

## Assessment

# Chapter Test

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**Study the following steps used in scientific methods. Determine the order in which the steps normally occur. Write the number of each step in the space provided.**

- \_\_\_\_\_ 1. Scientists formulate a theory.
- \_\_\_\_\_ 2. Scientists formulate a hypothesis.
- \_\_\_\_\_ 3. Scientists draw conclusions.
- \_\_\_\_\_ 4. Scientists analyze results.
- \_\_\_\_\_ 5. Scientists make observations and ask questions.
- \_\_\_\_\_ 6. Scientists design and carry out a study or an experiment.

**Study the following units in the metric system. Number the units in order from smallest to largest, using the space before the unit. In the space after the unit, identify it as the base unit or write its numeric relationship to the base unit.**

- \_\_\_\_\_ 7. centiliter \_\_\_\_\_
- \_\_\_\_\_ 8. kiloliter \_\_\_\_\_
- \_\_\_\_\_ 9. liter \_\_\_\_\_
- \_\_\_\_\_ 10. milliliter \_\_\_\_\_

**In the space provided, write the letter of the definition for the term.**

- |                        |   |
|------------------------|---|
| _____ 11. evolution    | a. the process by which traits passed from parents to offspring change over generations |
| _____ 12. heredity     | b. the sum of all chemical reactions carried out in an organism                         |
| _____ 13. homeostasis  | c. the process by which organisms make more of their own kind                           |
| _____ 14. metabolism   | d. the maintenance of stable internal conditions despite changing external conditions   |
| _____ 15. reproduction | e. the process by which parents pass traits to their offspring                          |

Chapter Test *continued*

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**In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.**

- \_\_\_\_\_ 16. Each of the following steps is involved in scientific thought *except*
- a. questioning ideas.
  - b. evaluating evidence.
  - c. making observations.
  - d. preserving bias.
- \_\_\_\_\_ 17. In which aspects of science are ethics involved?
- a. running experiments with humans and other animals
  - b. reporting results of controlled experiments
  - c. publishing scientific studies
  - d. All of the above
- \_\_\_\_\_ 18. All objects in the universe are subject to
- a. scientific skepticism.
  - b. the law of gravity.
  - c. the law of indirect observation.
  - d. the International System of Units.
- \_\_\_\_\_ 19. In which three areas can studying science aid a nonscientist?
- a. health, consumer issues, and solving community problems
  - b. health, consumer issues, and following universal laws
  - c. consumer issues, following universal laws, and reinstating conventional wisdom
  - d. health, critical thinking, and reinstating conventional wisdom
- \_\_\_\_\_ 20. What is a control group?
- a. a group of people in a scientific study
  - b. a group of scientists in charge of conducting an experiment
  - c. a group that serves as a standard of comparison in an experiment
  - d. a group that receives only an experimental treatment
- \_\_\_\_\_ 21. In a controlled experiment, what do scientists measure?
- a. how many dependent variables they have
  - b. how many independent variables they have
  - c. how the dependent variables change in response to changes in the independent variable
  - d. how the independent variables change in response to changes in the dependent variable
- \_\_\_\_\_ 22. What is the main reason for running a controlled experiment?
- a. to make observations
  - b. to test a hypothesis
  - c. to formulate new questions
  - d. to get information for a study
- \_\_\_\_\_ 23. Which of these could be useful in a microbiology lab?
- a. electron microscopy
  - b. sterile technique
  - c. Both (a) and (b)
  - d. Neither (a) nor (b)

**Chapter Test *continued***

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- \_\_\_\_\_ 1. Which of the following is true about theories and hypotheses?
- A hypothesis is highly tested, but a theory is not testable.
  - A hypothesis is a general explanation, but a theory is a specific prediction.
  - One hypothesis can lead to many theories.
  - Several related hypotheses can be incorporated into a theory.
- \_\_\_\_\_ 25. Which list includes four recommended things you need to stay safe when doing science research out in the field?
- sunscreen, proper safety equipment, focused attention, and body awareness
  - sunscreen, focused attention, body awareness, and emergency money
  - proper safety equipment, field guides, focused attention, and sunscreen
  - field guides, focused attention, body awareness, and emergency money
- \_\_\_\_\_ 26. Which branches of biology focus on the study of plants and of animals?
- |                       |                                     |
|-----------------------|-------------------------------------|
| a. botany and ecology | c. zoology and genetics             |
| b. botany and zoology | d. genetics and evolutionary theory |
- \_\_\_\_\_ 27. Which branch of biology focuses on the smallest unit capable of life?
- |                 |                  |
|-----------------|------------------|
| a. cell biology | b. endocrinology |
| b. biochemistry | d. physiology    |
- \_\_\_\_\_ 28. Which list includes four of the seven properties of living things?
- cellular organization, biochemical organization, reproduction, and evolution
  - reproduction, heredity, evolution, and growth
  - heredity, growth, homeostasis, and responsiveness
  - homeostasis, metabolism, reproduction, and evolution
- \_\_\_\_\_ 29. Does an organism need to show the seven properties of life at every stage of its development?
- Yes, otherwise it is no longer alive.
  - No, but it has to show all of them at some stage of its life.
  - Yes, it needs to be able to pass them along to its offspring.
  - No, but it has to show them in the correct order from birth to death.
- \_\_\_\_\_ 30. In which situation are scientists most likely to collect data remotely?
- when their computers are down
  - when they are studying organisms in the fossil record
  - when they are on vacation
  - when they are studying organisms that migrate