Name _____ Class _____ Date _____

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.

_____ **3.** He discovered single-celled organisms including bacteria.

_____ **4.** He concluded that all plant parts were made of cells.

_____ **5.** He concluded that all animal tissues were made of cells.

_____ **6.** He concluded that all cells come from existing cells.

a. Schleiden
b. Virchow
c. Hooke
d. Leeuwenhoek
e. Schwann

CELL SIZE

_____ **7.** 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.

_____ **8.** 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

_____ **9.** 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.

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Directed Reading A *continued*

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

_____

_____

_____

11. What kind of cells have cell walls?

_____

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

_____**13.** the fluid inside a cell

_____**14.** a structure that performs a specific function in the cells

_____**15.** the genetic material that carries information needed to make new cells or new organisms

_____**16.** an organelle that contains DNA and has a role in growth, metabolism, and reproduction

a. DNA
b. cell membrane
c. nucleus
d. organelle
e. cytoplasm

TWO KINDS OF CELLS

17. What parts do all cells have in common?

_____

18. What are the two basic kinds of cells?

_____

PROKARYOTES: EUBACTERIA AND ARCHAEBACTERIA

19. What are prokaryotes?

_____

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Directed Reading A *continued*

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

_____

21. What are ribosomes?

_____

_____

22. How do eubacteria and archaebacteria differ?

_____

_____

_____

23. What are three types of archaebacteria?

_____

_____

_____

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?

_____

Answer Key

Directed Reading A

SECTION: THE DIVERSITY OF CELLS

1. cell
2. C
3. D
4. A
5. E
6. B
7. C
8. A
9. B
10. All organisms are made of one or more cells. The cell is the basic unit of all living things. All cells come from existing cells.
11. cell of plants and fungi
12. B
13. E
14. D
15. A
16. C
17. cell membranes, organelles, cytoplasm, and DNA
18. eukaryotic and prokaryotic
19. Prokaryotes are organisms that consist of a single cell that does not have a nucleus or membrane-bound organelles.
20. eubacteria, or bacteria
21. tiny, round organelles made of protein and other material
22. Archaebacterial ribosomes are different from eubacterial ribosomes
23. heat-loving, salt-loving, and methane-making
24. D
25. B
26. A
27. "many cells"

SECTION: EUKARYOTIC CELLS

1. to give support to a cell
2. cellulose
3. chitin or a chemical similar to chitin
4. a protective layer that encloses the cell and separates the cell's contents from the cell's environment.
5. lipids, phospholipids, and proteins
6. proteins and lipids
7. B
8. to keep the cell's membrane from collapsing and to help its organelles move
9. C
10. A
11. D
12. ribosomes
13. amino acids
14. endoplasmic reticulum or ER
15. smooth, rough
16. A
17. a mitochondria
18. ATP
19. B
20. C
21. C
22. B
23. a vesicle
24. a lysosome is a vesicle responsible for digestion inside a cell.
25. Lysosomes destroy worn-out or damaged organelles, get rid of waste materials, and protect the cell from foreign invaders.
26. Vacuoles are large organelles that act like lysosomes or store water and other materials.

SECTION: THE ORGANIZATION OF LIVING THINGS

1. by making more cells
2. larger size, longer life, and specialization
3. A tissue is a group of similar cells that perform a common function.
4. nerve, muscle, connective, protective
5. transport, protective, ground
6. organ
7. organ system
8. leaves, stems, roots
9. D
10. B
11. A
12. D
13. structure
14. function
15. alveoli