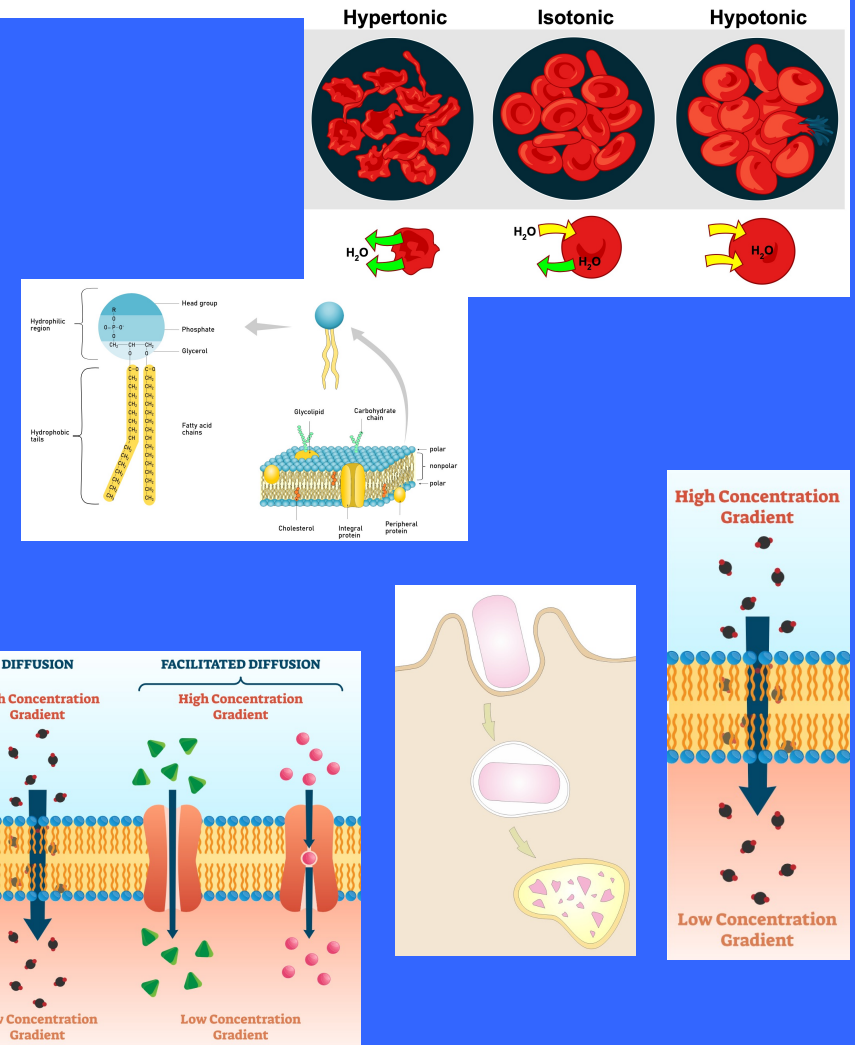


Cell Membrane and Transport Introduction

- Cell Membrane Structure and Function
- Semi-Permeable Membrane
- Cell Membrane Channels
- Cell Membrane Transport
- Diffusion and Temperature
- Facilitated Diffusion and Osmosis
- Keeping the water balance
- Active Transport



Preview File

Please enjoy this preview of your Student Version of the presentation. Please note within this sample file:

- Some slides appear blank because they have been removed
- Student versions have portions of the text removed which is given in the teacher version and appear as _____ which the students are to fill in
- Other slides may have on them, this represents writing that has been removed on this sample

**The paid full version of your resource includes
both Google Slides and PowerPoint and is
Google Classroom Ready**



Cell (Plasma) Membrane

- Cells need an inside and outside
- This separates the cell from its environment
- _____

