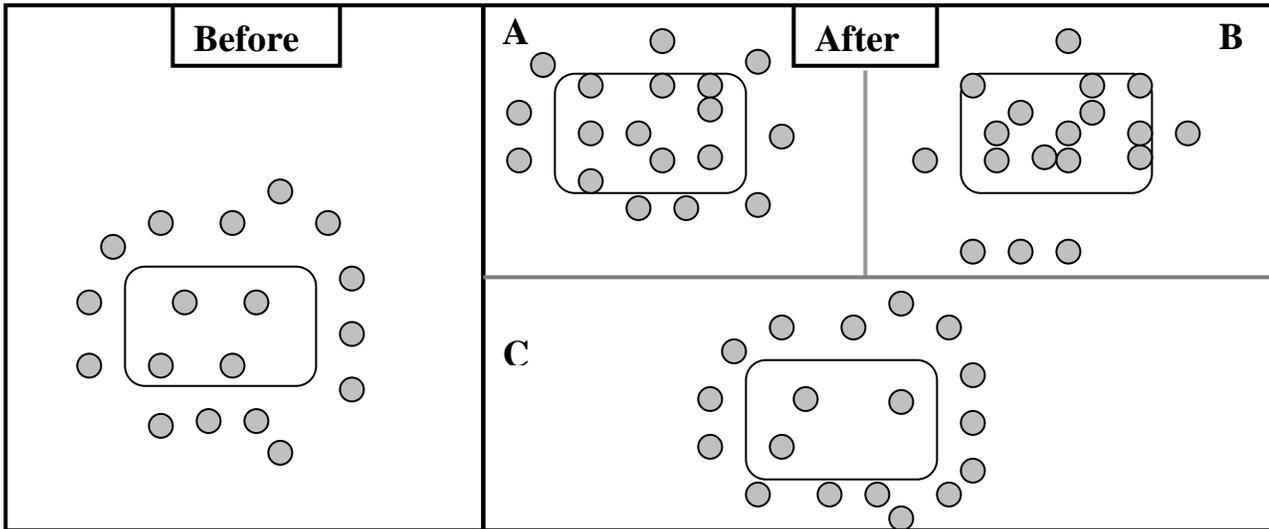


Name _____ Date _____ Pd _____

Passive and Active Transport Worksheet

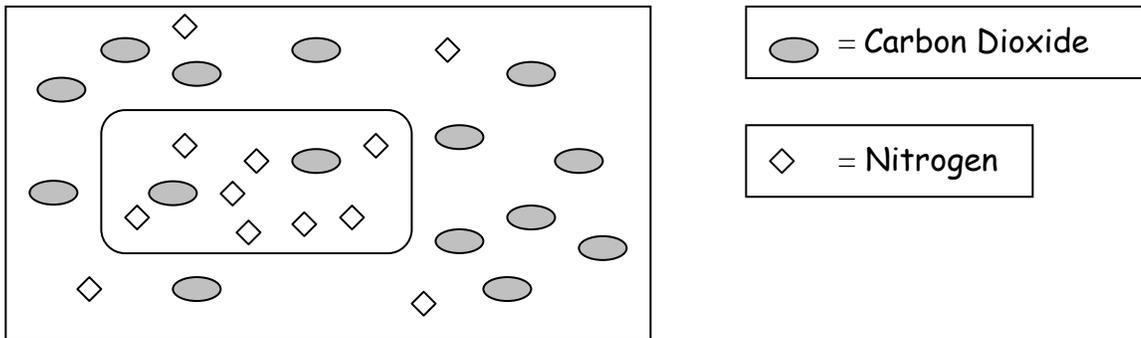
Look at these pictures of a cell surrounded by oxygen molecules. The small dots are oxygen molecules.

● = Oxygen



1. Which picture correctly shows where the oxygen molecules would appear after diffusion has taken place?
2. Which of the "After" cells is most concentrated with oxygen?
3. Which of the "After" cells is least concentrated with oxygen?
4. In what direction (in or out) did the oxygen molecules move in cell B? How can you tell?
5. How do the oxygen molecules get through the cell membrane?
6. What is diffusion?

