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| **Multiple Choice** |

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| 1. Approximately how many rainforest species become extinct every minute?​   |  |  |  | | --- | --- | --- | |  | a. | ​one | |  | b. | ​two | |  | c. | ​five | |  | d. | ​ten | |  | e. | ​twenty |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.1 The Secret Life of Earth | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.1 - Examine why it is important to understand our natural world. | |

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| 2. The smallest unit of life that can exist as a separate entity is a(n)​   |  |  |  | | --- | --- | --- | |  | a. | ​cell. | |  | b. | ​molecule. | |  | c. | ​organ. | |  | d. | ​population. | |  | e. | ​ecosystem. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 3. The most inclusive level of organization listed here is a(n)   |  |  |  | | --- | --- | --- | |  | a. | ​heart. | |  | b. | carbon atom. | |  | c. | DNA. | |  | d. | zebra. | |  | e. | red blood cell. |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 4. What is the correct ordering in the hierarchal levels of the organization of life, from the least inclusive to the most inclusive?​   |  |  |  | | --- | --- | --- | |  | a. | tissues, cells, population, organisms, and organs | |  | b. | molecules, cells, organs, tissues, and organisms | |  | c. | ecosystems, populations, tissues, cells, and organs | |  | d. | cells, tissues, organs, communities, and populations | |  | e. | cells, tissues, organs, organisms, and ecosystems |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| Figure 1.2  ​ |

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| 5. In the accompanying figure illustrating the levels of life’s organization, what is represented in frame 2?​   |  |  |  | | --- | --- | --- | |  | a. | ​atom | |  | b. | ​tissue | |  | c. | ​molecule | |  | d. | ​organ | |  | e. | ​cell |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *PREFACE NAME:* | Figure 1.2 | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 6. In the accompanying figure illustrating the levels of life’s organization, what is represented in frame 3?​   |  |  |  | | --- | --- | --- | |  | a. | ​atom | |  | b. | ​tissue | |  | c. | ​molecule | |  | d. | ​organ | |  | e. | ​cell |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *PREFACE NAME:* | Figure 1.2 | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 7. A community​   |  |  |  | | --- | --- | --- | |  | a. | ​includes all populations of all species in a given area. | |  | b. | ​features the living organisms interacting with the physical and chemical environment. | |  | c. | ​is the sum of all places in Earth's atmosphere, crust, and waters where organisms live. | |  | d. | ​includes members of only one species. | |  | e. | ​is at a higher level of organization than an ecosystem. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 8. At what level of organization does life begin?​   |  |  |  | | --- | --- | --- | |  | a. | ​digestive system | |  | b. | cell | |  | c. | ​molecule (water) | |  | d. | ​molecule (DNA) | |  | e. | ​population |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 9. Living organisms are members of all of the levels listed below. However, rocks are components of​   |  |  |  | | --- | --- | --- | |  | a. | ​the community. | |  | b. | ​the population. | |  | c. | ​the ecosystem only. | |  | d. | ​the biosphere only. | |  | e. | ​both the ecosystem and the biosphere. |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 10. A(n) \_\_\_\_ property is a characteristic of a system that does not appear in any of its component parts.​   |  |  |  | | --- | --- | --- | |  | a. | ​efferent | |  | b. | ​emergent | |  | c. | ​elective | |  | d. | ​energetic | |  | e. | ​living |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.2 - List the eleven levels of life’s organization. | |