IN

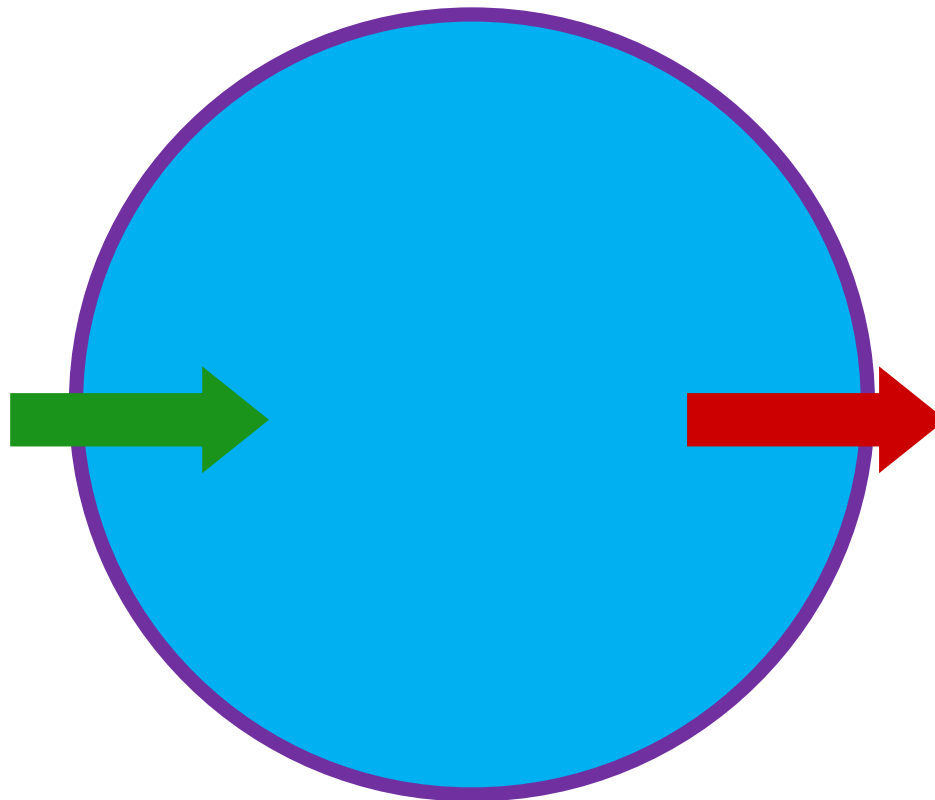
food

- sugars
- proteins
- fats

salts

O₂

H₂O



OUT

wastes

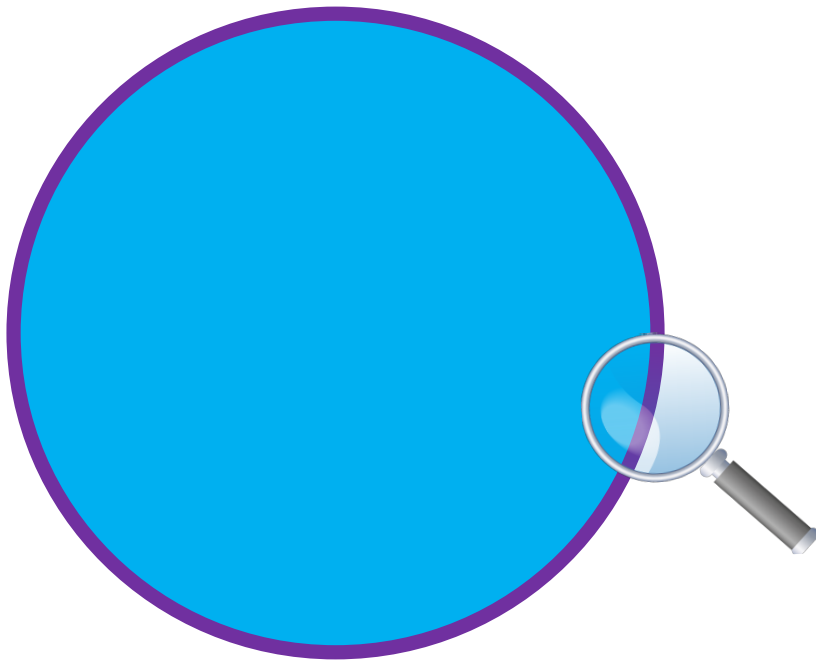
- ammonia
- salts
- CO₂
- H₂O

products

- proteins

Building a Membrane

- How do you build a barrier that keeps the watery contents of the cell separate from the watery environment?
- You make it the barrier out of fats!



