

ES - Chapter 5 Study Guide

Multiple Choice

Identify the choice that best completes the statement or answers the question.

Write the letter that best answers the question or completes the statement on the line provided.

- _____ 1. The process that occurs when physical forces break rock into smaller pieces without changing the rock's chemical composition is called
- a. exfoliation.
 - b. mechanical weathering.
 - c. chemical weathering.
 - d. erosion.
- _____ 2. Which of the following weathering processes involves the constant freezing and thawing of water?
- a. unloading
 - b. exfoliation
 - c. frost wedging
 - d. spheroidal weathering
- _____ 3. The inscriptions on marble gravestones become harder and harder to read over time. This is caused by
- a. frost wedging.
 - b. exfoliation.
 - c. mechanical weathering.
 - d. chemical weathering.
- _____ 4. When a rock is exposed to chemical weathering, it
- a. changes into one or more new compounds.
 - b. breaks into tiny pieces.
 - c. splits.
 - d. loses its outer layers.
- _____ 5. Which of the following is NOT a factor that affects the rate of weathering in rocks?
- a. evolution
 - b. rock characteristics
 - c. climate
 - d. amount of exposed area
- _____ 6. Chemical weathering is highest in areas that are
- a. dry and arid.
 - b. cold and frigid.
 - c. cold and wet.
 - d. very warm and wet.

- ___ 7. Rock features such as the sculpted pinnacles seen in Bryce Canyon National Park are the result of
- a. exfoliation.
 - b. differential weathering.
 - c. chemical weathering.
 - d. uploading.
- ___ 8. Which of the following is NOT a major component of soil?
- a. mineral matter
 - b. humus
 - c. air
 - d. earthworms
- ___ 9. In general, the largest component of bog soils is
- a. water.
 - b. organic matter.
 - c. air.
 - d. living organisms.
- ___ 10. Soil that forms on unconsolidated deposits is called
- a. transported soil.
 - b. residual soil.
 - c. humus.
 - d. bedrock.
- ___ 11. Which of the following statements about soil formation is true?
- a. The longer a soil has been forming, the thinner it becomes.
 - b. Precipitation affects the rate at which nutrients are removed from soil.
 - c. Hot, wet climates produce a thin layer of chemically weathered soil.
 - d. Cold, dry climates produce a thick layer of mechanically weathered soil.
- ___ 12. The main source of organic matter in soil is
- a. water.
 - b. bacteria.
 - c. fungi.
 - d. plants.
- ___ 13. In which of the following areas will soil formation be greatest?
- a. a steep slope in a warm, wet climate
 - b. a flat area in a cold, wet climate
 - c. a flat area in a warm, wet climate
 - d. a north-facing area on a steep slope
- ___ 14. What kind of soil is found in the C horizon of a soil profile?
- a. partially weathered parent material
 - b. clay particles
 - c. hardpan
 - d. mineral and organic matter

- ___ 15. Pedalfer soils would most likely be found
- a. on an island close to the equator.
 - b. in a tropical rainforest.
 - c. in the dry areas of the western United States.
 - d. in the eastern half of the United States.
- ___ 16. Laterite soils contain high amounts of
- a. iron oxide.
 - b. aluminum-rich clay.
 - c. calcium carbonate.
 - d. iron oxide.
- ___ 17. Since humans have been present, the amount of sediments carried by rivers has
- a. increased by a factor of about 2.7.
 - b. increased slightly.
 - c. stayed about the same.
 - d. decreased by about half.
- ___ 18. Which of the following is NOT true about mass movement?
- a. Some mass movement is too slow to be seen.
 - b. Mass movement always leads to landslides.
 - c. Gravity is the driving force behind all mass movements.
 - d. Mass movement is always downslope.
- ___ 19. Oversteepened slopes often lead to mass movements because
- a. the angle of their slope is between 50 and 60 degrees.
 - b. plants cannot grow on them.
 - c. the angle of their slope is less than 50 degrees.
 - d. the angle of their slope is greater than 40 degrees.
- ___ 20. A mass movement that involves the sudden movement of a block of material is called a
- a. rockfall.
 - b. slide.
 - c. slump.
 - d. flow.

Completion

Complete each statement.

Carbon Dioxide	Carbonic Acid	Creep	Deepest	Differential
Earthquake	Hardpan	Loamy	Logging	Mass Movement
Mechanical Weathering	Microorganisms	Pedocal	Plant Growth	Water

21. The process called _____ involves physical forces that break rock into smaller pieces.
22. One cause of chemical weathering is the _____ that dissolves in water and then reacts with many common minerals, forming oxides.
23. _____ weathering happens when different parts of a rock mass weather at different rates.
24. The air component in soil provides plants with the _____ needed for photosynthesis.
25. A(n) _____ soil is made of equal parts of clay, silt, and sand.
26. During the process of soil formation, _____ decompose dead plant and animals, increasing the amount of organic matter.
27. On a steep slope, erosion is accelerated because there is not enough moisture to sustain sufficient _____.
28. _____ is a dense impenetrable layer found in the B horizon of a soil profile.
29. In a soil profile, the _____ layers contain parent material that is hardly weathered at all.
30. Large amounts of calcium carbonate are typical of _____ soil.
31. Human activities such as farming, _____, and construction remove vegetation from the land and increase the rate of erosion.
32. A landform called a stream valley is the most common result of _____.
33. One trigger of mass movements is the pores in sediments filling with _____.
34. One of the most dramatic triggers of sudden mass movements is a(n) _____.
35. _____, the slowest type of mass movement, involves the lifting and contracting of soil particles over time.

Short Answer

In complete sentences, write the answers to the questions on the lines provided.

36. **Applying Concepts** Explain how mechanical weathering can affect the rate of chemical weathering. Give an example.

Use Figure 1 to answer the following two questions.

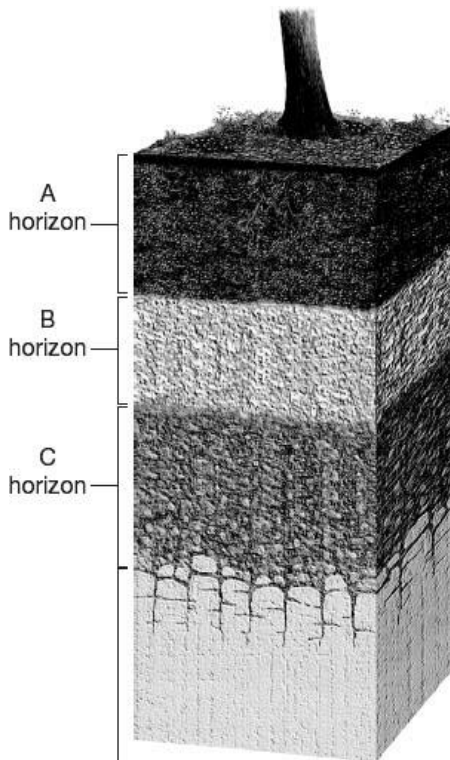


Figure 1

37. **Using Graphics** Describe the characteristics of each soil horizon.
38. What is below the C horizon in the diagram?
39. Explain why laterite contains almost no organic material.
40. Would a vegetable garden grow better in a tropical rainforest in Malaysia or in a backyard in Tennessee? Explain your answer.