

## Osmosis - Multiple Choice Worksheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:** Choose the correct answer from the options provided.

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- Osmosis is best defined as the movement of:**
    - Water molecules from an area of low concentration to an area of high concentration
    - Solute molecules from an area of high concentration to an area of low concentration
    - Water molecules from an area of high concentration to an area of low concentration
    - Solute molecules from an area of low concentration to an area of high concentration
  - Which of the following is true about osmosis?**
    - It requires energy input from the cell
    - It occurs only in plant cells
    - It is a type of passive transport
    - It involves the movement of solutes
  - In osmosis, water moves across a membrane through which of the following structures?**
    - Protein pumps
    - Aquaporins
    - Ion channels
    - Ribosomes
  - Which of the following best describes a hypertonic solution?**
    - A solution with higher solute concentration than the cell
    - A solution with lower solute concentration than the cell
    - A solution with equal solute concentration as the cell
    - A solution with no solute concentration
  - What happens to a cell placed in a hypotonic solution?**
    - The cell shrinks
    - The cell swells and may burst
    - The cell stays the same size
    - The cell loses water rapidly
  - Which of the following is an example of osmosis in the human body?**
    - Movement of oxygen into the blood
    - Absorption of water in the intestines
    - Secretion of hormones by glands
    - Transport of glucose into cells
  - What is the main difference between osmosis and diffusion?**
    - Osmosis involves solutes, while diffusion involves water
    - Osmosis requires energy, while diffusion does not
    - Osmosis specifically refers to water movement, while diffusion refers to the movement of any particles
    - Osmosis occurs only in animal cells, while diffusion occurs in plant cells
  - Which type of solution causes a plant cell to become turgid (swollen)?**
    - Isotonic solution
    - Hypertonic solution
    - Hypotonic solution
    - Saturated solution
  - What is the effect of a hypertonic solution on red blood cells?**
    - The cells take in water and swell
    - The cells remain unchanged
    - The cells shrink as water leaves
    - The cells become more rigid
  - Which of the following is NOT true about osmosis?**
    - It is a passive process
    - It occurs through a selectively permeable membrane
    - It can occur in both plant and animal cells
    - It moves solutes across the membrane

## Answer Key

1. c) Water molecules from an area of high concentration to an area of low concentration
2. c) It is a type of passive transport
3. b) Aquaporins
4. a) A solution with higher solute concentration than the cell
5. b) The cell swells and may burst
6. b) Absorption of water in the intestines
7. c) Osmosis specifically refers to water movement, while diffusion refers to the movement of any particles
8. c) Hypotonic solution
9. c) The cells shrink as water leaves
10. d) It moves solutes across the membrane