Name	Class	Date	

Bio 10: 7.3 Cell Transport

Lesson Objectives

Describe passive transport.

Describe active transport.

Lesson Summary

Passive Transport The movement of materials across the cell membrane without using cellular energy is called passive transport.

- **Diffusion** is the process by which particles move from an area of high concentration to an area of lower concentration.
- **Facilitated diffusion** is the process by which molecules that cannot directly diffuse across the membrane pass through special protein channels.
- **Osmosis** is the facilitated diffusion of water through a selectively permeable membrane.
 - Aquaporins are water channel proteins that allow water to pass through cell membranes.
 - Two adjacent solutions are **isotonic** if they have the same concentrations of solute.
 - **Hypertonic** solutions have a higher concentration of solute compared to another solution.
 - **Hypotonic** solutions have a lower concentration of solute compared to another solution.
- **Osmotic pressure** is the force caused by the net movement of water by osmosis.

Active Transport The movement of materials against a concentration difference is called active transport. Active transport requires energy.

- Transport proteins that act like pumps use energy to move small molecules and ions across cell membranes.
- The bulk transport of large molecules and clumps of materials into and out of cells occurs by movements of the cell membrane, which require energy.

Passive Transport

For Questions 1-4, write the letter of the correct answer on the line at the left.

- **1.** Which of the following must be true for diffusion to occur?
 - **A.** Molecules or particles must have different sizes.
 - **B.** Special protein channels must always be available.
 - **C.** There must be areas of different concentrations.
 - **D.** Energy must be available.

Name				Class	Date
	2.	Which term refers to the condi- concentration results from dif		exists when no ne	et change in
		A. concentration		osmosis	
		B. equilibrium	D.	randomness	
3. Air has a higher concentration of oxygen mole your lung cells. Where in your lungs will there				• •	
		A. in the air breathed in	C.	outside of the lui	ng cells
		B. in the air breathed out	D.	inside of the lung	g cells
	4.	Which of the following statem simple diffusion?	ents tells	how facilitated di	iffusion differs from
		A. Particles move through cel	l membra	anes without the u	se of energy by cells.
		B. Particles tend to move from	n high co	ncentration to low	ver concentration.
		C. Particles move within char	nel prote	eins that pass throu	igh cell membranes.
		D. Particles tend to move mor	e slowly	than they would b	be expected to move.
Situatio	n		F	Result	
	_	Cells are in an isotonic solution			
	3.	cens are in an isotome solution	1. A	. The cells lose w	vater.
		Cells are in a hypertonic solution		The cells lose wThe cells gain w	
	6.		on. I		vater.
8. THII place	6. 7.	Cells are in a hypertonic solution	on. I	3. The cells gain v	vater. ne same.
8. THII place	6. 7.	Cells are in a hypertonic solution. Cells are in a hypotonic solution. //SUALLY In the table below.	on. I	3. The cells gain value. The cells stay the cells stay the weach type of cells.	vater. ne same. Il will look after being
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anne	Class Date
ctive Transp	port
9. What is the function membranes? Give a	n of active transport in moving small molecules and ions across cell an example.
How does ATP ena	ble transport proteins to move ions across a cell membrane?
. What are the protein	ns used in active transport called?
-	to summarize the types of bulk transport.
	Types of Bulk Transport
	Ar a same a
Гуре	Description
Endocytosis	
Type Endocytosis Phagocytosis Exocytosis	

٠.	Wost sports armiks are isotome in relation to numain body ridids. Explain why atmetes
	should drink solutions that are isotonic to body fluids when they exercise rather than one
	that are hypotonic to body fluids (contain a greater proportion of water in comparison to
	the fluids in and around human body cells).