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| 11. Which feature is not characteristic of all living organisms?   |  |  |  | | --- | --- | --- | |  | a. | All have requirements for energy. | |  | b. | All must participate in one or more nutrient cycles. | |  | c. | All have ultimate dependence upon the sun. | |  | d. | All interact with other forms of life. | |  | e. | All must reproduce inside of organisms of other species. |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.2 Life Is More than the Sum of Its Parts | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 12. Four of the following are key characteristics for the survival of a species. Which one is the exception?​   |  |  |  | | --- | --- | --- | |  | a. | ​ability to acquire energy and nutrients | |  | b. | ​response to environmental change | |  | c. | ​reproduction | |  | d. | ​inability to change | |  | e. | ​ability to grow and adapt through changes in DNA |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 13. Four of the following characteristics are required for the life of an individual organism to continue. Which is the exception?​   |  |  |  | | --- | --- | --- | |  | a. | ​to maintain chemical uniqueness and organization | |  | b. | ​to respond to stimuli | |  | c. | ​to possess a genetic program to control cell processes | |  | d. | ​to reproduce | |  | e. | ​to evolve |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 14. The conversion of solar energy to chemical energy is known as​   |  |  |  | | --- | --- | --- | |  | a. | ​metabolism. | |  | b. | ​photosynthesis. | |  | c. | ​chemosynthesis. | |  | d. | ​catabolism. | |  | e. | ​anabolism. |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 15. Organisms sense and respond to changes both inside and outside the body by way of​   |  |  |  | | --- | --- | --- | |  | a. | ​metabolism. | |  | b. | ​photosynthesis. | |  | c. | ​receptors. | |  | d. | ​catabolism. | |  | e. | ​anabolism. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 16. DNA codes for the production of​   |  |  |  | | --- | --- | --- | |  | a. | ​proteins. | |  | b. | ​minerals. | |  | c. | ​inorganic molecules. | |  | d. | ​vital gasses. | |  | e. | ​water. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 17. Which group of organisms does not depend directly on sunlight for energy?   |  |  | | --- | --- | | I. | terrestrial producers | | II. | animal consumers | | III. | decomposers |  |  |  |  | | --- | --- | --- | |  | a. | I only | |  | b. | II and III only | |  | c. | II only | |  | d. | ​III only | |  | e. | ​I and III |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| Figure 1.3 |

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| 18. On the accompanying illustration, "A" and "B" should be labeled, respectively, \_\_\_\_ and \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​consumers; producers | |  | b. | ​decomposers; producers | |  | c. | ​producers; redistributors | |  | d. | ​producers; consumers | |  | e. | ​consumers; decomposers |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *PREFACE NAME:* | Figure 1.3 | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 19. Which characteristic is NOT found in nonliving entities?​   |  |  |  | | --- | --- | --- | |  | a. | ​energetic interactions | |  | b. | ​DNA | |  | c. | ​atoms | |  | d. | ​heat energy | |  | e. | ​complexity |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 20. ​The flow of nutrients through living organisms is best characterized as   |  |  |  | | --- | --- | --- | |  | a. | ​circular. | |  | b. | ​a ladder. | |  | c. | ​a lattice. | |  | d. | ​one way. | |  | e. | ​a funnel. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 21. ​Homeostasis provides what kind of internal environment?   |  |  |  | | --- | --- | --- | |  | a. | positive | |  | b. | tolerable | |  | c. | limiting | |  | d. | changing | |  | e. | chemical and physical |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 22. Each cell is able to maintain an internal environment within a range that favors survival. This condition is called​   |  |  |  | | --- | --- | --- | |  | a. | ​metabolism. | |  | b. | ​homeostasis. | |  | c. | ​physiology. | |  | d. | ​adaptation. | |  | e. | ​evolution. |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 23. About twelve to twenty-four hours after the previous meal, a person's blood-sugar level normally varies from 60 to 90 milligrams per 100 milliliters of blood, though it may rise to 130 mg/100 ml after meals high in carbohydrates. That the blood-sugar level is maintained within a fairly narrow range despite uneven intake of sugar is due to the body's ability to carry out​   |  |  |  | | --- | --- | --- | |  | a. | ​adaptation. | |  | b. | ​inheritance. | |  | c. | ​metabolism. | |  | d. | ​homeostasis. | |  | e. | ​evolution. |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 24. Which phrase would most likely be used in a discussion of homeostasis?​   |  |  |  | | --- | --- | --- | |  | a. | ​respond to environmental stimuli | |  | b. | ​limited range of variation | |  | c. | ​rapid energy turnover | |  | d. | ​cycle of elements | |  | e. | ​structural and functional units of life |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 25. What characteristic is common to all living things?​   |  |  |  | | --- | --- | --- | |  | a. | ​All living things eat. | |  | b. | ​All living things are producers. | |  | c. | ​All living things sense and respond to change. | |  | d. | ​All living things have a nucleus. | |  | e. | ​All living things are consumers. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Analyze | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 26. Energy sources are needed for which of the following processes?   |  |  | | --- | --- | | I. | reproduction | | II. | growth | | III. | development |  |  |  |  | | --- | --- | --- | |  | a. | ​I and II only | |  | b. | ​I and III only | |  | c. | ​II only | |  | d. | ​II and III only | |  | e. | ​I, II, and III |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 27. Which cell lacks a nucleus?​   |  |  |  | | --- | --- | --- | |  | a. | ​bacterial cell | |  | b. | ​fungus cell | |  | c. | ​animal cell | |  | d. | ​protist cell | |  | e. | ​plant cell |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 28. Members of which prokaryotic domain are most closely related to eukaryotes evolutionarily?   |  |  |  | | --- | --- | --- | |  | a. | ​animals | |  | b. | ​protists | |  | c. | ​fungi | |  | d. | ​bacteria | |  | e. | ​archaea |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 29. Which of the following is a domain of life?​   |  |  |  | | --- | --- | --- | |  | a. | ​eukaryotes | |  | b. | ​plants | |  | c. | ​animals | |  | d. | ​protists | |  | e. | ​fungi |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 30. Members of what group are multicellular producers?​   |  |  |  | | --- | --- | --- | |  | a. | ​animals | |  | b. | ​protists | |  | c. | ​fungi | |  | d. | ​plants | |  | e. | ​bacteria |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 31. Which group is made up of almost exclusively decomposers?​   |  |  |  | | --- | --- | --- | |  | a. | ​plants | |  | b. | ​fungi | |  | c. | ​animals | |  | d. | ​bacteria | |  | e. | ​protists |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 32. Which organisms are NOT eukaryotes?​   |  |  |  | | --- | --- | --- | |  | a. | ​fungi | |  | b. | ​bacteria | |  | c. | ​plants | |  | d. | ​animals | |  | e. | ​protists |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 33. A scientific name consists of which of the following?   |  |  | | --- | --- | | I. | family name | | II. | genus name | | III. | species name |  |  |  |  | | --- | --- | --- | |  | a. | ​I only | |  | b. | ​II only | |  | c. | ​III only | |  | d. | ​I and II | |  | e. | ​II and III |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.5 Organizing Information about Species | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.5 - Examine the importance of taxonomy in the classification of different species. | |

