

Biomes

Textbook pages 8–33

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?



Make Flash Cards

For each biome, write a question on one side of the flash card. Write the answer on the other side. Quiz yourself until you can answer all the questions.

: 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 Earth's biomes like?

: Earth has eight terrestrial (land-based) biomes.
 :
 :
 :

Biome	Main characteristics
tundra	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ found in the far north; below freezing half the year ■ mainly coniferous (cone-bearing) trees
temperate deciduous forest	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ found along coastlines where ocean winds drop large amounts of moisture ■ cool and very wet, allowing trees (mainly evergreens) to grow very tall
grassland	<ul style="list-style-type: none"> ■ occurs in temperate and tropical regions ■ covered with grasses that have deep roots, which are well adapted for drought
tropical rainforest	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ includes the polar land masses and large polar ice caps ■ the few animals that live here are well insulated against the extreme cold

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.

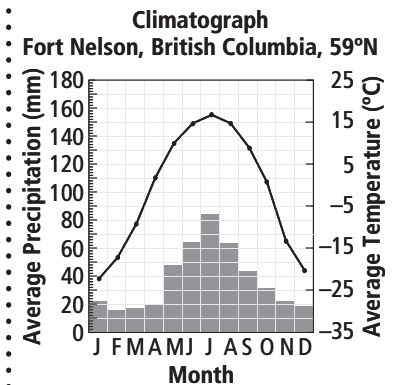
How are organisms adapted to the specific conditions of their biome?

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. ✓

✓ Reading Check

What are the two main abiotic factors that influence the characteristics and distribution of biomes?



✓ Reading Check

List the three main types of adaptations displayed by organisms.

Name _____

Date _____

Use with textbook pages 8–28.

Biomes and ecosystems

Vocabulary

abiotic	latitude
adaptations	ocean currents
behavioural	physiological
biome	precipitation
biotic	structural
climatograph	temperature
elevation	terrestrial

Use the terms in the vocabulary box to fill in the blanks. Use each term only once.

- _____ components are the living organisms in an environment, such as plants, animals, fungi, and bacteria.
- _____ components are the non-living parts of an environment, such as sunlight, soil, moisture, and temperature.
- A _____ includes large regions that have similar biotic components and abiotic components.
- A _____ biome is land-based.
- _____ and _____ are two important abiotic factors that influence the characteristics of biomes and the distribution of biomes on Earth.
- _____ is the distance measured in degrees north or south from the equator.
- _____ is the height of a land mass above sea level.
- _____ are another abiotic factor that affects temperature and precipitation and therefore influences the characteristics of biomes.
- A _____ is a graph of climate data for a specific region and is generated from data usually obtained over 30 years from local weather observation stations.
- _____ are characteristics that enable organisms to better survive and reproduce.
- A _____ adaptation is a physical feature of an organism's body having a specific function that contributes to the survival of the organism. A _____ adaptation is a physical or chemical event that occurs within the body of an organism that enables survival. A _____ adaptation refers to what an organism does to survive in the unique conditions of its environment.

Use with textbook pages 20–28.

Various biomes

Complete the following table, describing the general locations and two to three main physical features of the eight terrestrial biomes.

Biome	Location(s)	Physical features
tundra		
boreal forest		
temperate deciduous forest		
temperate rainforest		
grassland (temperate and tropical)		
tropical rainforest		
desert (hot and cold)		hot desert: cold desert:
permanent ice (polar ice)		

