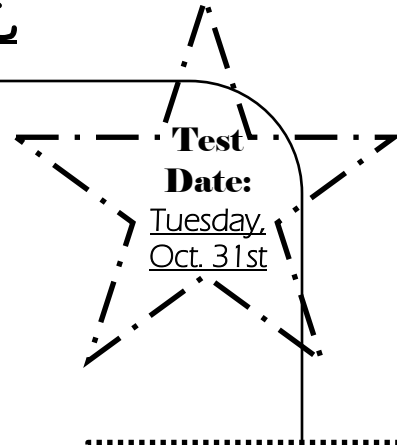


Cellular Transport Unit 4 Expectation Sheet-OL






I CAN -

- 1. Explain why homeostasis is critical to all organism and consequences if not maintained (4B)
- 2. Describe role cell organelles play in maintaining homeostasis (4B)
- 3. Diagram or describe the structure of the cell membrane (9A)
- 4. Explain how the structure of the membrane allows for different types of material to move in and out of the cell (4B)
- 5. Differentiate between diffusion and osmosis and explain how it affects the cell(4B)
- 6. Explain the process of passive transport and active transport using diagrams and words (4B)
- 7. Predict whether active or passive transport is occurring based on the movement and concentration of molecules (4B)
- 8. Predict the type of passive transport that is occurring (4B)

Words to Know

Plasma membrane, Cell Membrane, Phospholipid Bilayer, Homeostasis, Equilibrium, Phospholipid, Passive Transport, Active Transport, Diffusion, Osmosis, Facilitated Diffusion, Concentration

Calendar

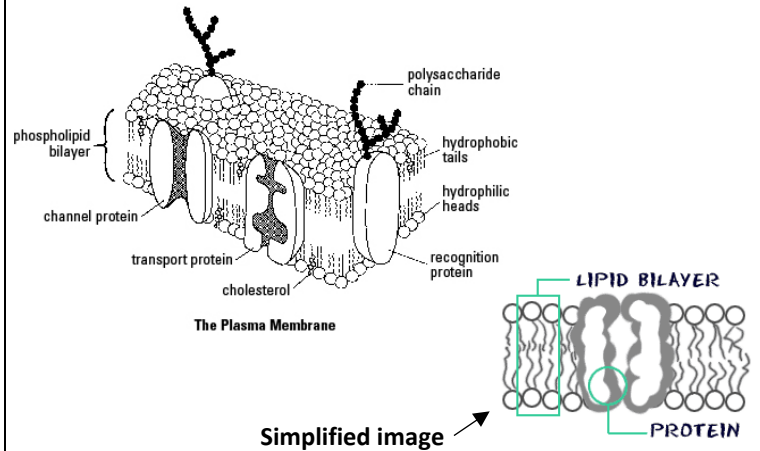
Monday 10/14	Tuesday 10/15	Wednesday 10/16	Thursday 10/17	Friday 10/18
	Topic: Cell Membrane Activities: Plasma Membrane Structure & Transport By the end of the period I can: 1, 2	PSAT DAY	Topic: Cell Membrane Activities: Cell Transport vocab By the end of the period I can: 1, 2, 3, 4 SUBSTITUTE	Topic: Cell Transport 
Monday 10/21	Tuesday 10/22	Wednesday 10/23	Thursday 10/24	Friday 10/25
Topic: Cell Transport Activities: Passive Transport By the end of the period I can: 2, 3	Topic: Cell Transport Activities: Passive vs Active Transport By the end of the period I can: 4	 Topic: Cell Transport Activities: Transport By the end of the period I can: 4	Topic: Cell Transport Activities: Cell Transport Lab By the end of the period I can: 3, 4, 5	Topic: Cell Transport Activities: Cell Transport Lab By the end of the period I can: 3, 4, 5
Monday 10/28	Tuesday 10/29	Wednesday 10/30	Thursday 10/31	Friday 11/01
Topic: Cell Transport Activities: Cell Transport Practice By the end of the period I can: 3, 4, 5	Topic: Cell Transport Activities: Cell Transport Bringing it together By end of period I can: 1, 2, 3, 4, 5	Topic: Cell Membrane and Transport Activities: Review By end of the period I can: 1, 2, 3, 4, 5 Cellular Transport Exam	Test Analysis and Progress Check

**** This is a tentative calendar and subject to change.

Review the following material and answer the questions to help you prepare for your test.
(You also need to play your review games and look at class material, too.)