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| 34. The plural for genus is​   |  |  |  | | --- | --- | --- | |  | a. | ​genus. | |  | b. | ​geni. | |  | c. | ​genera. | |  | d. | ​gena. | |  | e. | ​genae. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.5 Organizing Information about Species | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.5 - Examine the importance of taxonomy in the classification of different species. | |

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| 35. Which is the least inclusive of the taxonomic categories listed below?​   |  |  |  | | --- | --- | --- | |  | a. | ​family | |  | b. | ​phylum | |  | c. | ​class | |  | d. | ​order | |  | e. | ​genus |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.5 Organizing Information about Species | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.5 - Examine the importance of taxonomy in the classification of different species. | |

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| 36. Which group includes all of the other groups?​   |  |  |  | | --- | --- | --- | |  | a. | ​domain | |  | b. | ​order | |  | c. | ​family | |  | d. | ​genus | |  | e. | ​species |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.5 Organizing Information about Species | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.5 - Examine the importance of taxonomy in the classification of different species. | |

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| 37. Which renowned biologist defined species as a group of individuals that potentially can interbreed, produce fertile offspring, and do not interbreed with other groups?​   |  |  |  | | --- | --- | --- | |  | a. | ​Charles Darwin | |  | b. | ​E. O. Wilson | |  | c. | ​Carl Linnaeus | |  | d. | ​Jean-Baptiste Lamarck | |  | e. | ​Ernst Mayr |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.5 Organizing Information about Species | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.5 - Examine the importance of taxonomy in the classification of different species. | |