→ FATS ←

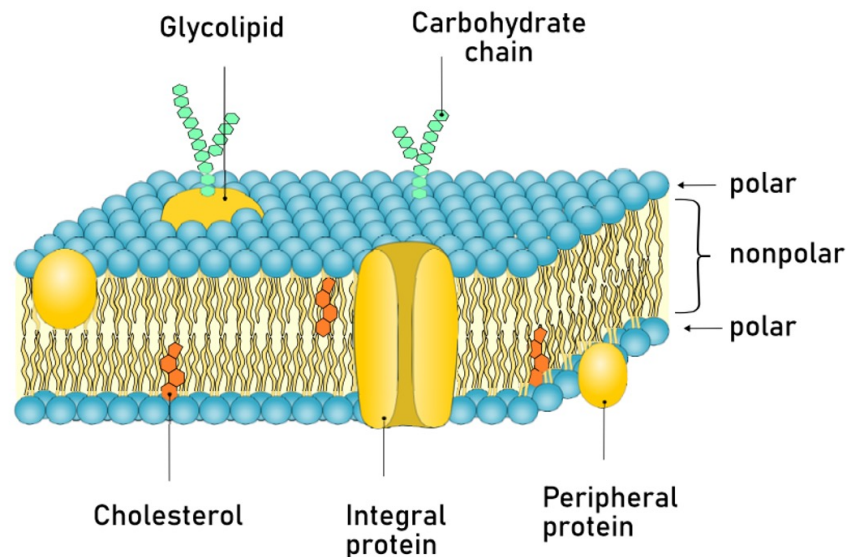
→ LIPIDS ←

**Remember: oil &
water
don't mix!!**

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Semi-permeable Membrane

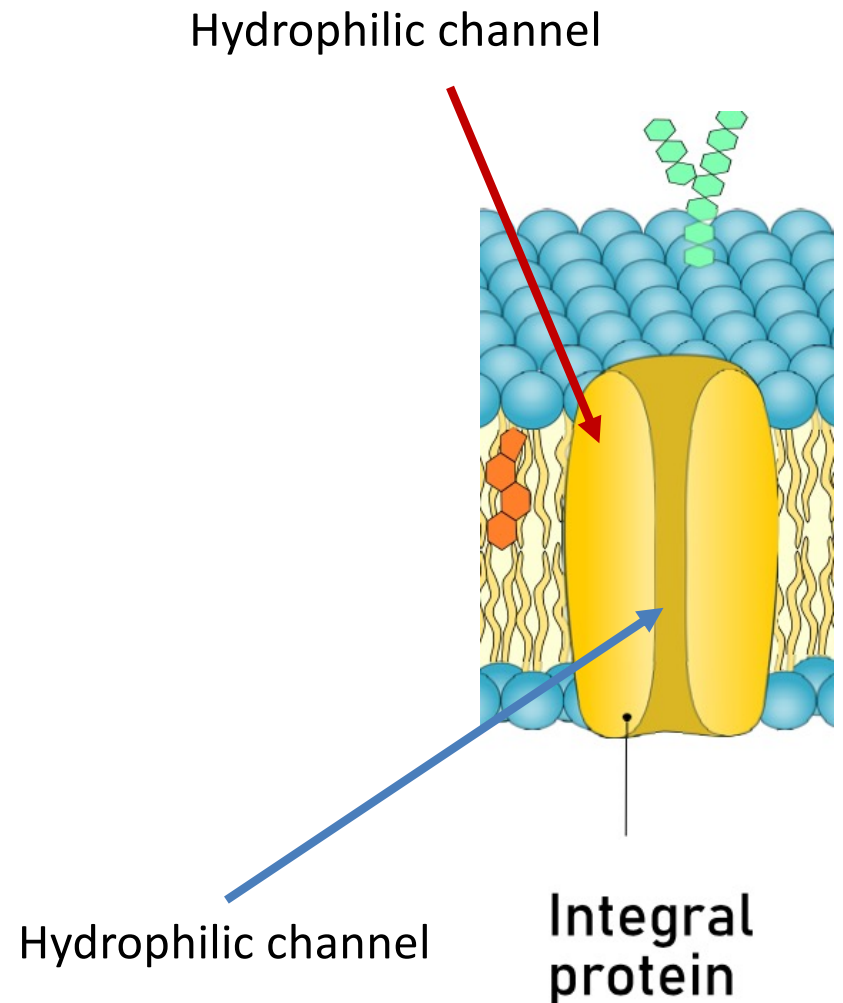
- _____
- The cell needs to allow some materials — but not all — to pass through the membrane
 - Therefore, semi-permeable



Cell Membrane Channels

- But what about the other things that need to go through the cell?
- There needs to be “doors” through the membrane
-

— _____



Thinking Map

Create a Thinking Map to show the functions of the cell membrane and how the membranes structure allows these functions to occur.

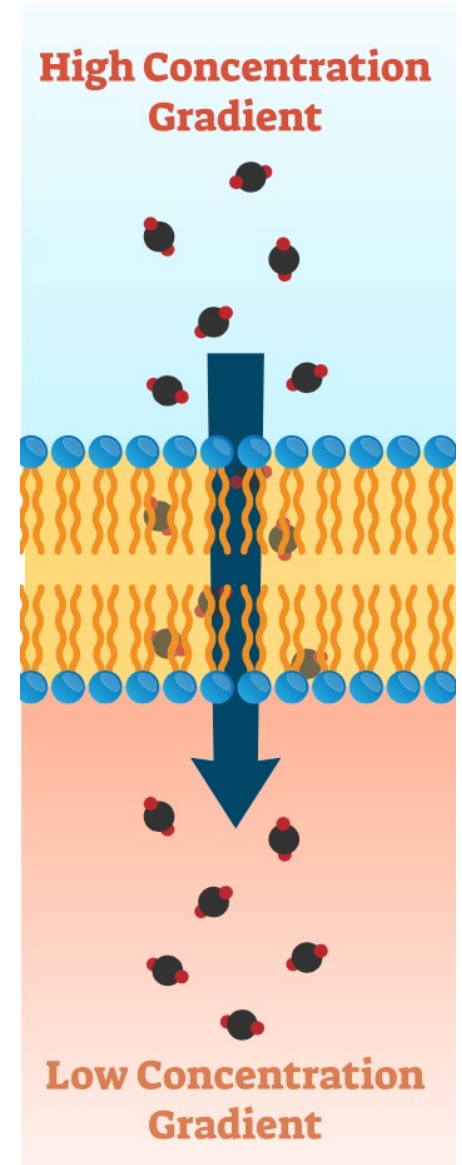
Cell Membrane Transport

- The function of the cell membrane is to separate the inside of the cell from the outside while letting certain substance in and out. This is called cell membrane transport
- Cell membrane transport can be broken down into Passive and Active Transport

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Simple Diffusion

- Simple diffusion is the movement of substances from an area of high to low concentration through the membrane
- The molecules are going through the membrane must be _____



