

Chapter 8

Cellular Transport and the Cell Cycle

Reinforcement and Study Guide

Section 8.1 Cellular Transport

In your textbook, read about osmosis: diffusion of water.

Complete the table by checking the correct column for each statement.

| Statement | Isotonic Solution | Hypotonic Solution | Hypertonic Solution |
|---------------------------------------|-------------------|--------------------|---------------------|
| 1. Causes a cell to swell | | | |
| 2. Doesn't change the shape of a cell | | | |
| 3. Causes osmosis | | | |
| 4. Causes a cell to shrink | | | |

In your textbook, read about passive transport and active transport.

For each item in Column A, write the letter of the matching item in Column B.

Column A

Column B

- | | |
|--|--------------------------|
| _____ 5. Transport protein that provides a tubelike opening in the plasma membrane through which particles can diffuse | a. energy |
| _____ 6. Is used during active transport but not passive transport | b. facilitated diffusion |
| _____ 7. Process by which a cell takes in material by forming a vacuole around it | c. endocytosis |
| _____ 8. Particle movement from an area of higher concentration to an area of lower concentration | d. passive transport |
| _____ 9. Process by which a cell expels wastes from a vacuole | e. active transport |
| _____ 10. A form of passive transport that uses transport proteins | f. exocytosis |
| _____ 11. Particle movement from an area of lower concentration to an area of higher concentration | g. carrier protein |
| _____ 12. Transport protein that changes shape when a particle binds with it | h. channel protein |

Chapter
8**Cellular Transport
and the Cell Cycle, *continued*****Reinforcement and Study Guide****Section 8.2 Cellular Growth
and Reproduction**

In your textbook, read about cell size limitations.

Determine if the statement is true. If it is not, rewrite the italicized part to make it true.

1. Most *living cells* are between 2 and 200 μm in diameter. _____
2. Diffusion of materials over long distance is *fast*. _____
3. If a cell doesn't have enough *DNA* to make all the proteins it needs, the cell cannot live.

4. As a cell's size increases, its volume increases much *slower* than its surface area.

5. If a cell's diameter doubled, the cell would require *two* times more nutrients and would have *two* times more wastes to excrete. _____

In your textbook, read about cell reproduction.

Use each of the terms below just once to complete the passage.

nucleus
identical

genetic material
chromatin

chromosomes
vanish

packed
cell division

The process by which two cells are produced from one cell is called **(6)** _____.
The two cells are **(7)** _____ to the original cell. Early biologists observed that just before cell division, several short, stringy structures appeared in the **(8)** _____.
These structures seemed to **(9)** _____ soon after cell division. These structures, which contain DNA and became darkly colored when stained, are now called **(10)** _____.
Scientists eventually learned that chromosomes carry **(11)** _____, which is copied and passed on from generation to generation. Chromosomes normally exist as **(12)** _____, long strands of DNA wrapped around proteins. However, before a cell divides, the chromatin becomes tightly **(13)** _____.

Chapter
8
Cellular Transport
and the Cell Cycle, continued
Reinforcement and Study Guide
Section 8.2 Cellular Growth
and Reproduction, continued

In your textbook, read about the cell cycle and interphase.

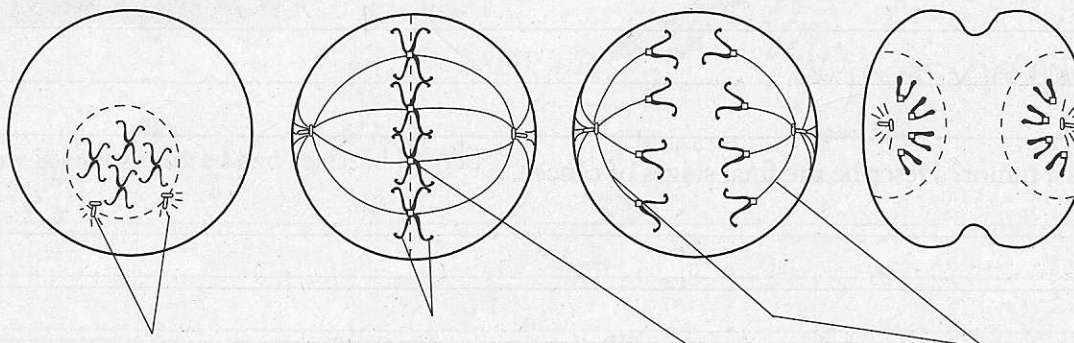
Complete the table by checking the correct column for each statement.

| Statement | Interphase | Mitosis |
|--|------------|---------|
| 14. Cell growth occurs. | | |
| 15. Nuclear division occurs. | | |
| 16. Chromosomes are distributed equally to daughter cells. | | |
| 17. Protein production is high. | | |
| 18. Chromosomes are duplicated. | | |
| 19. DNA synthesis occurs. | | |
| 20. Cytoplasm divides immediately after this period. | | |
| 21. Mitochondria and other organelles are manufactured. | | |

In your textbook, read about the phases of mitosis.

Identify the following phases of mitosis. Use these choices: telophase, metaphase, anaphase, prophase. Then label the diagrams. Use these choices: sister chromatids, centromere, spindle fibers, centrioles.

22. _____ 23. _____ 24. _____ 25. _____



26. _____ 27. _____ 28. _____ 29. _____

Answer the question.

30. How does mitosis result in tissues and organs?

Chapter
8**Cellular Transport
and the Cell Cycle, continued****Reinforcement and Study Guide****Section 8.3 Control of the
Cell Cycle**

In your textbook, read about normal control of the cell cycle and cancer.

Answer the following questions.

- 1.** In what ways do enzymes control the cell cycle?

- 2.** What directs the production of these enzymes?

- 3.** What can cause the cell cycle to become uncontrolled?

- 4.** What can result when the cell cycle becomes uncontrolled?

- 5.** What is the relationship between environmental factors and cancer?

- 6.** What is a tumor? Describe the final stages of cancer.

- 7.** Cancer is the second leading cause of death in the United States. What four types of cancer are the most prevalent?