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| 38. Which term refers to judging information before accepting it as fact?​   |  |  |  | | --- | --- | --- | |  | a. | ​critical thinking | |  | b. | law | |  | c. | ​theory | |  | d. | ​fact | |  | e. | ​hypothesis |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 39. Which term refers to the first explanation of a problem (sometimes referred to an "educated guess")?​   |  |  |  | | --- | --- | --- | |  | a. | ​principle | |  | b. | ​law | |  | c. | ​theory | |  | d. | ​fact | |  | e. | ​hypothesis |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 40. What is a hypothesis?​   |  |  |  | | --- | --- | --- | |  | a. | ​a report of the findings of scientific experiments | |  | b. | ​a specific conclusion of an experiment in an "if . . . then" format | |  | c. | ​a way of using isolated facts to reach a general idea that may explain a phenomenon | |  | d. | ​the summary of the outcomes of scientific findings | |  | e. | ​a testable explanation of a natural phenomenon |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 41. Which concept represents the lowest degree of certainty?​   |  |  |  | | --- | --- | --- | |  | a. | ​hypothesis | |  | b. | ​conclusion | |  | c. | ​fact | |  | d. | ​principle | |  | e. | ​theory |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 42. Which concept represents the highest degree of certainty?​   |  |  |  | | --- | --- | --- | |  | a. | ​hypothesis | |  | b. | ​deduction | |  | c. | ​assumption | |  | d. | ​theory | |  | e. | ​prediction |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 43. The control in an experiment​   |  |  |  | | --- | --- | --- | |  | a. | ​makes the experiment valid. | |  | b. | ​is an additional replicate for statistical purposes. | |  | c. | ​reduces the experimental errors. | |  | d. | ​minimizes experimental inaccuracy. | |  | e. | ​allows for comparisons to the experimental group. |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 44. In an experiment, the control group is:​   |  |  |  | | --- | --- | --- | |  | a. | ​not subjected to experimental error. | |  | b. | ​exposed to experimental treatments. | |  | c. | ​maintained under strict laboratory conditions. | |  | d. | ​treated exactly the same as the experimental group, except for one variable. | |  | e. | ​statistically the most important part of the experiment. |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 45. The choice of whether a particular organism belongs to the experimental group or the control group should be based on​   |  |  |  | | --- | --- | --- | |  | a. | ​age. | |  | b. | ​size. | |  | c. | ​chance. | |  | d. | ​history. | |  | e. | ​gender. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.6 - Examine the importance of critical thinking in the application of the scientific method | |

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| 46. Scientists are always thinking about ways to improve experimental design. In the text's potato chip experiment, which of these changes would produce the most effective design?​   |  |  |  | | --- | --- | --- | |  | a. | ​Show a different movie. | |  | b. | ​Exclude teenagers as group members. | |  | c. | ​Collect uneaten chip remains and weigh them for both groups. | |  | d. | ​Provide free drinks before the experiment. | |  | e. | ​Use a smaller theater. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 47. Olestra chips did not cause cramps at a higher rate than normal chips. This is known as the \_\_\_\_ of this experiment.​   |  |  |  | | --- | --- | --- | |  | a. | ​hypothesis | |  | b. | ​prediction | |  | c. | ​control | |  | d. | ​conclusion | |  | e. | ​data |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 48. In the experiment with peacock butterflies, the working hypothesis is that​   |  |  |  | | --- | --- | --- | |  | a. | ​silence confuses both predator and prey. | |  | b. | ​making sounds can provide a selective advantage to the prey. | |  | c. | ​birds are capable of learning. | |  | d. | ​birds are agents of evolution. | |  | e. | ​unpalatable species display distinctive wings. |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 49. What is one of the major variables in the peacock butterfly experiment?​   |  |  |  | | --- | --- | --- | |  | a. | ​pattern/color of the wings | |  | b. | ​range of migration | |  | c. | ​species of bird predator | |  | d. | ​experimental location | |  | e. | ​percentage of survivors |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 50. Which group in the peacock butterfly experiment had the highest survival rates?​   |  |  |  | | --- | --- | --- | |  | a. | ​Those with more nocturnal habits | |  | b. | ​Those without spots and without hissing/clicking sounds | |  | c. | ​Those without spots but with hissing/clicking sounds | |  | d. | ​Those with spots and hissing/clicking sounds | |  | e. | ​Those with the same flower habitat as the birds |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 51. What was the dependent variable in the peacock butterfly experiments?​   |  |  |  | | --- | --- | --- | |  | a. | ​changing predators | |  | b. | ​changing habitats | |  | c. | ​painting the wings | |  | d. | ​clipping the hindwings | |  | e. | ​getting eaten |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 52. Which of the following is NOT true about the peacock butterfly?​   |  |  |  | | --- | --- | --- | |  | a. | ​The dark underside of their wings provides camouflage. | |  | b. | ​The spots on the wings may resemble owl eyes, which help deter predation. | |  | c. | ​The butterflies remain still when a predator is near so as not to draw attention. | |  | d. | The rapid movement of their wings produces a hissing sound.​ | |  | e. | ​A resting butterfly’s closed wing resembles a dead leaf. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 53. Which experiment would be the least effective follow-up to the peacock butterfly studies?​   |  |  |  | | --- | --- | --- | |  | a. | ​Repeat in a forest area totally devoid of native butterflies. | |  | b. | ​Repeat in a wildlife sanctuary aviary after giving birds a chance to learn about peacock butterflies. | |  | c. | ​Repeat using young, inexperienced birds. | |  | d. | ​Repeat, and count survivors for three weeks. | |  | e. | ​Repeat using more butterflies and more blue tits in a larger area. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: | | *REFERENCES:* | 1.7 Examples of Experiments in Biology | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.7 - Recognize the importance of experimental research to the field of biology using an example. | |