Temperature

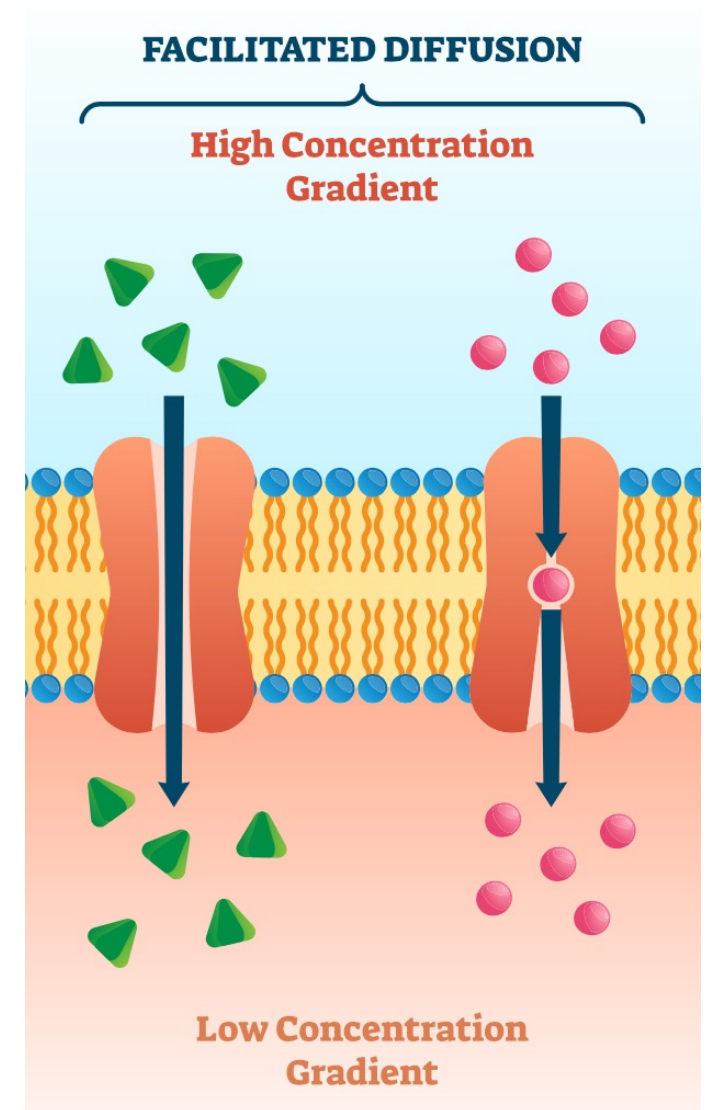
- As the temperature increases, the molecules gain more energy
- As they gain more energy, the speed of diffusion will also increase

Example – Tea diffusion

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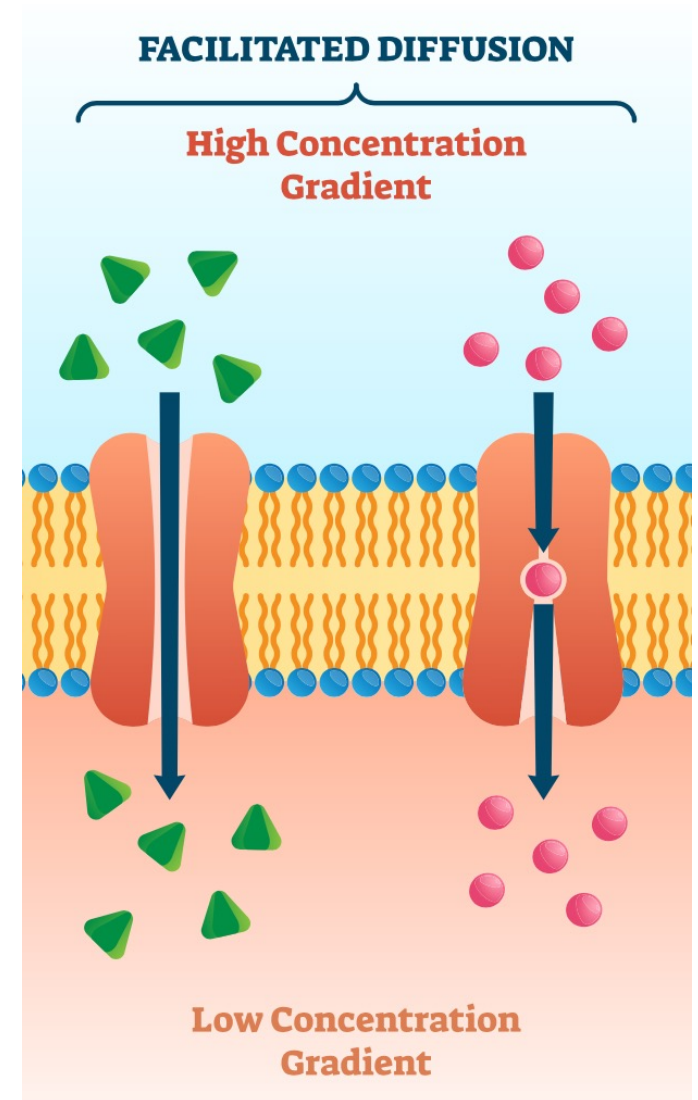
Facilitated Diffusion

- _____
- These molecules are either too large or not the correct type to pass through the membrane



