

Section 1.1.

Biomes.

Textbook pages 8 to 33.

Before You Read.

A biome includes large regions that have similar living and non-living components. Tundra and desert are two examples of biomes. What other biomes can you name?

What is a biome?

The biosphere is the thin layer of air, land, and water on or near Earth's surface where living things exist. A **biome** is the largest division of the biosphere. Biomes are characterized by their **biotic** (living) and **abiotic** (non-living) components.

What are the Earth's biomes like?

Earth has eight terrestrial (land-based) biomes.

tundra.

- located in the upper northern hemisphere; very cold and dry.
- due to permanently frozen soil, plants are short and there are few trees.

boreal forest.

- found in the far north; below freezing half the year.
- mainly coniferous (cone-bearing) trees.

temperate deciduous forest.

- located in temperate regions, mostly eastern North America, eastern Asia, and western Europe.
- trees lose their leaves in winter.
- large seasonal changes with four distinct seasons.

temperate rainforest.

- found along coastlines where ocean winds drop large amounts of moisture.
- cool and very wet, allowing trees (mainly evergreens) to grow very tall.

grassland.

- occurs in temperate and tropical regions.
- covered with grasses that have deep roots, which are well adapted for drought.

tropical rainforest.

- found in a wide band around the equator.
- wet and warm year-round, allowing for the growth of a dense canopy of tall trees.

desert.

- occur in temperate and tropical regions; days are hot and nights are cold.
- rainfall is minimal and plants and animals are adapted to reduce water loss.

permanent ice.

- includes the polar land masses and large polar ice caps.
- the few animals that live here are well insulated against the extreme cold.

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How do abiotic factors influence the characteristics and distribution of biomes?

Identical biomes are found in different parts of the world. These biomes all have similar plants and animals (biotic factors) because they have similar temperatures and precipitation patterns (abiotic factors). Temperature and precipitation are the main abiotic factors that influence the characteristics and distribution of biomes. The following factors influence temperature and precipitation:

- latitude.
- elevation.
- wind.
- ocean currents.

What are climatographs?

Climate is the average pattern of weather conditions that occur in a region over a period of years. Temperature and precipitation are two important factors that determine climate. A **climatograph** is a graph of climate data for a specific region. A climatograph gives average temperature and average total precipitation for each month.

How are organisms adapted to the specific conditions of their biome?

Adaptations are characteristics that enable organisms to better survive and reproduce. Organisms are specially adapted for survival in the specific environmental conditions of their biome. There are three types of adaptations:

- **structural adaptations:** physical parts or features of an organism that enable it to survive and reproduce.
- **physiological adaptations:** a chemical or physical event that takes place in the body of an organism to support its ability to survive and reproduce
- **behavioural adaptations:** things that an organism does (ways that it behaves) that enable it to survive and reproduce.

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