Students should also illustrate a food web or food pyramid from the particular biome.
3. Ask students to present their posters to the class.

### **Assessment**

- **Questions**
  - What is the difference between an ecosystem and a biome?
- **Journal/Writing Prompts**
  - Give examples of the major biomes. Identify characteristics of each.
  - Give an example of a plant or animal species from a particular biome. Have students explain how the organism’s adaptations help it survive in the biome.
- **Other**
  - Instead of having students make biome posters, have them design travel brochures for a particular biome including all of the information from the “Biome Graphic Organizer.”

### **Extensions and Connections (for all students)**

- Ask students to select a specific plant or animal from a particular biome for more research. Students should investigate adaptations that help the organism survive in the environment.

### **Strategies for Differentiation**

- Have students describe an imaginary organism with several adaptations that could live in a particular biome.
- Have students create a presentation with slideshow software to share with the class.

# Biomes Graphic Organizer

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Use the Internet and/or other resources to complete the following chart.

<b>Characteristics</b>	<b>Forests (temperate, coniferous, tropical)</b>	<b>Grasslands</b>	<b>Deserts</b>	<b>Tundra</b>	<b>Marine (saltwater)</b>	<b>Freshwater</b>
<b>Rainfall</b>						
<b>Temperature</b>						
<b>Climate</b>						
<b>Abiotic factors</b>						
<b>Examples of animal adaptations</b>						
<b>Examples of plant adaptations</b>						
<b>Location</b>						
<b>Natural or human factors that can or are affecting this biome</b>						

# Checklist for Biome Poster

Name: \_\_\_\_\_ Date: \_\_\_\_\_

- 5 = Superior
- 4 = Excellent
- 3 = Good
- 2 = Fair
- 1 = Present but poor quality
- 0 = Not present

- \_\_\_\_\_ Biome characteristics from Graphic Organizer are included.
- \_\_\_\_\_ Illustrations of biotic and abiotic factors are included.
- \_\_\_\_\_ Illustration and explanation of animal adaptations are included.
- \_\_\_\_\_ Illustration and explanation of plant adaptations are included.
- \_\_\_\_\_ Illustration of food web or food pyramid is included.
- \_\_\_\_\_ Spelling is correct.
- \_\_\_\_\_ Poster is colorful and neatly done.
- \_\_\_\_\_ Presentation of poster