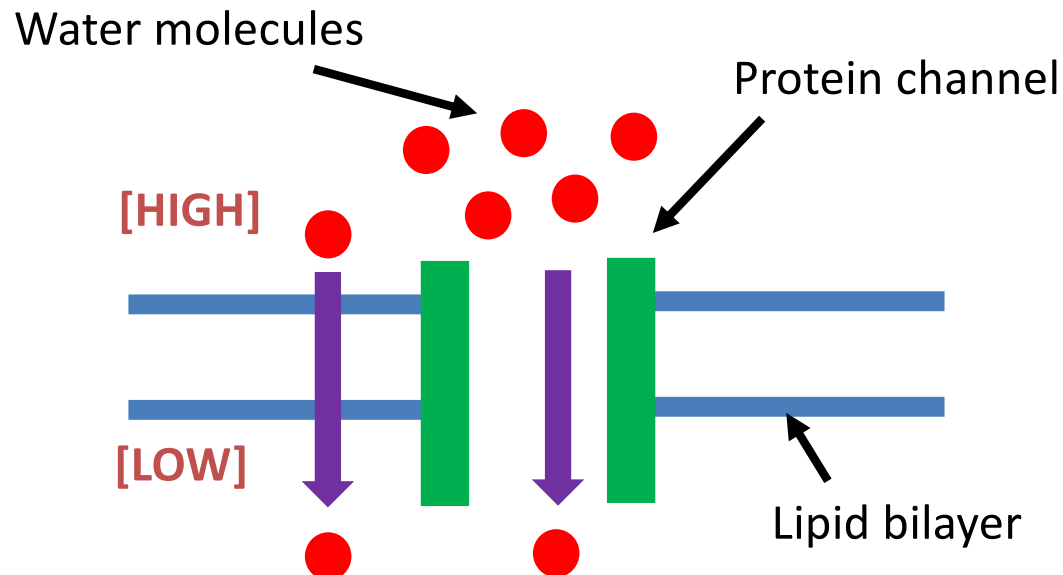
Facilitated Diffusion

The protein channels can either let a wide variety of substances through (nonspecific facilitated diffusion) or only specific molecules (specific facilitated diffusion).



Osmosis

- _____
- Although water can pass through the lipid bilayer, it moves much more easily through protein channels



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Think About It

Why do they spray vegetables in the grocery store?

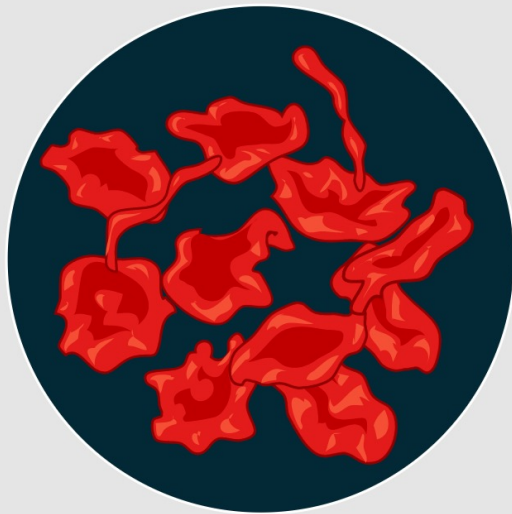
Thinking Map

Create a Thinking Map that compares and contrasts Simple Diffusion and Osmosis

Water Balance

Cell survival depends on balancing water uptake and water loss.

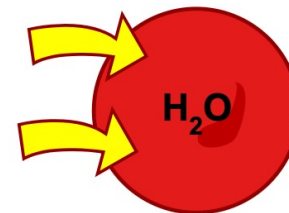
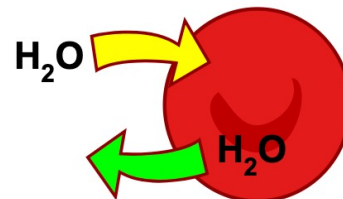
Hypertonic



Isotonic



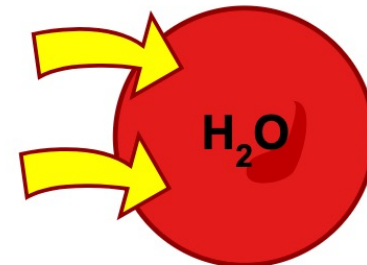
Hypotonic



Hypotonic Solution

- If the solution that is surrounding a cell contains dissolved substances at lower concentrations than they are in the cell, the solution is said to be hypotonic to the cell

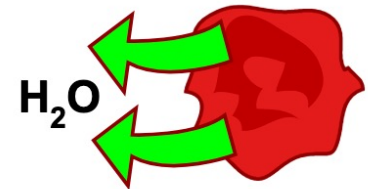
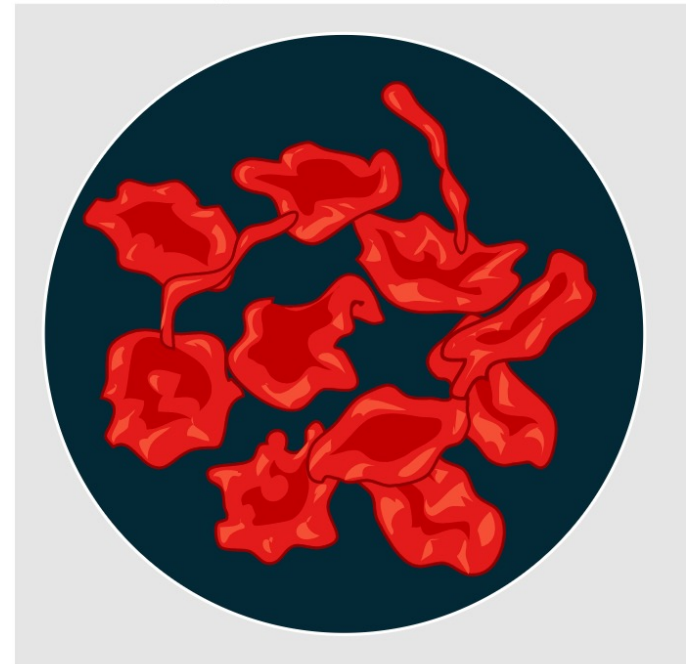
Hypotonic



