

Skills Worksheet

Active Reading

Section: Passive Transport

Read the passage below. Notice that the sentences are numbered. Then answer the questions that follow.

¹ The diffusion of water through a selectively permeable membrane is called **osmosis**. ² Like other forms of diffusion, osmosis involves the movement of a substance—water—down its concentration gradient. ³ Osmosis is a type of passive transport.

⁴ If the solutions on either side of the cell membrane have different concentrations of dissolved particles, they will also have different concentrations of “free” water molecules. ⁵ Osmosis will occur as water molecules diffuse into the solution with the lower concentration of free water molecules.

SKILL: READING EFFECTIVELY

Read each question, and write your answer in the space provided.

1. What key term is defined in this passage? What does this term mean?

Osmosis; the diffusion of water through a selectively permeable membrane

2. How are diffusion and osmosis related?

Osmosis is a type of diffusion.

3. What does the word *water* in Sentence 2 tell you about osmosis?

Other forms of diffusion involve movement of different substances down a concentration gradient.

In the space provided, write the letter of the term or phrase that best completes the statement.

D

4. Osmosis is a type of
- a. passive transport.
 - b. diffusion.
 - c. active transport.
 - d. Both (a) and (b)

Skills Worksheet

Directed Reading

Section: Passive Transport

Read each question, and write your answer in the space provided.

1. What is passive transport? Why is diffusion an example of passive transport?

Passive transport is movement across a cell membrane that does not require energy from the cell. Osmosis is an example of passive transport because it does not require energy from the cell.

2. How does the cell membrane help cells maintain homeostasis?

Cell membranes control the movement of substances into and out of cells.

3. What determines the direction in which a substance diffuses across a membrane?

Substances diffuse across the cell membrane from an area of high concentration to an area of low concentration.

4. Describe the state of equilibrium.

Equilibrium is a condition in which the concentration of a substance is equal throughout a space.

In the space provided, explain how the terms in each pair differ in meaning.

5. osmosis, diffusion

Osmosis is the diffusion of water through a selectively permeable membrane. Diffusion is the movement of a substance from a high area of concentration to an area of low concentration.

Directed Reading *continued*

6. hypertonic solution, hypotonic solution

A hypertonic solution causes cells to shrink as water moves out of the cell by osmosis. A hypotonic solution causes a cell to swell as water moves into the cell by osmosis.

7. isotonic solution, equilibrium

An isotonic solution has no effect on cell volume. In a solution, equilibrium is a state in which there is no net movement of substances. Cells are in a state of equilibrium in an isotonic solution.

In the space provided, write the letter of the description that best matches the term or phrase.

- F 8. hypertonic solution
- E 9. selective permeability
- C 10. osmosis
- B 11. negatively charged
- G 12. facilitated diffusion
- A 13. concentration gradient
- D 14. ion channel

- a. difference in the concentration of a substance across a space
- b. the inside of a typical cell
- c. diffusion of water through a cell membrane
- d. allows charged molecules to pass through the cell membrane
- e. enables a cell to control what enters and leaves
- f. will cause a cell to shrivel up
- g. involves carrier proteins