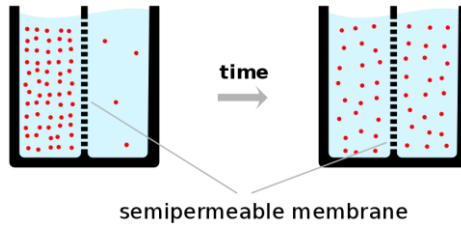


Looking at Cell Transport

• **Diffusion is** _____

1. Do you need energy for diffusion to happen? _____

2. Describe what is happening in this picture.

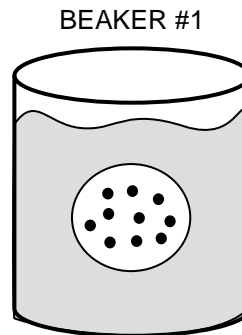


Beaker #1 is filled with water (□). Inside of this beaker is a cell and Molecule A (●).

3. Does the inside of the cell have a low or high concentration of Molecule A? _____

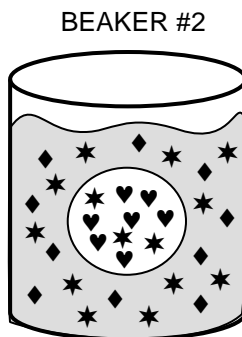
4. Does the water outside of the cell have a low or high concentration of Molecule A? _____

5. If the cell membrane is permeable to Molecule A, will Molecule A move IN the cell or OUT the cell? _____
DRAW AN ARROW to show direction of movement.



Beaker #2 is filled with water (□). Inside of this beaker is a cell, Molecule B (◆), Molecule C (♥), and Molecule D (★). The cell membrane is permeable to Molecule C (♥) and D (★) but not permeable to Molecule B (◆).

	Highest concentration INSIDE or OUTSIDE of the cell?	Will the molecule move out of the cell, into the cell, or not move?
6. Molecule B (◆)		
7. Molecule C (♥)		
8. Molecule D (★)		



Types of Solutions

A cell will respond in a certain way, depending on what type of solution you put it in. Read the information for the type of solution and answer the questions about what is happening.

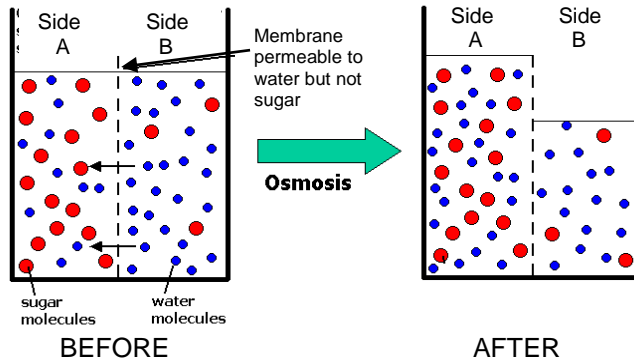
Type of Solution	What's Happening	Picture
<p>Isotonic</p> <p>Water moves in/out of the cell at the same rate</p>	<p>If I put this cell into this beaker, what will water do?</p> <p>50% Water 50% Sugar</p> <p>50% Water 50% Sugar</p> <p>Over time, will the cell swell, shrink, or stay the same size?</p>	
<p>Hypotonic</p> <p>Water moves into the cell faster than it moves out of the cell</p>	<p>If I put this cell into this beaker, what will water do?</p> <p>30% Water 70% Sugar</p> <p>70% Water 30% Sugar</p> <p>Over time, will the cell swell, shrink, or stay the same size?</p>	
<p>Hypertonic</p> <p>Water moves out of the cell faster than it moves into the cell</p>	<p>If I put this cell into this beaker, what will water do?</p> <p>80% Water 20% Sugar</p> <p>20% Water 80% Sugar</p> <p>Over time, will the cell swell, shrink, or stay the same size?</p>	

Osmosis is _____.

Osmosis is important to cells because they are made up of so much water. When looking at Osmosis, we need to figure out where water molecules are moving, in or out of cells.

9. Do you need energy for Osmosis to happen? _____

10. Describe what is happening in this picture.



11. Below are 6 beakers of water. Each beaker has a cell inside. Look at the concentrations of water and sugar in the cells and in the beakers. Draw an arrow to show which way WATER will move during osmosis (in or out of the cell). If water doesn't move, draw an = sign between the cell and the water in the beaker.

<p>Beaker 3</p> <p>75% Water 25% Sugar</p> <p>45% Water 55% Sugar</p>	<p>Beaker 4</p> <p>60% Water 30% Sugar</p> <p>90% Water 10% Sugar</p>	<p>Beaker 5</p> <p>50% Water 50% Sugar</p> <p>50% Water 50% Sugar</p>
<p>Beaker 6</p> <p>90% Water 10% Sugar</p> <p>90% Water 10% Sugar</p>	<p>Beaker 7</p> <p>30% Water 70% Sugar</p> <p>80% Water 20% Sugar</p>	<p>Beaker 8</p> <p>80% Water 20% Sugar</p> <p>50% Water 50% Sugar</p>

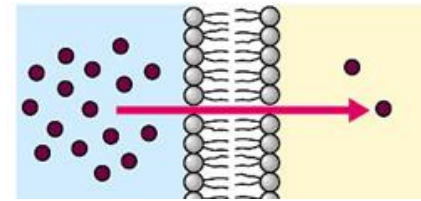
Transportation across a cell membrane

Sometimes, molecules can travel across a cell membrane themselves, but sometimes they need help.

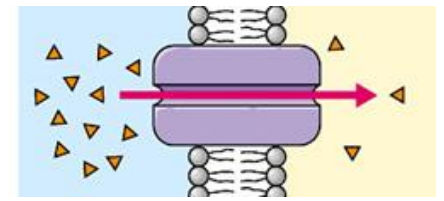
Passive Transport – No energy needed!

The two types are:

What's happening here?



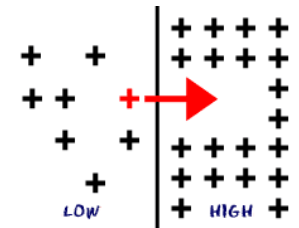
What's happening here?



Active Transport – Needs ENERGY to happen!

Sometimes a cell needs to move a molecule across its membrane from a LOW concentration to a HIGH concentration. We call this moving something **“against the concentration gradient”**.

So to move these molecules, you have to put in energy!



What's happening here?