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Hypertonic Solution

Hypertonic

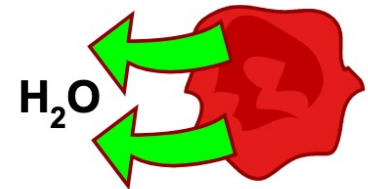
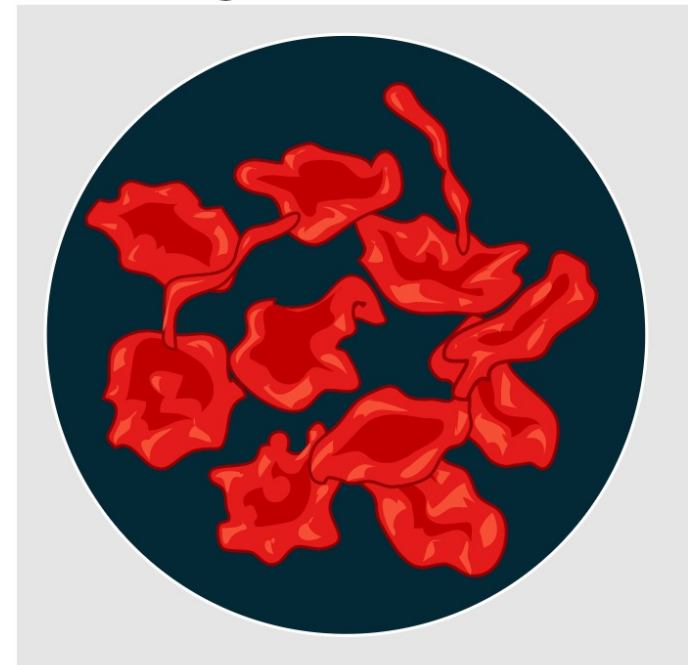


Hypertonic Solution

Example: A cell in salt water with a low concentration of water around the cell

- High [solute] outside cell
- Cell loses water to dilute solute
- Problem: Cell loses water and cell shrinks

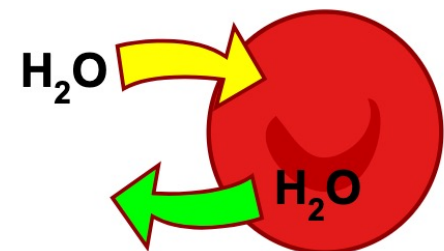
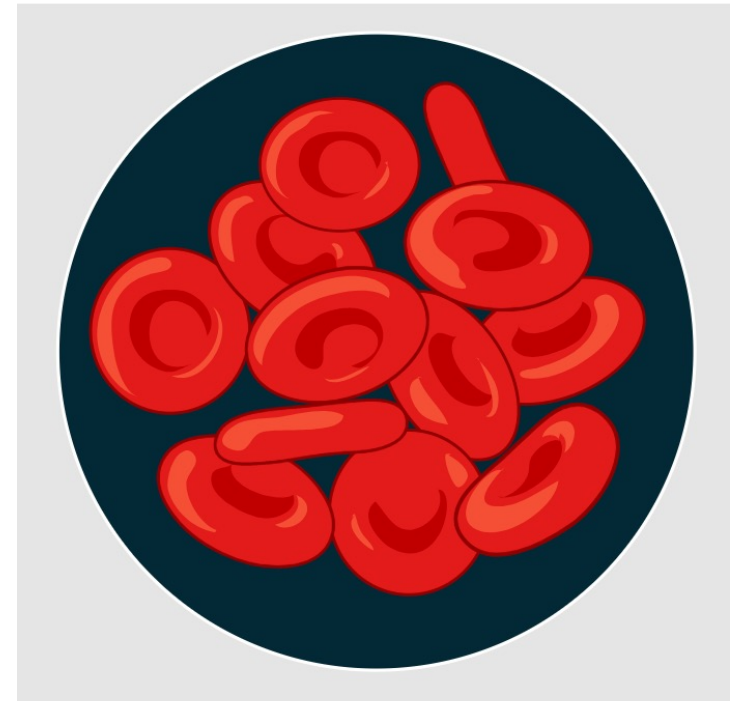
Hypertonic