Cell Membrane

- *Made Up of phospholipid bi-layer
- *In → Food, Oxygen (diffusion), Water (osmosis)
- *Out → Waste - CO₂(diffusion), Water (osmosis), Products like proteins
- *Semi-Permeable- Some but not all materials can get in or out
- *Protein Channels (Protein Carriers) allow substances in and out.
- *Active transport (L → H) AND facilitated diffusion (H → L) use proteins
- *Homeostasis refers to the ability of the body or a cell to seek and maintain equilibrium within its internal environment when dealing with external changes.

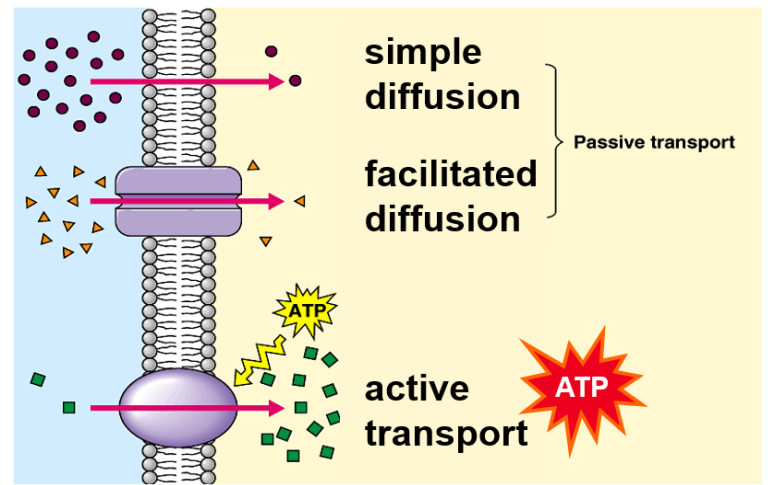


Passive Transport

Diffusion
Movement of molecules from HIGH to LOW concentration gradient
Requires NO ENERGY
Osmosis → Diffusion of water
Facilitated diffusion: diffusion of solutes through transport PROTEINS (still H to L, so no energy used)
Molecules move **with** the concentration gradient (high concentration to low concentration)
When cell changes size it is due to **WATER moving**, not solutes.

Active Transport

Movement of molecules from LOW to HIGH concentration gradient
Requires ENERGY (ATP)
Carrier PROTEINS move molecules using ATP
Molecules move **against** the concentration gradient (low concentration to high concentration)



Which way will the water go?

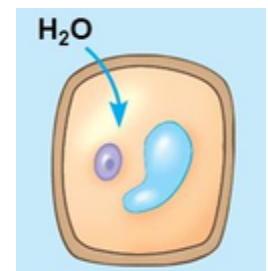
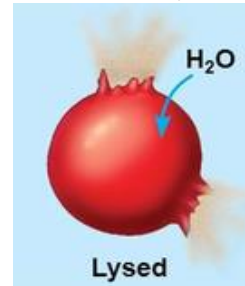
Think: SOLUTES “SUCK” WATER
This means water flows toward the higher concentration solute (and the lower concentration water) Water flows high to low – this is what changes the shape of a cell.

