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| *Indicate the answer choice that best completes the statement or answers the question.* |

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| 1. 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. | |

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| 2. 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 | |

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| 3. Science is based on \_\_\_\_\_\_\_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | faith | |  | b. | authority | |  | c. | evidence | |  | d. | force | |  | e. | opinion | |

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| 4. Members of which prokaryotic domain are most closely related to eukaryotes evolutionarily?   |  |  |  | | --- | --- | --- | |  | a. | Animals | |  | b. | Protists | |  | c. | Fungi | |  | d. | Bacteria | |  | e. | Archaea | |

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| 5. 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 | |

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| 6. The most inclusive level of organization is exemplified by which of the following?   |  |  |  | | --- | --- | --- | |  | a. | Heart | |  | b. | Carbon atom | |  | c. | DNA | |  | d. | Zebra | |  | e. | Red blood cell | |

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| 7. The process by which the first cell of a new individual gives rise to a multicell adult is called \_\_\_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | reproduction | |  | b. | development | |  | c. | growth | |  | d. | inheritance | |  | e. | homeostasis | |

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| 8. The plural for genus is \_\_\_\_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | genus | |  | b. | geni | |  | c. | genera. | |  | d. | gena | |  | e. | genae | |

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| 9. 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 | |

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| 10. 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 | |

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| 11. 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 | |

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| 12. Which of the following is used by all living things as the carrier of genetic information?   |  |  |  | | --- | --- | --- | |  | a. | Cell | |  | b. | DNA | |  | c. | Organ | |  | d. | Molecule | |  | e. | Population | |

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| 13. 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% | |

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| 14. The flow of energy through living organisms is best characterized as \_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | circular | |  | b. | increasing | |  | c. | a lattice | |  | d. | one way | |  | e. | lossless | |

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| 15. 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. | |

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| 16. 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 | |

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| 17. Which concept represents the highest degree of certainty?   |  |  |  | | --- | --- | --- | |  | a. | Hypothesis | |  | b. | Deduction | |  | c. | Assumption | |  | d. | Theory | |  | e. | Prediction | |

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| 18. 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 | |

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| 19. 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 | |

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| 20. 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. | |

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| 21. At what level of organization does life begin?   |  |  |  | | --- | --- | --- | |  | a. | Reproductive organs | |  | b. | Cell | |  | c. | Molecule (water) | |  | d. | Molecule (DNA) | |  | e. | Population | |

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| 22. Which of the following is a domain of life?   |  |  |  | | --- | --- | --- | |  | a. | Eukaryotes | |  | b. | Plants | |  | c. | Animals | |  | d. | Protists | |  | e. | Fungi | |

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| 23. Which of the following makes its own food using energy and simple raw materials it obtains from nonbiological sources?   |  |  |  | | --- | --- | --- | |  | a. | Producer | |  | b. | Nutrient | |  | c. | Consumer | |  | d. | Cell | |  | e. | Protist | |

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| Figure 1.3 |

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| 24. What is represented in frame 5 of Figure 1.3, illustrating the levels of life’s organization?   |  |  |  | | --- | --- | --- | |  | a. | Atom | |  | b. | Tissue | |  | c. | Molecule | |  | d. | Organ | |  | e. | Cell | |

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| 25. Which organisms are NOT eukaryotes?   |  |  |  | | --- | --- | --- | |  | a. | Fungi | |  | b. | Bacteria | |  | c. | Mosses | |  | d. | Fish | |  | e. | Yeasts | |

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| 26. 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. | eye spots attract the attention of predators. | |  | d. | birds can find their prey by listening for their sounds | |  | e. | unpalatable species display distinctive wings | |

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| 27. 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 | |

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| 28. Homeostasis provides what kind of internal environment?   |  |  |  | | --- | --- | --- | |  | a. | Positive | |  | b. | Stable | |  | c. | Limiting | |  | d. | Changing | |  | e. | Chemical and physical | |

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| 29. 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 | |

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| 30. Which concept represents the lowest degree of certainty?   |  |  |  | | --- | --- | --- | |  | a. | Hypothesis | |  | b. | Conclusion | |  | c. | Fact | |  | d. | Principle | |  | e. | Theory | |

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| 31. What is one of the independent variables in the peacock butterfly experiment?   |  |  |  | | --- | --- | --- | |  | a. | Presence of the wing spot | |  | b. | Range of migration | |  | c. | Species of bird predator | |  | d. | Experimental location | |  | e. | Percentage of survivors | |

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| 32. 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 | |

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| 33. Which of the following is a substance that an organism needs for growth and survival but cannot make for itself?   |  |  |  | | --- | --- | --- | |  | a. | Sunlight | |  | b. | Water | |  | c. | Nutrient | |  | d. | Chlorophyll | |  | e. | ATP | |

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| 34. Which is the least inclusive of the taxonomic categories listed below?   |  |  |  | | --- | --- | --- | |  | a. | Family | |  | b. | Phylum | |  | c. | Class | |  | d. | Order | |  | e. | Genus | |

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| 35. Members of what group are multicellular producers?   |  |  |  | | --- | --- | --- | |  | a. | Animals | |  | b. | Protists | |  | c. | Fungi | |  | d. | Plants | |  | e. | Bacteria | |

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| 36. Which term refers to judging information before accepting it as fact?   |  |  |  | | --- | --- | --- | |  | a. | Critical thinking | |  | b. | Law | |  | c. | Theory | |  | d. | Fact | |  | e. | Hypothesis | |

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| 37. 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. | |

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| 38. 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 | |

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| 39. 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 | |

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| 40. 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 | |

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| 41. 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 | |

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| 42. The conversion of solar energy to chemical energy is known as \_\_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | metabolism | |  | b. | photosynthesis | |  | c. | chemosynthesis. | |  | d. | catabolism | |  | e. | anabolism | |