Isotonic Solution

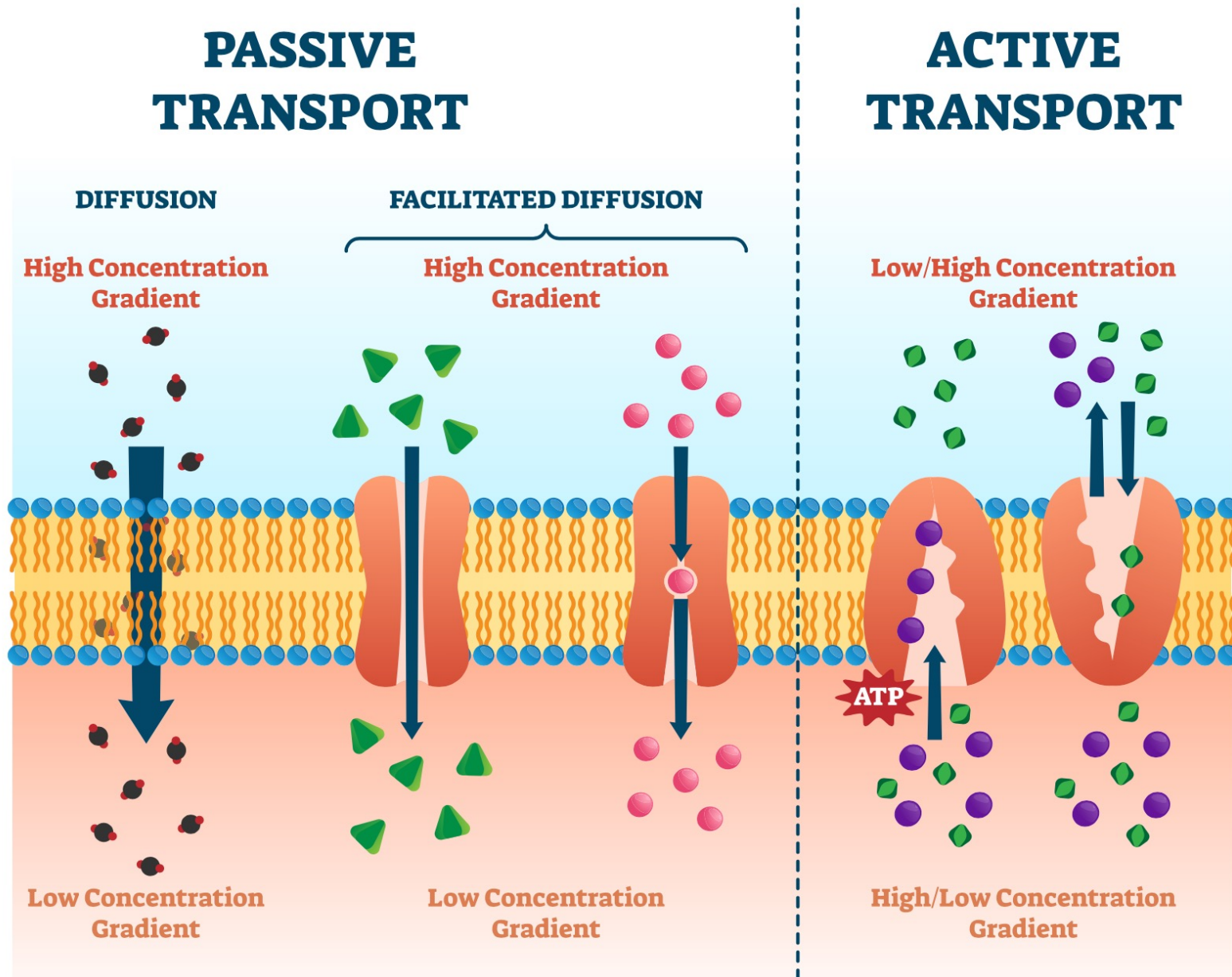
- _____
- _____
- Cell is in equilibrium
- Example: blood
- Problem: None
 - Water flows across membrane equally,
in both directions
 - Volume of cell doesn't change

Isotonic



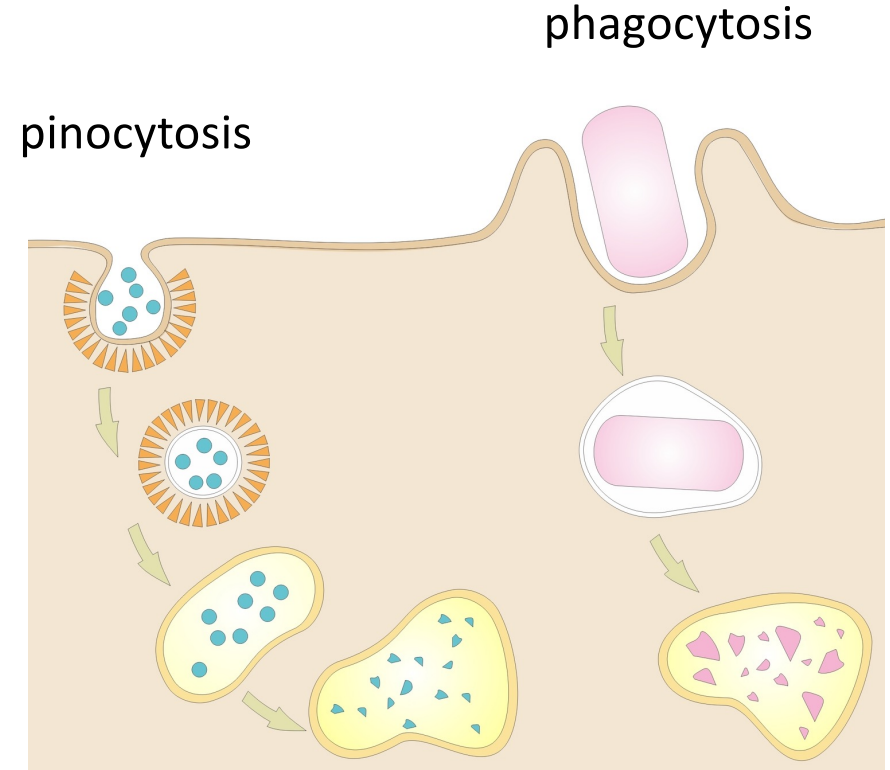
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Transport Summary



