



## LESSON OBJECTIVE

- To understand the different biomes and the relationship biomes have with ecosystems and habitats.

## GRADE

- 6

## STANDARDS

- Social Studies

## TIME REQUIRED

- 45-60 min

## VOCABULARY

- Biome
- Ecosystem
- Habitat

## MATERIALS

- Scissors
- Colored pencils or crayons
- Computers for extending the lesson

## RECOMMENDED ASSESSMENT

- Student worksheet

## Introduction

Students will learn the difference between biomes, ecosystems, and habitats and compare examples from America and Europe. They will create a pictorial representation of what they have learned, which will then be used as a class-wide matching game.

## State Standards

- 6.3.1: European and Americas countries and capitals
- 6.3.8: Describe and compare biomes of Europe and Americas

## Lesson Plan

### Background Knowledge –

Have students review the 7 continents.

### Activity –

1. There are more than a dozen ways to classify biomes, but one thing all methods have in common is that biomes are classified by climate, which affects the biodiversity (number of plant and animal species). Review the basic biomes with students:

- Tundra – a vast, flat, treeless Arctic region in which the subsoil is permanently frozen. Winters are long, dark, and cold. There is low biodiversity.
- Taiga (boreal forest) – an evergreen forest with a cold climate and low precipitation. It is often called a snow forest. Most animal life practices hibernation, migration, or adapts by developing winter coats of fur.
- Temperate Forest – forests that experience all four seasons and substantial rain, with trees that lose leaves in the fall, rich soil, and abundant plant and animal life.
- Tropical Rainforest – a hot, moist forest where it rains all year. Vegetation is dense and forms layers. Biodiversity is high.
- Grassland – open and continuous, fairly flat areas of grass. Rainfall and soils are insufficient to support significant tree growth. Animal life consists of mammals living in herds.
- Savanna – also known as tropical grasslands, these areas have scattered trees and are warmer than other grasslands. Animals have long legs and live in groups to escape from predators.
- Desert – hot during the day and cold at night, these areas are dry and lack biodiversity. Animal life have adapted to go long periods of time with no water.

- Aquatic (freshwater and marine) – freshwater biomes consist of lakes, streams, and ponds while marine biomes consist of saltwater regions like oceans, estuaries, and lagoons.
2. Have students complete the first two pages of the student worksheet.
    - a. The first page is labeling the biomes and looking at patterns of where those biomes are in the world. Students will answer the questions in the space provided.
    - b. On the second page they will be designing an icon for each biome. Have them imagine that this icon will be on a tablet that people can click on to get more information about each biome. The icon needs to be simple but also clearly representative of each biome.
  3. Split students into groups of about 5. Project or write on the board the definitions for biomes, ecosystems, and habitats (page 3 of this lesson). Students will be drawing a biome, an ecosystem and a habitat that would exist inside of it. Each student in the group should start with a different biome.
  4. When they are done constructing, they will mix up their group's pieces, trade with another group, and race to reassemble the pieces of the other group.

### Post Activity –

Biome Speed Dating! Have each student personify a specific biome. They will have 2 minutes to talk to a partner and try to guess their biome. Only indirect questions are allowed!

- Where are you from? (where biome is found)
- Tell me about your family. (species diversity – plants, animals, etc.)
- Hobbies? (animal adaptations)
- Describe your personality. (climate – rainfall, temperature, etc.)
- What's going on in your life right now? (changes, human impacts, etc.)
- What's your favorite thing about yourself? (unique features of your biome)

### Discover Further

#### Extending the Lesson –

Take a 360 Virtual Tour of the biomes! (VR goggles are not necessary; a computer screen works just fine.) <https://askabiologist.asu.edu/explore/Virtual-360-Biomes>

Build a Biome is an excellent interactive tool for students to learn more about the characteristics of each biome and test their understanding. <https://switchzoo.com/bb/>

NASA's Mission: Biomes is another great resource. <https://earthobservatory.nasa.gov/biome>

#### Learn More –

7 of the 8 main biomes in this lesson can be found at the Zoo! Come and watch the antics of our freshwater river otters, relax next to the taiga lynx, hop alongside the savanna-loving kangaroos, crawl along next to the desert tortoises, admire the stripes on a grassland zebra, walk next to forest peafowl and hawks, and explore the Indonesian Rainforest Dome.

Directions for biomes, ecosystems, and habitats matching race:

**Biome:** a large area characterized by its vegetation, soil, climate, and wildlife that is adapted to survive in that specific region.

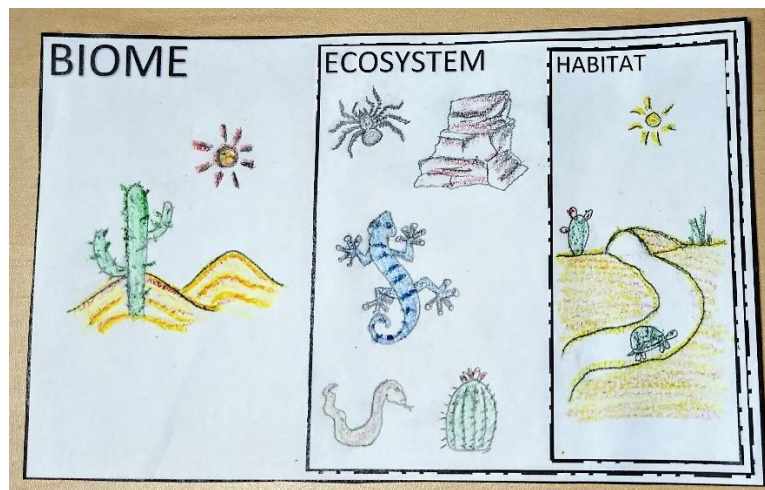
1. Each person in your group will choose a different biome. In the box labeled "Biome", draw and color your biome's icon.