Water is the universal solvent

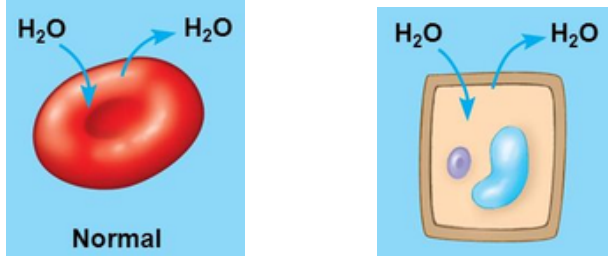
Solvent- Substance (usually in greater amount) that dissolves another substance

Solute – Substance (usually in lesser amount) that is being dissolved

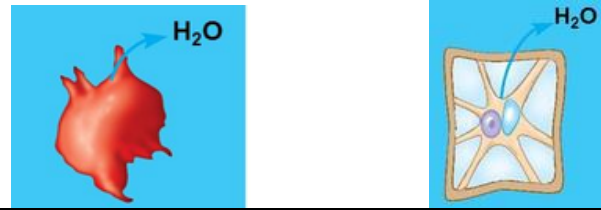
Cell swells (enlarges) → Concentration of solute is greater inside the cell than outside. Water concentration is lower inside the cell, so water rushes into the cell.



No change in cell size → Concentration of solute is equal both outside the cell and inside. Water concentration is also equal on both sides of the cell, so water does not change amounts. Cell is at equilibrium.



Cell shrinks → Concentration of solute is greater outside the cell than inside. Water concentration inside the cell is higher, so water leaves the cell.

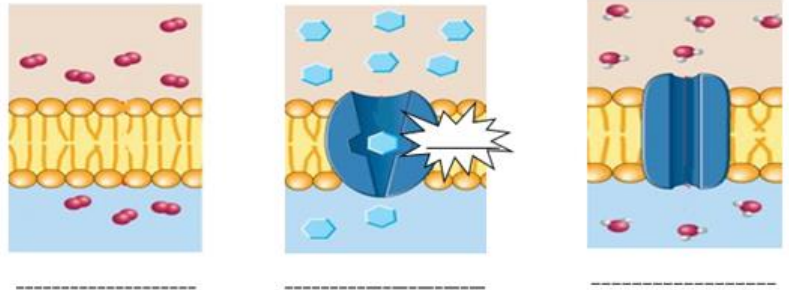


Remember: If a cell is changing size, it is due to water moving into or out of the cell. Movement of solutes will NOT change the size of the cell.

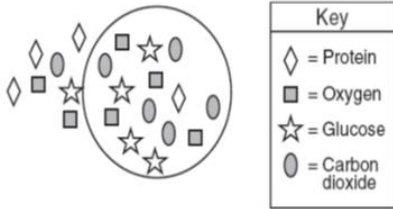
Types of Transport

Use the diagrams to the right to identify the different types of cell transport.

- Label the areas of high concentration with an **H** and low concentration with an **L**, then **draw an arrow** indicating the direction the molecules will travel.
- Label the diagram as active transport, facilitated diffusion, or passive transport
- Remember: Active Transport uses energy!



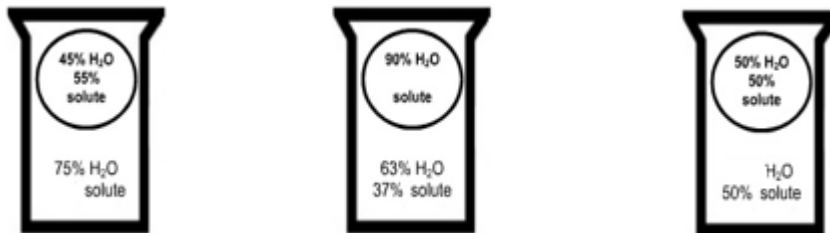
Diffusion



- Identify one molecule that would require ATP to move out of the cell. _____
- Identify one molecule that would diffuse out of the cell. _____
- Explain how you would know if energy were required to transport it across the cell membrane.

- The difference in concentration of a substance across a membrane is called the _____

Solutions Practice



- For Beakers A, B and C draw the **ARROWS** to show which way water will move. ***make sure to solve for the missing values***
- Identify if the cell will shrink, swell or stay the same.

Cell Transport Wrap Up

Label the diagrams of cells using the following terms: diffusion, active transport, osmosis, equilibrium.

The arrows show the direction of transport. You may use the terms more than once!

