

Chapter 02 Life on Land

Multiple Choice Questions

1. A biome is characterized primarily by
- A. flora and fauna.
 - B. temperature and moisture.
 - C.** climate and predominate plant types.
 - D. global weather patterns.
 - E. None of the choices are correct.

Bloom's Level: 2. Understand
Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.
Section: 02.03
Topic: Biomes and Ecosystems

2. Earth's climatic variation is due to
- A. the spherical shape of the earth.
 - B. earth's axial rotation as it orbits the sun.
 - C. uneven heating of the earth's surface.
 - D.** All of the choices are correct.
 - E. None of the choices are correct.

Bloom's Level: 2. Understand
Learning Outcome: 02.01.02 Define biome.
Section: 02.01
Topic: Biomes and Ecosystems

3. Which of the following soil horizon profiles is ordered correctly?

- A. A, B, C, O
- B. O, A, B, C**
- C. O, B, A, C
- D. C, B, O, A
- E. None of the choices are correct.

Bloom's Level: 2. Understand
Learning Outcome: 02.02.01 Draw a soil profile, including typical soil horizons.
Section: 02.02
Topic: Biomes and Ecosystems

4. Coriolis effect causes winds in the

- A. Northern Hemisphere to deflect to the left.
- B. Northern Hemisphere to deflect to the right.**
- C. Southern Hemisphere to deflect to the right.
- D. Northern and Southern Hemispheres to deflect to the left.
- E. Northern and Southern Hemispheres to deflect to the right.

Bloom's Level: 2. Understand
Learning Outcome: 02.01.04 Explain the influence of the Coriolis effect on wind direction.
Section: 02.01
Topic: Biomes and Ecosystems

5. All of the following statements concerning wind are true **except**:

- A. northeast trade winds blow toward the poles.**
- B. southeast trade winds blow toward the equator.
- C. polar easterlies blow toward the equator.
- D. westerlies blow toward the south pole in the southern hemisphere.
- E. westerlies blow toward the north pole in the northern hemisphere.

Bloom's Level: 2. Understand
Learning Outcome: 02.01.04 Explain the influence of the Coriolis effect on wind direction.
Section: 02.01
Topic: Biomes and Ecosystems

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6. Warm tropical air

- A. is dense and sinks.
- B. has a low evaporative potential.
- C.** cools as it ascends.
- D. warms as it ascends.
- E. meets cool polar air causing precipitation in the tropics.

Bloom's Level: 2. Understand

Learning Outcome: 02.01.02 Define biome.

Section: 02.01

Topic: Biomes and Ecosystems

7. All of the following statements are true **except**:

- A. A horizon: mixture of organic and mineral materials.
- B. B horizon: deposition of clay and humus.
- C. C horizon: weathered parent material.
- D. O horizon: organic layer.
- E.** All of the choices are correct.

Bloom's Level: 2. Understand

Learning Outcome: 02.02.02 Describe the characteristics of each of the typical soil horizons.

Section: 02.02

Topic: Biomes and Ecosystems

8. Heating of the earth's surface causes

- A. cool air to rise and warm air to sink.
- B.** warm air to rise and cool air to sink.
- C. warm and cool air to condense.
- D. warm and cool air to mix.
- E. None of the choices are correct.

Bloom's Level: 2. Understand

Learning Outcome: 02.01.02 Define biome.

Section: 02.01

Topic: Biomes and Ecosystems

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9. Which soil horizon is most influenced by climate?

- A. A
- B. B
- C. C
- D.** O
- E. All are equally influenced.

Bloom's Level: 1. Remember

Learning Outcome: 02.02.03 Discuss how climate, organisms, topography, parent material, and time can influence soil development and structure.

Section: 02.02

Topic: Biomes and Ecosystems

10. Which of the following terrestrial biomes are maintained by fires?

- A. tropical dry forests
- B. temperate forests and mountains
- C. Mediterranean woodlands and shrublands
- D.** tropical savannas and temperate grasslands
- E. boreal forests and tundra

Bloom's Level: 2. Understand

Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.

Section: 02.03

Topic: Biomes and Ecosystems

11. There are(is) _____ convective air cell(s) per hemisphere, _____ total for the earth.

- A. 1; 2
- B. 2; 4
- C.** 3; 6
- D. 4; 8
- E. 5; 10

Bloom's Level: 4. Analyze

Learning Outcome: 02.01.02 Define biome.

