

Skills Worksheet

Directed Reading A

Section: The Diversity of Cells

1. The smallest unit that can perform all the processes necessary for life is a(n) _____.

CELLS AND THE CELL THEORY

Match the correct description with the correct name. Write the letter in the space provided.

- | | |
|--|-----------------------|
| _____ 2. He was the first person to describe cells. | a. Schleiden |
| _____ 3. He discovered single-celled organisms including bacteria. | b. Virchow |
| _____ 4. He concluded that all plant parts were made of cells. | c. Hooke |
| _____ 5. He concluded that all animal tissues were made of cells. | d. Leeuwenhoek |
| _____ 6. He concluded that all cells came from existing cells. | e. Schwann |
| 7. What kind of cells have cell walls? | |

8. What are the three parts of the cell theory?

CELL SIZE

- _____ 9. Why can a chicken egg grow so large?
- a.** It is a single cell.
 - b.** It has a yolk and a shell.
 - c.** It does not have to take in nutrients.
 - d.** It grows faster than small cells.
- _____ 10. What limits most cells to a very small size?
- a.** the surface area-to-volume ratio of the cell
 - b.** the thickness of the cell membrane
 - c.** the amount of cytoplasm in the cell
 - d.** the number of surrounding cells

Directed Reading A *continued*

- _____ **11.** How would you calculate the surface area-to-volume ratio?
- a.** Divide the volume by the surface area.
 - b.** Divide the total surface area of the cell by the cell's volume.
 - c.** Multiply the area of each side times the number of sides.
 - d.** Multiply the surface area times the volume.

PARTS OF A CELL

Match the correct description with the correct term. Write the letter in the space provided.

- | | |
|--|-------------------------|
| _____ 12. a protective layer that covers a cell's surface | a. DNA |
| _____ 13. the fluid inside a cell | b. cell membrane |
| _____ 14. a structure that performs a specific function in the cells | c. nucleus |
| _____ 15. the genetic material that carries information needed to make new cells or new organisms | d. organelle |
| _____ 16. an organelle that contains DNA and has a role in growth, metabolism, and reproduction | e. cytoplasm |

TWO KINDS OF CELLS

17. What parts do all cells have?

18. What are the two basic kinds of cells?

PROKARYOTES: BACTERIA AND ARCHAEA

19. What are prokaryotes?

20. What are the most common prokaryotes (and the smallest cells)?

Directed Reading A *continued*

21. What are ribosomes?

22. What is one way that bacteria and archaea differ?

23. What are three types of archaea?

EUKARYOTIC CELLS AND EUKARYOTES

_____ **24.** How do eukaryotes compare in size to prokaryotes?

- a.** Eukaryotes have more cells.
- b.** They are about the same size.
- c.** Eukaryotes are about 10 times smaller.
- d.** Eukaryotes are about 10 times larger.

_____ **25.** What does a eukaryote have that a prokaryote does not?

- a.** one or more cells
- b.** cells with a nucleus
- c.** cells with DNA
- d.** cells with membranes

_____ **26.** Which of these words describes humans?

- a.** eukaryote
- b.** prokaryote
- c.** protist
- d.** fungus

27. What does “multicellular” mean?

Section Review

The Diversity of Cells

USING KEY TERMS

1. In your own words, write a definition for the term *organelle*.

2. Use the following terms in the same sentence: *prokaryotic*, *nucleus*, and *eukaryotic*.

UNDERSTANDING KEY IDEAS

- _____ 3. Cell size is limited by the
- a. thickness of the cell wall.
 - b. size of the cell's nucleus.
 - c. cell's surface area-to-volume ratio.
 - d. amount of cytoplasm in the cell.

4. What are the three parts of the cell theory?

5. Name three structures that every cell has.

6. Give two ways in which archaea are different from bacteria.

Section Review *continued*

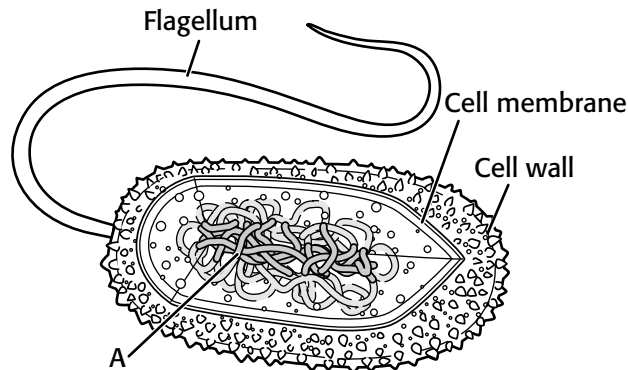
CRITICAL THINKING

7. Applying Concepts You have discovered a new single-celled organism. It has a cell wall, ribosomes, and long, circular DNA. Is it a eukaryote or a prokaryote cell? Explain.

8. Identifying Relationships One of your students brings you a cell about the size of the period at the end of this sentence. It is a single cell, but it also forms chains. What characteristics would this cell have if the organism is a eukaryote? If it is a prokaryote? What would you look for first?

INTERPRETING GRAPHICS

The picture below shows a particular organism. Use the picture to answer the questions that follow.



9. What type of organism does the picture represent? How do you know?

10. Which structure helps the organism move?

11. What part of the organism does the letter *A* represent?