**Ecosystem:** the interaction of the living and non-living components of the environment. A biome can have many ecosystems within it.

2. In the box labeled "Ecosystem", draw and color some of the living organisms and aspects of the non-living environment that would exist there. For example, if my biome is desert, my ecosystem might have scorpions, cacti, rocks, and the hot sun pictured.

**Habitat:** the area in which a specific species lives. A habitat has everything the animal needs to survive and can be almost as big as the ecosystem or as small as a single tree.

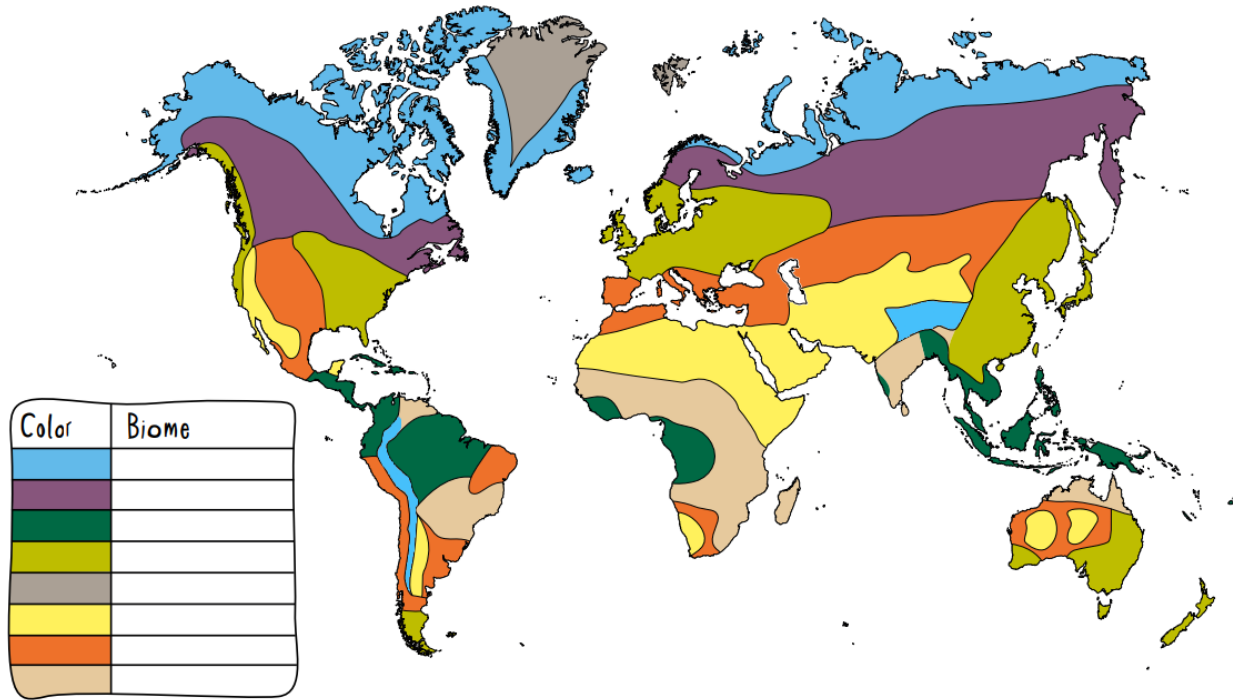
3. In the box labeled "Habitat", draw and color the natural home of one specific species that would be found there. Make sure your habitat has everything the animal needs to survive: food, water, shelter, and space!
4. Cut out the boxes on the dark black lines and stack them so that they show that a habitat is part of an ecosystem, and an ecosystem is part of a larger biome.
5. Deconstruct and mix up your pieces from each member of your group. Trade with another group and have a race to see who can reconstruct the biomes, ecosystems, and habitats of the other group!





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

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



1. Fill out the map key using this word bank: Polar Ice Cap, Tundra, Taiga, Temperate Forest, Grassland, Savanna, Desert, Tropical Rainforest
2. What biomes exist in North America?
3. What are the similarities between the biomes in North America and Europe?
4. What are the differences between the biomes in North America and Europe?
5. Put a star where you are on the map. What is a country in Europe with the same biome? Put a star on it too.



## *Beautiful Biomes*





**Biome:** a large area characterized by its vegetation, soil, climate, and wildlife that is adapted to survive in that specific region.

**MAKE AN ICON:** An icon is a literal, visual representation of the thing it represents. For each biome, draw and color a representation of it in the box. Do your best to illustrate that the desert is hot, that the tundra is cold, etc. Your icon for each biome should make it distinguishable from the other biomes!

Tundra: flat and cold, some shrubs, small mammals tunnel in the snow

Taiga: coniferous (evergreen) trees, long and cold winters, most animals migrate or hibernate

Temperate Forest: a forest with four distinct seasons and trees that lose their leaves in the fall

Tropical Rainforest: warm and wet, lots of trees and animals, lots of rain

Grassland: short to tall grasses with no trees, large mammals travel in herds

Savanna: tropical grasslands that have some scattered trees, animals have long legs for running

Desert: hot and dry, mostly reptiles and animals that burrow underground

Aquatic (freshwater or marine): water biomes like lakes, streams, or the ocean



HABITAT

ECOSYSTEM

HABITAT

BIOME

ECOSYSTEM