Section: 02.01

Topic: Biomes and Ecosystems

12. Climatic diagrams provide all of the following information **except**:

- A.** wind patterns.
- B. average minimum temperature above and below 0°C.
- C. temperature and precipitation variations.
- D. wet and dry season durations.
- E. None of the choices are correct.

Bloom's Level: 5. Evaluate

Learning Outcome: 02.01.03 Interpret a climate diagram.

Section: 02.01

Topic: Biomes and Ecosystems

13. Most of the earth's deserts are

- A. located at 0° latitude.
- B.** located at 30° north and south latitudes.
- C. located at 60° north and south latitudes.
- D. located at 90° north and south latitudes.
- E. randomly scattered around the earth's surface.

Bloom's Level: 2. Understand

Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.

Section: 02.03

Topic: Biomes and Ecosystems

14. The Northern and Southern Hemispheres receive approximately equal amounts of solar radiation on the

- A. spring equinox.
- B. northern summer solstice.
- C. autumnal equinox.
- D. southern winter solstice.
- E.** both spring equinox and autumnal equinox.

Bloom's Level: 2. Understand

Learning Outcome: 02.01.01 Describe how natural history has helped with restoration of tropical dry forest in Costa Rica.

Section: 02.01

Topic: Biomes and Ecosystems

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15. Tropical dry forests are located between
- A. 0° and 10° north and south latitudes.
 - B. 0° and 25° south latitude.
 - C. 10° and 25° north and south latitudes.**
 - D. 10° and 25° south latitude.
 - E. None of the choices are correct.

Bloom's Level: 2. Understand
Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.
Section: 02.03
Topic: Biomes and Ecosystems

16. All of the following statements are true **except**:
- A. Tropical rain forests are continuously warm and wet.
 - B. Tropical dry forests have rainy and dry seasons.
 - C. In a desert, evaporation exceeds precipitation.
 - D. Taigas have moderate temperatures with occasional droughts.**
 - E. Tundras are cold and dry.

Bloom's Level: 5. Evaluate
Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.
Section: 02.03
Topic: Biomes and Ecosystems

17. All of the following components influence soil structure **except**:
- A. age.
 - B. parent material.
 - C. climate.
 - D. organisms.
 - E. None of the choices are correct.**

Bloom's Level: 2. Understand
Learning Outcome: 02.02.03 Discuss how climate, organisms, topography, parent material, and time can influence soil development and structure.
Section: 02.02
Topic: Biomes and Ecosystems

18. Atmospheric circulation and precipitation patterns are influenced by which of the following?

- A. rising and sinking of warm and cool air masses
- B. uneven heating of the earth's surface and atmosphere by the sun
- C. differential ability of cool and warm air masses to hold water vapor
- D. Coriolis effect
- E.** All of the choices are correct.

Bloom's Level: 2. Understand
Learning Outcome: 02.01.02 Define biome.
Section: 02.01
Topic: Biomes and Ecosystems

19. The _____ is a depositional horizon that contains clays, humus, and other materials which may form distinct banding patterns.

- A. A horizon
- B.** B horizon
- C. C horizon
- D. D horizon
- E. O horizon

Bloom's Level: 2. Understand
Learning Outcome: 02.02.02 Describe the characteristics of each of the typical soil horizons.
Section: 02.02
Topic: Biomes and Ecosystems

20. Which of the following is true for the Palmer Drought Severity Index?

- A. It uses temperature and precipitation to calculate moisture conditions relative to long-term averages.
- B. Negative values reflect drought conditions.
- C. Values near zero reflect average rainfall conditions.
- D. It demonstrates both temporal and spatial climatic variation.
- E.** All of the choices are correct.

Bloom's Level: 5. Evaluate
Learning Outcome: 02.Applications.02 Describe the Palmer Drought Severity Index.
Section: Applications
Topic: Biomes and Ecosystems

21. Which of the following is not a characteristic of the boreal forest?

- A. dominated by evergreen conifers such as spruce and fir
- B. home to moose and migratory caribou
- C. sparse plant cover**
- D. thick layer of plant litter that ties up nutrients
- E. low fertility, thin, acidic soil

Bloom's Level: 2. Understand

Learning Outcome: 02.03.04 Describe the types of vegetation, animals, and other organisms characteristic of the terrestrial biomes.

