

Cell Transport Worksheet-Biology 2201

1. Which cell transport mechanism:

- a.) uses no energy and results in an even distribution of molecules?
- b) occurs across the membrane of red blood cells causing them to swell and burst when placed in distilled water?
- c) uses energy and allows the cell to take into itself particles and bacteria?
- d) moves substances across the plasma membrane from a low to a high concentration?
- e) uses a carrier molecule to help substances across a membrane but does not require energy?
- f) secretes products manufactured in the cell to the exterior of the cell?

2. For each of the following, circle **ALL** the correct statements below.

Diffusion is a process that:

- a) occurs in liquid and gases
- b) only occurs in liquids
- c) uses energy
- d) uses no energy
- e) occurs naturally
- f) occurs from a lower concentration of molecules to a higher concentration
- g) occurs from a higher concentration of molecules to a lower one
- h) results in an even distribution of molecules

Osmosis:

- a) is a special kind of diffusion
- b) only occurs in gases
- c) is not a natural process
- d) is the diffusion of water molecules only
- e) is the diffusion of water molecules from a high concentration of water to a low concentration of water
- f) requires energy
- g) results in an even dispersal of water molecules
- h) results in an even distribution of salt molecules

A **selectively permeable membrane** is a membrane that:

- a) allows some molecules to go through but not others
- b) allows all molecules to go through

Active transport:

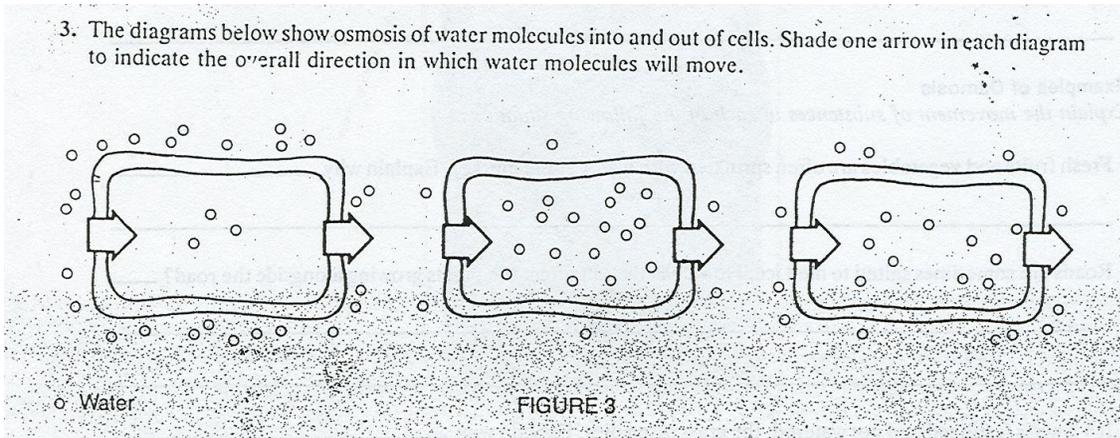
- a) uses energy
- b) uses no energy
- c) occurs from a lower concentration of molecules to a higher concentration
- d) occurs from a higher concentration of molecules to a lower one
- e) results in an even distribution of molecules

Oxygen crosses the plasma membrane by:

- a) diffusion via the protein channels
- b) active transport
- c) diffusion through the lipid bilayer
- d) facilitated diffusion
- e) osmosis

Water crosses the plasma membrane by:

- a) diffusion via the protein channels
- b) active transport
- c) diffusion through the lipid bilayer
- d) facilitated diffusion
- e) osmosis

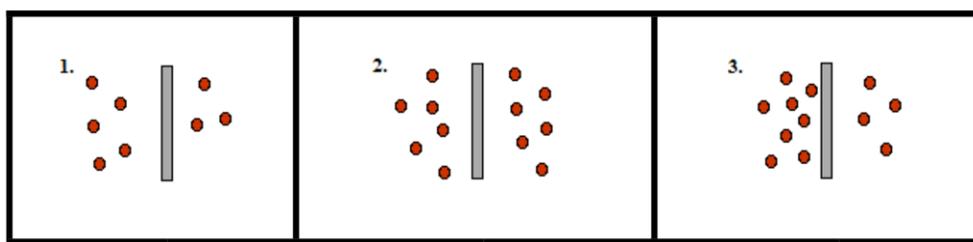


4. In your large intestine, the water from the food you have eaten needs to be kept in the body to prevent dehydration. Therefore the high concentration of water in feces needs to be moved into the surrounding cells. Is this osmosis? Explain your answer.

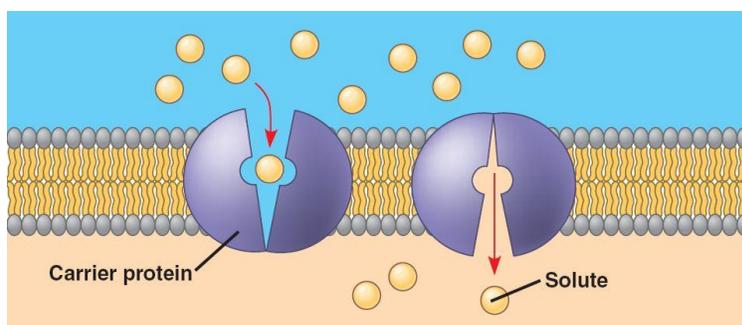
5. When you are exercising, your muscle cells use sugar to produce energy. To provide more sugar to these muscle cells, your body releases a hormone that will add sugar to your bloodstream. The sugar needs to move from the bloodstream to the muscle cells, but sugar molecules are fairly large molecules. What type of cell transport mechanism will likely be used? Provide reasons for your choice.

6. When you breathe, the gases oxygen (O_2) and carbon dioxide (CO_2) need to be transferred between your blood and your lung cells. Blood coming to the lungs is high in CO_2 and low in O_2 . The cells in your lungs are high in O_2 and low in CO_2 . What transport mechanism will be used to transfer CO_2 to the lungs and O_2 to the blood?

7. Observe the diagrams in the table below. Assume that the dots are dissolved particles on either side of the cell membrane. They are like **oxygen** molecules that can go across the membrane. Do the following situations represent concentration gradients? If so, in which direction would **diffusion** occur?



8. What type of cell transport is being shown in the following picture? How do you know?



9. Explain why it is important for cells to have a variety of ways to transport materials across the cell membrane.