

CHAPTER

5

VOCABULARY & NOTES WORKSHEET

The Cell in Action

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. diffusion _____

2. osmosis _____

3. passive transport _____

4. active transport _____

5. endocytosis _____

6. exocytosis _____

Notes

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

- A cell can survive only if food molecules are taken into the cell and waste materials are removed. Materials enter and leave the cell by passing through the cell membrane. The cell membrane allows some materials to pass through but prevents others.

The Cell in Action, continued

- A cell does not need to use energy to move particles from regions of high concentration to regions of low concentration. This type of movement is called diffusion.
- Osmosis is the diffusion of water through a membrane.
- Some substances enter and leave a cell by passing through proteins. During passive transport, substances diffuse through proteins. During active transport, substances are moved from areas of low concentration to areas of high concentration. The cell must supply energy for active transport to occur.
- Particles that are too large to pass easily through the membrane can enter a cell by a process called endocytosis. Large particles can leave a cell by exocytosis.

SECTION 2

Vocabulary

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

1. photosynthesis _____

2. cellular respiration _____

3. fermentation _____

Notes

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

- The sun is the ultimate source of almost all energy needed to fuel the chemical activities of organisms. Most producers use energy from sunlight to make food during the process known as photosynthesis. This food then becomes a source of energy for the producers and for the consumers that eat the producers.
- Cells use cellular respiration or fermentation to release the energy from food to make ATP. Cellular respiration requires oxygen, but fermentation does not.

The Cell in Action, continued

SECTION 3

Vocabulary

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

1. cell cycle _____

2. chromosome _____

3. binary fission _____

4. homologous chromosomes _____

5. centromere _____

6. chromatids _____

7. mitosis _____

8. cytokinesis _____

Notes

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

- The life cycle of a cell is called the cell cycle. The cell cycle begins when the cell is formed and ends when the cell divides to produce two new cells. Prokaryotic cells produce new cells by binary fission. Eukaryotic cells produce new cells by mitosis and cytokinesis.
- Before mitosis, the chromosomes are copied. During mitosis, chromatids separate, and two new nuclei are formed. During cytokinesis, the cell divides.

CHAPTER

5

CHAPTER REVIEW WORKSHEET

*The Cell in Action***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 diffusion of water through the cell membrane is called _____ . (osmosis or active transport)
2. A cell can remove large particles during _____ . (exocytosis or endocytosis)
3. Plants use _____ to make glucose. (cellular respiration or photosynthesis)
4. During _____ , food molecules are broken down to form CO_2 and H_2O and release large amounts of energy. (cellular respiration or fermentation)
5. In eukaryotes, _____ creates two nuclei, and _____ creates two cells. (cytokinesis/mitosis or mitosis/cytokinesis)

UNDERSTANDING CONCEPTS**Multiple Choice**

6. When particles are moved through a membrane from a region of low concentration to a region of high concentration, the process is called
 - a. diffusion.
 - b. passive transport.
 - c. active transport.
 - d. fermentation.
7. An organism with chloroplasts is a
 - a. consumer.
 - b. prokaryote.
 - c. producer.
 - d. centromere.
8. What is produced by mitosis?
 - a. two identical cells
 - b. two nuclei
 - c. chloroplasts
 - d. two different cells
9. Before the energy in food can be used by a cell, it must first be transferred to molecules of
 - a. proteins.
 - b. carbohydrates.
 - c. DNA.
 - d. ATP.



The Cell in Action, continued

- 10. Which one of the following does not perform mitosis?
 - a. prokaryotic cell
 - b. human body cell
 - c. eukaryotic cell
 - d. plant cell

- 11. Which of the following would form a cell plate during the cell cycle?
 - a. human cell
 - b. prokaryotic cell
 - c. plant cell
 - d. All of the above

Short Answer

- 12. What cell structures are needed for photosynthesis? for respiration?

- 13. How many chromatids are present in a chromosome at the beginning of mitosis?

- 14. What are the three stages of the cell cycle in a eukaryotic cell?

The Cell in Action, continued

CONCEPT MAPPING

15. Use the following terms to create a concept map: *chromosome duplication, cytokinesis, prokaryote, mitosis, cell cycle, binary fission, eukaryote.*

The Cell in Action, continued

CRITICAL THINKING AND PROBLEM SOLVING

Write one or two sentences to answer the following questions:

16. Please refer to the picture of the two plants on page 123 of your textbook to answer this question. Which one of the plants below was given water mixed with salt, and which one was given pure water? Explain how you know, and be sure to use the word *osmosis* in your answer.

17. Why would your muscle cells need to be supplied with more food when there is a lack of oxygen than when there is plenty of oxygen present?

18. A parent cell has 10 chromosomes before dividing.

a. Will the cell go through binary fission or mitosis and cytokinesis to produce new cells?

b. How many chromosomes will each new cell have after the parent cell divides?

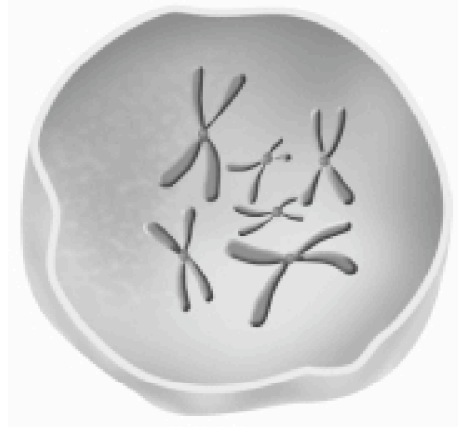
MATH IN SCIENCE

19. A cell has six chromosomes at the beginning of its cell cycle. How many chromatids will line up at the equator of the cell during mitosis?

The Cell in Action, continued

INTERPRETING GRAPHICS

Look at the cell below to answer the following questions.



20. Is the cell prokaryotic or eukaryotic?

21. In what stage of the cell cycle is this cell?

22. How many chromatids are present?

How many pairs of homologous chromosomes are present?

23. How many chromosomes will be present in each of the new cells after the cell divides?

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.