Section: 02.03

Topic: Biomes and Ecosystems

22. Which of the following biomes have fertile soils that contain large quantities of organic matter?

- A. tropical rain forest
- B. temperate forest
- C. temperate grassland
- D. All of the choices are correct.
- E. both temperate forest and temperate grassland**

Bloom's Level: 2. Understand

Learning Outcome: 02.03.03 Contrast the soils typical of the terrestrial biomes.

Section: 02.03

Topic: Biomes and Ecosystems

True / False Questions

23. Mycorrhizae are parasitic fungi that are depleting tropical trees of nutrients.

FALSE

Bloom's Level: 2. Understand

Learning Outcome: 02.03.04 Describe the types of vegetation, animals, and other organisms characteristic of the terrestrial biomes.

Section: 02.03

Topic: Biomes and Ecosystems

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24. As altitude increases, temperatures decrease, likewise, as latitude decreases, temperatures decrease.

FALSE

Bloom's Level: 2. Understand
Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.
Section: 02.03
Topic: Biomes and Ecosystems

25. Trade winds move toward the equator.

TRUE

Bloom's Level: 1. Remember
Learning Outcome: 02.01.04 Explain the influence of the Coriolis effect on wind direction.
Section: 02.01
Topic: Biomes and Ecosystems

26. In general, warm air can hold more moisture than cool air and therefore has a stronger evaporative effect.

TRUE

Bloom's Level: 2. Understand
Learning Outcome: 02.01.02 Define biome.
Section: 02.01
Topic: Biomes and Ecosystems

27. The dispersal of the quacacaste tree's (*Enterolobium cyclocarpum*) seeds was performed by herbivores that have since become extinct; consequently, the tree is now on the verge of extinction.

FALSE

Bloom's Level: 2. Understand
Learning Outcome: 02.00.01 Describe how natural history has helped with restoration of tropical dry forest in Costa Rica.
Section: 02.00
Topic: Biomes and Ecosystems

28. The precipitation in moist temperate regions is caused by the meeting of cool polar air and warm subtropical air.

TRUE

Bloom's Level: 2. Understand
Learning Outcome: 02.01.02 Define biome.
Section: 02.01
Topic: Biomes and Ecosystems

29. Environments located at low latitudes at high elevations have similar climates as those environments located at high latitudes.

TRUE

Bloom's Level: 2. Understand
Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.
Section: 02.03
Topic: Biomes and Ecosystems

30. Proximity to large bodies of water moderates terrestrial temperatures.

TRUE

Bloom's Level: 2. Understand
Learning Outcome: 02.03.02 Describe the climatic differences among the biomes.
Section: 02.03
Topic: Biomes and Ecosystems

31. In the region between the tropics of Cancer and Capricorn, seasonal variations in temperature and day length at low elevation are slight.

TRUE

Bloom's Level: 2. Understand
Learning Outcome: 02.01.01 Describe how natural history has helped with restoration of tropical dry forest in Costa Rica.
Section: 02.01
Topic: Biomes and Ecosystems

32. A sample mean is a statistical estimate of the true population mean.

TRUE

Bloom's Level: 1. Remember
Learning Outcome: Analyze and Interpret Data.
Section: Investigating the Evidence
Topic: Biomes and Ecosystems

Fill in the Blank Questions

33. Desert soils are often termed _____.

lithosols

Bloom's Level: 1. Remember
Learning Outcome: 02.03.03 Contrast the soils typical of the terrestrial biomes.
Section: 02.03
Topic: Biomes and Ecosystems

Multiple Choice Questions

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34.

Warm air over the equator

A.

rises and moves toward the poles.

B.

cools and sinks over the equator.

C.

rises and absorbs moisture.

D.

absorbs moisture and moves toward the poles.

*Bloom's Level: 1. Remember
Learning Outcome: 02.01.02 Define biome.
Section: 02.01
Topic: Biomes and Ecosystems*

Fill in the Blank Questions

35. Irrigation of desert soils could lead to the formation of _____.
caliches

*Bloom's Level: 2. Understand
Learning Outcome: 02.03.03 Contrast the soils typical of the terrestrial biomes.
Section: 02.03
Topic: Biomes and Ecosystems*