The following cell has just been placed in water which has both carbon dioxide and nitrogen in it.

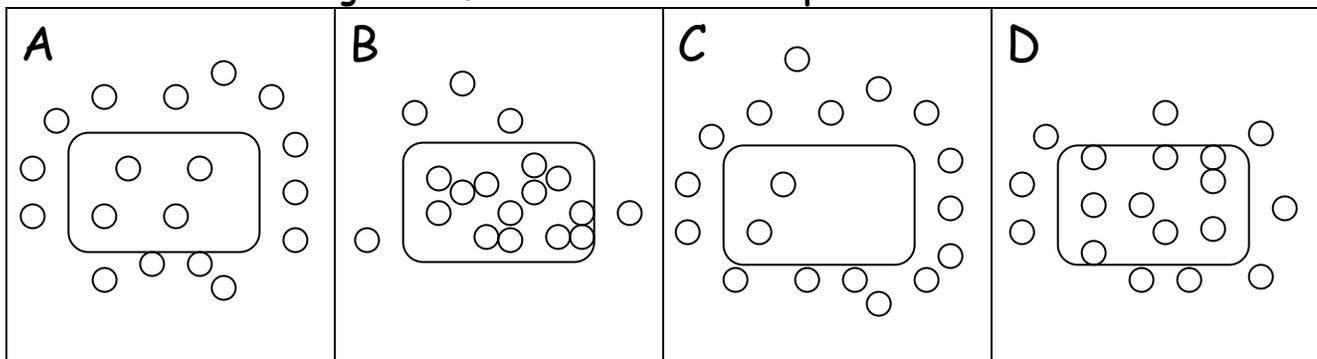


7. Will the nitrogen move into or out of the cell above? How do you know?
8. Will the carbon dioxide move into or out of the cell above? How do you know?
9. Where is there a higher concentration of nitrogen? Inside or outside the cell?
10. After several minutes the carbon dioxide and nitrogen will reach equilibrium across the cell membrane. What does this mean?
11. What is osmosis?
12. Which way would the water molecules move in the following:
 - a. A cucumber slice is placed in salt water. Will the water leave the cucumber slice or will it enter the cucumber slice?
 - b. Salt is poured on a slug. Will the water come out of the slug or will water enter the slug?

- c. In the grocery store, fresh vegetables are sprinkled with tap water to keep them crisp. In this example, does water enter or leave the vegetables to keep them crisp?
- d. A fresh water fish placed in salt water. Does the water enter or leave the fish?
- e. A salt water fish is placed in fresh water. Does the water enter or leave the fish?

○ = Water

Look at these diagrams of cells. The circles represent water molecules.



13. Draw an arrow in each diagram to correctly show the overall direction in which water molecules will move.
14. Which of the cells above has the highest water concentration?
15. Which of the cells above has the lowest water concentration?
16. Circle the letter of the sentence that best explains what osmosis is.
- Osmosis is the movement of water into or out of a cell from where it is in large amounts to small amounts.
 - Osmosis is the movement of water into or out of a cell from where it is in small amounts to large amounts.
 - Osmosis is the movement of water into or out of a cell if diffusion is present.
17. How many molecules of water need to move to the outside of cell B to reach equilibrium?
18. How many molecules of water need to move into cell C to reach equilibrium?

Active Transport

Matching: Select the term in the upper column that best matches the definition in the lower column. Write the letter of the term in the blank.

- a. Active transport
- b. Osmosis
- c. Pinocytosis
- d. Diffusion
- e. Passive Transport
- f. Exocytosis
- g. Phagocytosis

- 1.____ The movement of molecules from a place of higher concentration to a place of lower concentration (may or may not be through a membrane).
- 2.____ The cell itself plays no active role on the passing of molecules through its membrane.
- 3.____ The process by which a portion of the cell membrane engulfs and takes in a small particle of solid material.
- 4.____ The passing of water molecules only, through a membrane from a place of higher concentration to a place of lower concentration.
- 5.____ Process by which substances are expelled from the cell through the membrane.
- 6.____ The cell itself plays an active role in passing of molecules through its membrane.
- 7.____ The process by which a portion of the cell membrane engulfs and takes in a small droplet of liquid.