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| 54. Randomly selecting samples of experimental units from an environment can result in​   |  |  |  | | --- | --- | --- | |  | a. | ​sampling error. | |  | b. | ​blind testing. | |  | c. | ​evidence. | |  | d. | ​experimental design. | |  | e. | ​consensus. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.8 Analyzing Experimental Results | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.8 - Examine how sampling errors occur in scientific experiments and what methods researchers use to combat errors and bias | |

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| 55. What is an acceptable probability of sampling error that may have skewed the results in most scientific studies?​   |  |  |  | | --- | --- | --- | |  | a. | ​80% | |  | b. | ​50% | |  | c. | ​25% | |  | d. | ​10% | |  | e. | ​5% |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.8 Analyzing Experimental Results | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.8 - Examine how sampling errors occur in scientific experiments and what methods researchers use to combat errors and bias | |

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| 56. Science is based on​   |  |  |  | | --- | --- | --- | |  | a. | ​faith. | |  | b. | ​authority. | |  | c. | ​evidence. | |  | d. | ​force. | |  | e. | opinion. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.9 The Nature of Science | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.8 - Examine how sampling errors occur in scientific experiments and what methods researchers use to combat errors and bias | |

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| 57. Which characteristic is least applicable to the development of science?​   |  |  |  | | --- | --- | --- | |  | a. | ​evaluation of data | |  | b. | ​personal conviction | |  | c. | ​prediction | |  | d. | ​systematic observation | |  | e. | ​sharing of ideas |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.9 The Nature of Science | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1. 1.8 - Examine how sampling errors occur in scientific experiments and what methods researchers use to combat errors and bias | |

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| 58. Which characteristic will NOT strengthen the validity of a theory?​   |  |  |  | | --- | --- | --- | |  | a. | ​repetitions of experiments | |  | b. | ​increased observations | |  | c. | ​time after the experiment | |  | d. | ​faith in the experiment | |  | e. | ​confirmation by many scientists |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.9 The Nature of Science | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.8 - Examine how sampling errors occur in scientific experiments and what methods researchers use to combat errors and bias | |

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| 59. Scientific work involves​   |  |  |  | | --- | --- | --- | |  | a. | ​the natural and supernatural world. | |  | b. | ​retesting theories frequently for verification. | |  | c. | ​proving theories with absolute certainty. | |  | d. | ​testing hypotheses under every possible circumstance. | |  | e. | coming up with the best descriptions of reality. |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.9 The Nature of Science | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.8 - Examine how sampling errors occur in scientific experiments and what methods researchers use to combat errors and bias | |

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| 60. ​Copernicus, Galileo, and Darwin found that \_\_\_\_ caused their science to be controversial.   |  |  |  | | --- | --- | --- | |  | a. | ​prevailing belief | |  | b. | ​objective data | |  | c. | ​astronomical theories | |  | d. | ​supernatural influences | |  | e. | ​experimental design |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.9 The Nature of Science | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.9 - Examine how science works. | |

