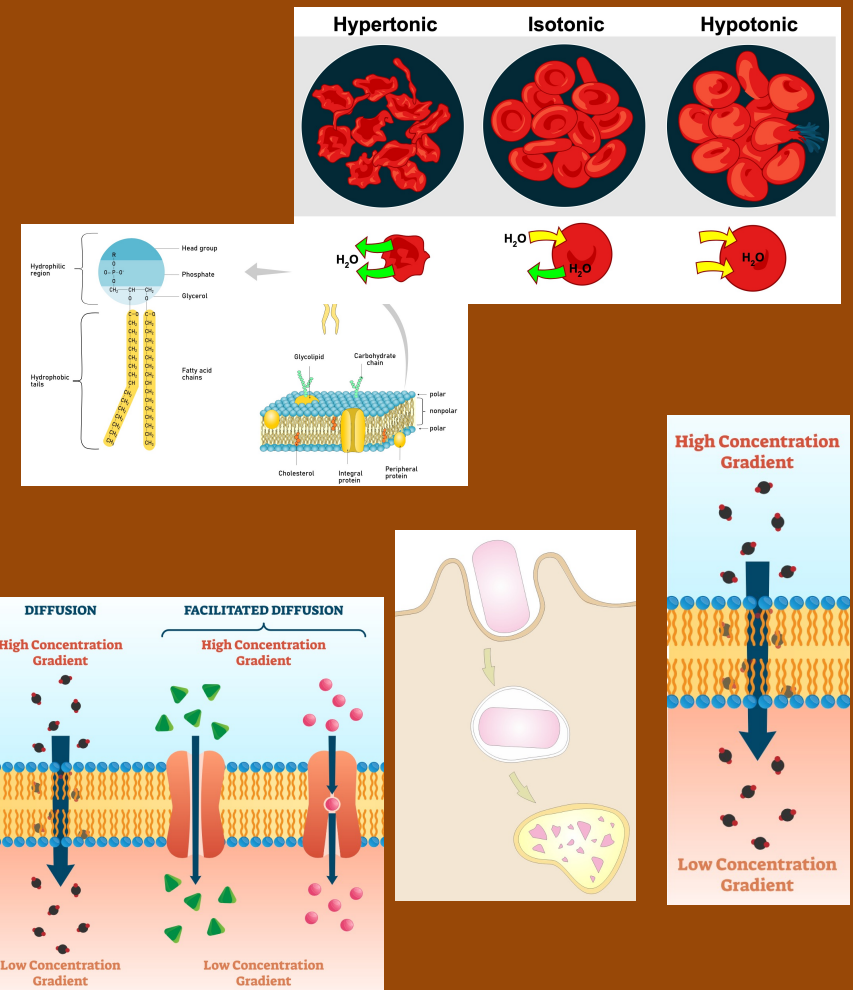


Cell Membrane and Transport

Middle School Edition

- Cell Membrane Structure and Function
- Cell Membrane Channels
- Cell Membrane Transport
- Simple Diffusion and Temperature
- Facilitated Diffusion and Osmosis
- Passive Transport
- Hypo, Hyper, and Isotonic Solutions
- 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 Membrane

