

CHAPTER

4

VOCABULARY & NOTES WORKSHEET

Cells: The Basic Units of Life

By studying the Vocabulary and Notes listed for each section below, you can gain a better understanding of this chapter.

SECTION 1

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. tissue _____

2. organ _____

3. organ systems _____

4. organism _____

5. unicellular _____

6. multicellular _____

7. population _____

8. community _____

9. ecosystem _____



Cells: The Basic Units of Life, continued

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- The cell is the smallest unit of life on Earth. Organisms can be made up of one or more cells.
- In multicellular organisms, groups of cells can work together to form tissue. Organs are formed from different tissues and work together with other organs in organ systems.
- The same kind of organisms living together in the same place at the same time make up a population. Different populations living together in the same area make up a community. An ecosystem includes the community and an area's nonliving parts, such as the water and soil.

SECTION 2

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. cell theory _____

2. cell membrane _____

3. organelles _____

4. cytoplasm _____

5. surface-to-volume ratio _____

Cells: The Basic Units of Life, continued

6. nucleus _____

7. prokaryotic _____

8. eukaryotic _____

9. bacteria _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- The cell theory states that all organisms are made of cells, the cell is the basic unit of life, and all cells come from other cells.
- All cells have a cell membrane, DNA, cytoplasm, and organelles. Most cells are too small to be seen with the naked eye.
- Materials that cells need to take in or release must pass through the cell membrane.
- The surface-to-volume ratio is a comparison of the cell's outer surface to the cell's volume. A cell's surface-to-volume ratio decreases as the cell grows.
- Eukaryotes have linear DNA enclosed in a nucleus and membrane-covered organelles. Prokaryotic cells have circular DNA and organelles that are not covered by membranes.

SECTION 3

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. cell wall _____

2. ribosomes _____



Cells: The Basic Units of Life, continued

3. endoplasmic reticulum _____

4. mitochondria _____

5. chloroplast _____

6. Golgi complex _____

7. vesicles _____

8. vacuole _____

9. lysosomes _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- All cells have a cell membrane that surrounds the contents of the cell. Some cells have a cell wall outside their membrane.
- The nucleus is the control center of the eukaryotic cell. It contains the cell's DNA.
- Ribosomes are the sites where amino acids are strung together to form proteins. Ribosomes are not covered by a membrane.
- The endoplasmic reticulum (ER) and the Golgi complex are membrane-covered compartments in which materials are made and processed before they are transported to other parts of the cell or out of the cell.
- Mitochondria and chloroplasts are energy-producing organelles.
- Vesicles and vacuoles are membrane-covered compartments that store material. Vacuoles are found in plant cells. Lysosomes are vesicles found in animal cells.

CHAPTER

4

CHAPTER REVIEW WORKSHEET

*Cells: The Basic Units of Life***USING VOCABULARY**

To complete the following sentences, choose the correct terms from each set of terms listed below, and write the term in the space provided.

1. The cell wall of plant cells is made of _____.
(lipids or cellulose)
2. Having membrane-covered organelles is a characteristic of _____ cells. (prokaryotic or eukaryotic)
3. The information for how to make proteins is located in the _____. (Golgi complex or nucleus)
4. The two organelles that can generate ATP in a plant cell are _____ and _____.
(chloroplasts/ER or mitochondria/chloroplasts)
5. Vesicles that will transport materials out of the cell are formed at the _____. (Golgi complex or cell membrane)

UNDERSTANDING CONCEPTS**Multiple Choice**

6. Which of the following is NOT found in animal cells?
 - a. cell wall
 - b. cell membrane
 - c. lysosomes
 - d. vesicle
7. Different _____ work together in an organ.
 - a. organ systems
 - b. tissues
 - c. organisms
 - d. prokaryotes
8. Which of the following refers to all of the organisms in a particular area?
 - a. population
 - b. ecosystem
 - c. community
 - d. organelles
9. The scientist who said that all cells come from cells was named
 - a. Virchow.
 - b. Schleiden.
 - c. Hooke.
 - d. Schwann.



Cells: The Basic Units of Life, continued

- 10. Which of the following is NOT covered by a membrane?
 - a. Golgi complex
 - b. mitochondria
 - c. ribosomes
 - d. None of the above

- 11. Which of the following contains enzymes that can break down particles in vesicles?
 - a. mitochondria
 - b. endoplasmic reticulum
 - c. lysosomes
 - d. None of the above

Short Answer

- 12. Why are most cells so small?

- 13. What five characteristics of mitochondria suggest that they may have originated as bacteria?

- 14. In your own words, list the three parts of the cell theory.

Cells: The Basic Units of Life, continued

CONCEPT MAPPING

15. Use the following terms to create a concept map: *ecosystem, cells, organisms, Golgi complex, organ systems, community, organs, endoplasmic reticulum, nucleus, population, tissues.*

Cells: The Basic Units of Life, continued

CRITICAL THINKING AND PROBLEM SOLVING

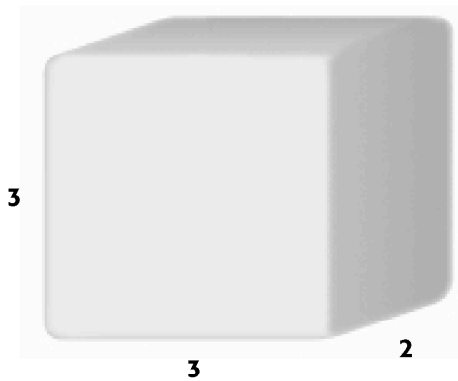
Write one or two sentences to answer the following questions:

16. Explain how the nucleus can control what happens in a lysosome.

17. Even though cellulose is not made at ribosomes, explain how ribosomes in a plant cell are important to the formation of a cell wall.

MATH IN SCIENCE

18. Assume that three food molecules per cubic unit of volume per minute is required for the cell below to survive.



If one molecule can enter through each square unit of surface per minute, this cell is

- a. too big and would starve.
- b. too small and would starve.
- c. at a size that would allow it to survive.

Cells: The Basic Units of Life, continued

INTERPRETING GRAPHICS

Turn to page 103 in your book. Look at the cell diagrams, and answer the questions that follow.

19. Name the organelle labeled “19” in Cell A.

20. Is Cell A a bacterial cell, a plant cell, or an animal cell? Explain your answer.

21. What is the name and function of the organelle labeled “21” in Cell B?

22. Is Cell B a prokaryotic cell or a eukaryotic cell? Explain your answer.

NOW WHAT DO YOU THINK?

Take a minute to review your answers to the ScienceLog questions at the beginning of the chapter. Have your answers changed? If necessary, revise your answers based on what you have learned since you began this chapter. Record your revisions in your ScienceLog.