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| 43. Which group is made up of almost exclusively decomposers?   |  |  |  | | --- | --- | --- | |  | a. | Plants | |  | b. | Fungi | |  | c. | Animals | |  | d. | Bacteria | |  | e. | Protists | |

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| 44. What is the process of transmission of DNA to offspring that occurs during reproduction?   |  |  |  | | --- | --- | --- | |  | a. | Inheritance | |  | b. | Development | |  | c. | Growth | |  | d. | Photosynthesis | |  | e. | Homeostasis | |

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| Figure 1.4 |

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| 45. In Figure 1.4, "A" and "B" should be labeled, respectively, \_\_\_\_ and \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | consumers; producers | |  | b. | decomposers; producers | |  | c. | producers; redistributors | |  | d. | producers; consumers | |  | e. | consumers; decomposers | |

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| 46. 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 | |

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| 47. 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 | |

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| 48. Which cell lacks a nucleus?   |  |  |  | | --- | --- | --- | |  | a. | Bacterial cell | |  | b. | Fungus cell | |  | c. | Animal cell | |  | d. | Protist cell | |  | e. | Plant cell | |

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| 49. Which of the following is common term for a eukaryote that is NOT a plant, animal, or fungus?   |  |  |  | | --- | --- | --- | |  | a. | Specific epithet | |  | b. | Protist | |  | c. | Prokaryote | |  | d. | Taxonomy | |  | e. | Fungus | |

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| Figure 1.3 |

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| 50. In Figure 1.3, illustrating the levels of life’s organization, what is represented in frame 3?   |  |  |  | | --- | --- | --- | |  | a. | Atom | |  | b. | Tissue | |  | c. | Molecule | |  | d. | Organ | |  | e. | Cell | |

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| 51. What is the correct ordering in the hierarchal levels of the organization of life, from the least inclusive to the most inclusive?   |  |  |  | | --- | --- | --- | |  | a. | Atoms, tissues, cells, organs, and organisms | |  | 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 | |

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| 52. 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 | |

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| 53. 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. | Both respond to environmental stimuli and limited range of variation | |  | e. | Both respond to environmental stimuli and rapid energy turnover | |

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| 54. 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 | |

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| 55. Which group includes all of the other groups?   |  |  |  | | --- | --- | --- | |  | a. | Domain | |  | b. | Order | |  | c. | Family | |  | d. | Genus | |  | e. | Species | |

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| 56. 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 | |

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| 57. 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. | |

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| 58. 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 objective descriptions of reality | |

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| 59. A(n) \_\_\_\_ property is a characteristic of a system that does not appear in any of its component parts.   |  |  |  | | --- | --- | --- | |  | a. | symbiotic | |  | b. | emergent | |  | c. | synergistic | |  | d. | energetic | |  | e. | living | |

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| 60. 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 | |

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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 | |

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| 61. Multicellular producers |

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| 62. Prokaryotic |

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| 63. Unicellular organisms of considerable internal complexity |

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| 64. Multicelled mobile consumers |

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| 65. Based on fossils, oldest, still living organisms |

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| 66. Unicellular eukaryotic producers |

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| 67. Most common multicellular decomposers |

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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 | |

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| 68. A process found only in plants, some bacteria, and some protists |

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| 69. A characteristic most organisms exhibit that tends to keep their internal environment within a range that favors survival |

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| 70. The transmission of DNA from parent to offspring |

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| 71. Process by which individuals produce offspring |

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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 | |

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| 72. This is a generalization that describes a consistent natural phenomenon for which there is incomplete scientific explanation. |

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| 73. People who regularly consume sugary drinks with their meals will have a higher likelihood of being obese than people who do not. |

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| 74. Submit the results and the conclusions to the scientific community. |

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| 75. Hypothesis that has not been disproven after many years of rigorous testing. |

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| 76. Compile test results and draw conclusions from them. |

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| 77. Drinking sugary drinks leads to obesity. |

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| 78. What are some causes of obesity? |

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| 79. Obesity rates are increasing. |

**Answer Key**

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| 1. a |

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| 2. a |

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| 3. c |

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| 4. e |

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| --- |
| 5. b |

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| --- |
| 6. d |

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| 7. b |

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| 8. c |

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| 9. b |

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| 10. c |

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| 11. d |

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| 12. b |

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| --- |
| 13. e |

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| --- |
| 14. d |

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| 15. c |

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| 16. e |

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| 17. d |

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| 18. a |

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| 19. e |

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| 20. c |

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| 21. b |

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| 22. a |

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| 23. a |

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| 24. d |

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| 25. b |

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| 26. b |

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| 27. d |

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| 28. b |

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| 29. b |

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| 30. a |

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| 31. a |

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| 32. e |

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| 33. c |

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| 34. e |

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| 35. d |

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| 36. a |

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| 37. e |

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| 38. d |

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| 39. e |

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| 40. d |

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| 41. d |

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| 42. b |

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| 43. b |

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| 44. a |

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| 45. d |

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| 46. d |

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| 47. e |

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| 48. a |

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| 49. b |

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| 50. e |

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| 51. e |

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| 52. e |

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| 53. b |

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| 54. e |

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| 55. a |

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| 56. e |

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| 57. c |

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| 58. e |

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| 59. b |

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| 60. a |

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| 61. c |

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| 62. a |

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| 63. b |

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| 64. e |

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| 65. a |

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| 66. b |

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| 67. d |

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| 68. c |

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| 69. e |

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| 70. a |

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| 71. b |

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| 72. e |

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| 73. d |

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| 74. h |

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| 75. f |

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| 76. g |

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| 77. c |

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| 78. b |

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| 79. a |