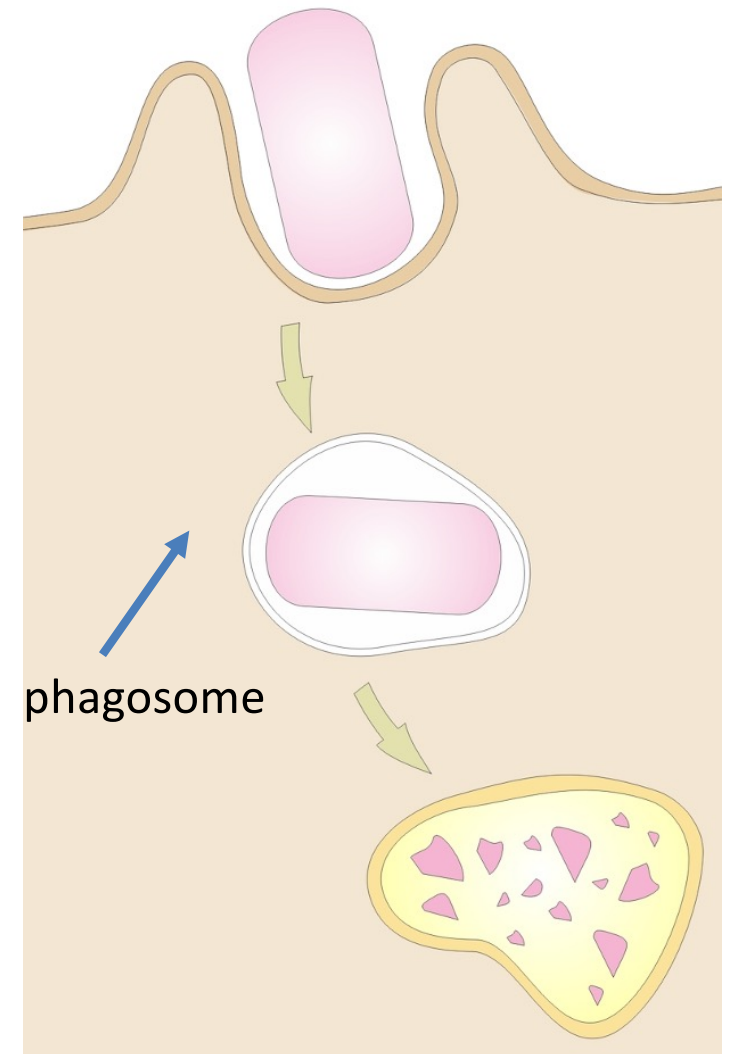
Active Transport - Endocytosis

- _____
- The captured material is surrounded by an area of cell membrane which then buds off inside the cell to form a vesicle containing the ingested material
- Endocytosis includes pinocytosis and phagocytosis



Active Transport - Phagocytosis

Captured product

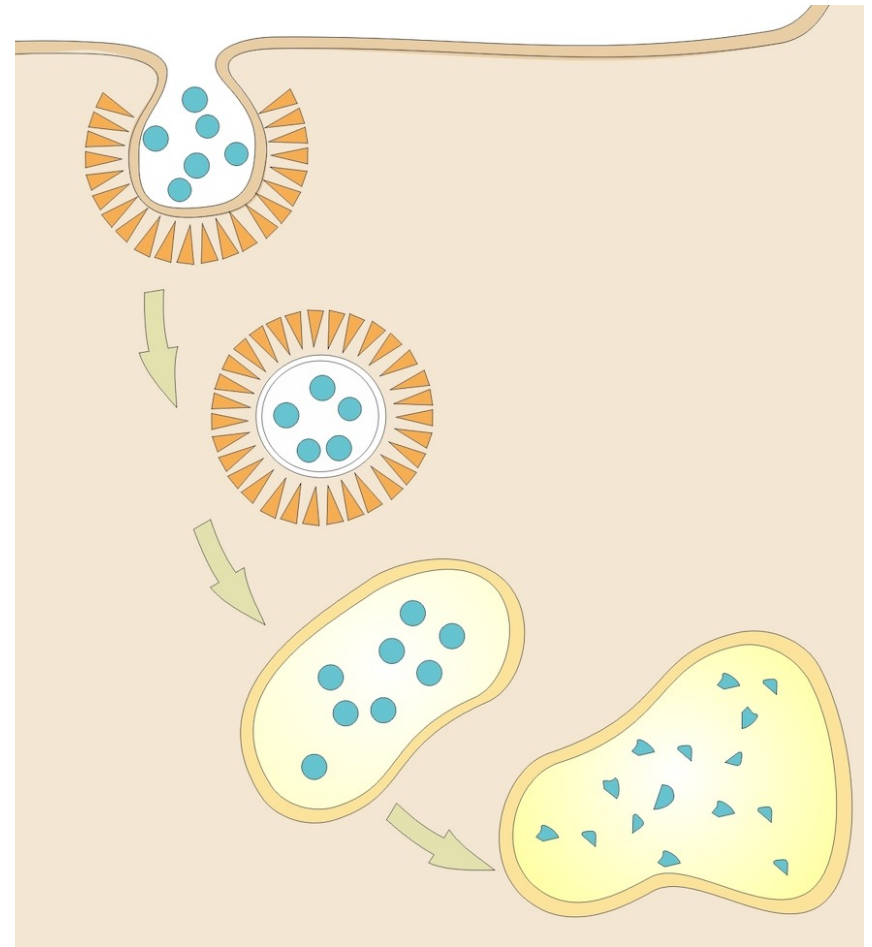


-

- This gives rise to an internal compartment called the phagosome

Active Transport - Pinocytosis

- Cell membrane engulfs small particles and extracellular fluid
- _____
- This results in a suspension of the particles within a small vesicle called a phagosome



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Thinking Map

Create a Thinking Map that compares and contrasts Passive and Active Transport.