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| **Matching** |

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| Match the following letters to the number with which they best correspond.​   |  |  | | --- | --- | | a. | ​Observation | | b. | ​Question | | c. | ​Hypothesis | | d. | ​Prediction | | e. | ​Law of nature | | f. | ​Scientific theory | | g. | ​Assessment | | h. | ​Report |  |  |  | | --- | --- | | *DIFFICULTY:* | Bloom's: Apply | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.9 - Examine how science works. | |

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| 61. ​This is a generalization that describes a consistent natural phenomenon for which there is incomplete scientific explanation.   |  |  | | --- | --- | | *ANSWER:* | e | |

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| 62. ​If smoking causes cancer, then individuals who smoke will get cancer more often than those who do not.   |  |  | | --- | --- | | *ANSWER:* | d | |

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| Match the following letters to the number with which they best correspond.​   |  |  | | --- | --- | | a. | ​Observation | | b. | ​Question | | c. | ​Hypothesis | | d. | ​Prediction | | e. | ​Law of nature | | f. | ​Scientific theory | | g. | ​Assessment | | h. | ​Report |  |  |  | | --- | --- | | *DIFFICULTY:* | Bloom's: Understand | | *REFERENCES:* | 1.6 The Science of Nature | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.9 - Examine how science works. | |

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| 63. ​Submit the results and the conclusions to the scientific community.   |  |  | | --- | --- | | *ANSWER:* | h | |

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| 64. ​Hypothesis that has not been disproven after many years of rigorous testing.   |  |  | | --- | --- | | *ANSWER:* | f | |

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| 65. ​Compile test results and draw conclusions from them.   |  |  | | --- | --- | | *ANSWER:* | g | |

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| 66. ​Smoking cigarettes causes cancer.   |  |  | | --- | --- | | *ANSWER:* | c | |

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| 67. ​Why do people get cancer?   |  |  | | --- | --- | | *ANSWER:* | b | |

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| 68. ​People get cancer.   |  |  | | --- | --- | | *ANSWER:* | a | |

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| ​Classification. Match the following descriptions to the most appropriate function, process, or trait listed below.   |  |  | | --- | --- | | a. | ​inheritance | | b. | ​reproduction | | c. | ​photosynthesis | | d. | ​growth | | e. | ​homeostasis |  |  |  | | --- | --- | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.3 How Living Things Are Alike | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.3 - Outline the significance of energy and nutrients to organisms | |

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| 69. ​a process found only in plants, some bacteria, and some protists   |  |  | | --- | --- | | *ANSWER:* | c | |

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| 70. ​a characteristic most organisms exhibit that tends to keep their internal environment within a range that favors survival   |  |  | | --- | --- | | *ANSWER:* | e | |

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| 71. ​the transmission of DNA from parent to offspring   |  |  | | --- | --- | | *ANSWER:* | a | |

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| 72. ​process by which individuals produce offspring   |  |  | | --- | --- | | *ANSWER:* | b | |

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| Classification. Match the following descriptions with the most appropriate group listed below.​   |  |  | | --- | --- | | a. | ​bacteria | | b. | ​protists | | c. | ​plants | | d. | ​fungi | | e. | ​animals |  |  |  | | --- | --- | | *DIFFICULTY:* | Bloom's: Remember | | *REFERENCES:* | 1.4 How Living Things Differ | | *LEARNING OBJECTIVES:* | UDOL.STES.16.1.4 - Examine how classification helps in understanding biodiversity using examples. | |

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| 73. ​multicellular producers   |  |  | | --- | --- | | *ANSWER:* | c | |

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| 74. ​prokaryotic   |  |  | | --- | --- | | *ANSWER:* | a | |

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| 75. ​unicellular organisms of considerable internal complexity   |  |  | | --- | --- | | *ANSWER:* | b | |

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| 76. ​multicelled mobile consumers   |  |  | | --- | --- | | *ANSWER:* | e | |

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| 77. ​based on fossils, oldest, still living organisms   |  |  | | --- | --- | | *ANSWER:* | a | |

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| 78. ​unicellular eukaryotic producers   |  |  | | --- | --- | | *ANSWER:* | b | |

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| 79. ​most common multicellular decomposers   |  |  | | --- | --- | | *ANSWER:* | d | |