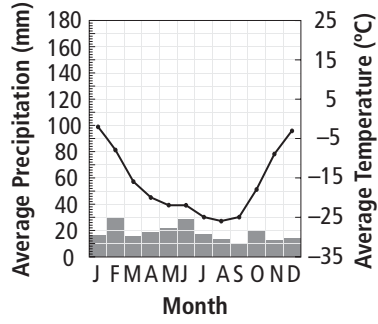
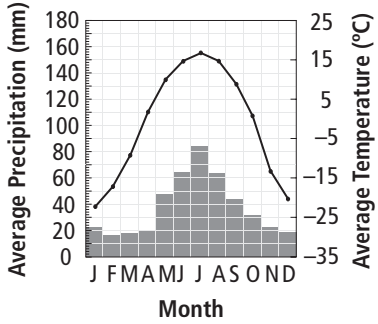
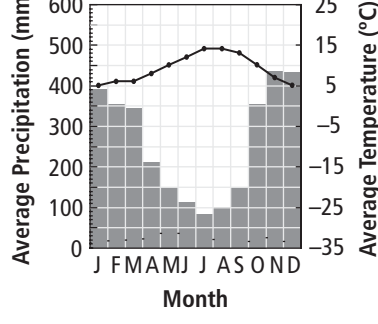
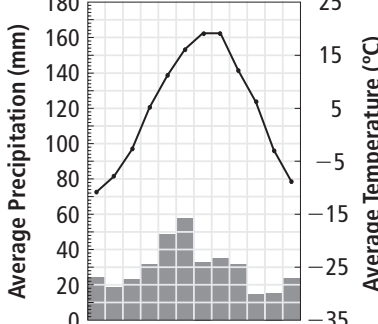
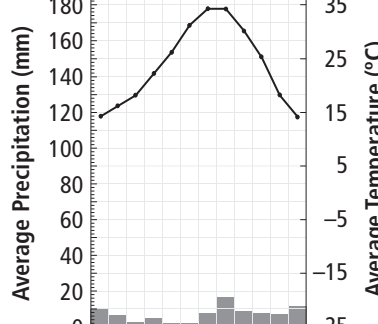
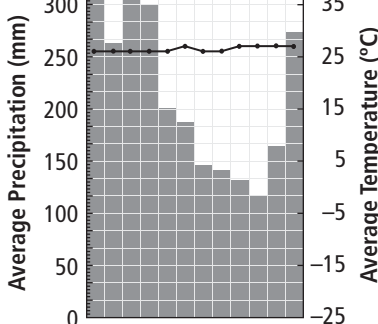
Name _____

Date _____

Use with textbook pages 16–28.

Climatographs

Which world biomes are represented by the data in the following climatographs?

<p>A</p>  <p>Biome: _____</p>	<p>B</p>  <p>Biome: _____</p>
<p>C</p>  <p>Biome: _____</p>	<p>D</p>  <p>Biome: _____</p>
<p>E</p>  <p>Biome: _____</p>	<p>F</p>  <p>Biome: _____</p>

Use with textbook pages 8–28.

Biomes

Match each Term on the left with the best Descriptor on the right. Each Descriptor may only be used once.

Term	Descriptor
1. _____ abiotic	A. the distance measured in degrees north or south from the equator
2. _____ adaptations	B. characteristics that enable organisms to better survive and reproduce
3. _____ biome	C. relating to non-living parts of an environment, such as sunlight, soil, moisture, and temperature
4. _____ biotic	D. relating to the living organisms, such as plants, animals, fungi, and bacteria
5. _____ climate	E. the largest division of the biosphere
6. _____ latitude	F. the average conditions of the atmosphere in a large region over 30 years

Circle the letter of the best answer.

7. A biome is best represented by a:

- A. river
- B. city
- C. latitude
- D. desert

8. Which of the following is an abiotic component of an environment?

- A. algae
- B. sunlight
- C. fungi
- D. plants

9. Which of the following is a biotic component of an ecosystem?

- A. moisture
- B. sand
- C. bacteria
- D. temperature

10. Which of the following is a characteristic of the boreal forest biome?

- A. below freezing half the year
- B. long, hot summers
- C. polar land masses
- D. lots of precipitation

11. Which world biome is represented by a climatograph that illustrates an average precipitation of 300 cm in the month of January?

- A. grassland
- B. tropical rainforest
- C. permanent ice
- D. temperate deciduous forest

12. Which world biome is represented by a climatograph that illustrates an average temperature of -25°C in the month of July?

- A. boreal forest
- B. tropical rainforest
- C. permanent ice
- D. tundra