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

IN

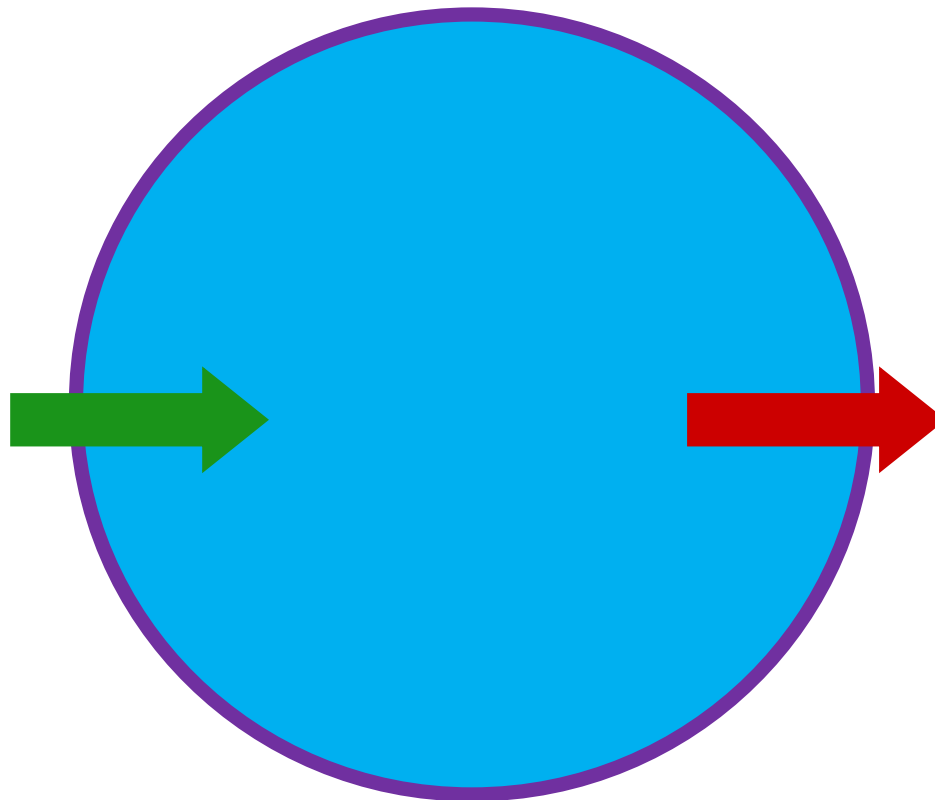
food

- sugars
- proteins
- fats

salts

O₂

H₂O



OUT

wastes

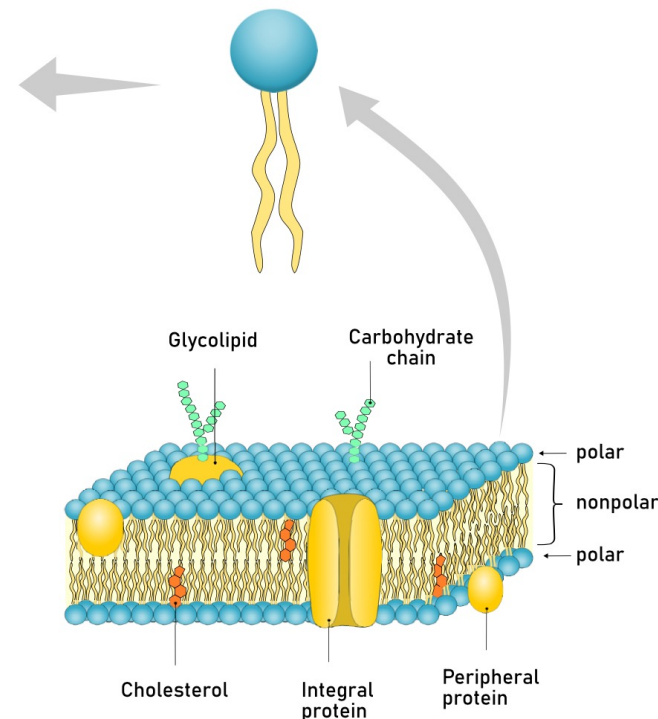
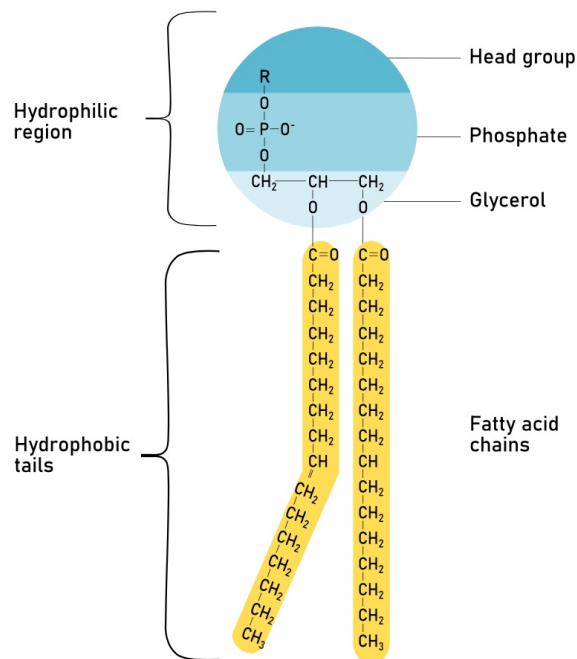
- ammonia
- salts
- CO₂
- H₂O

products

- proteins

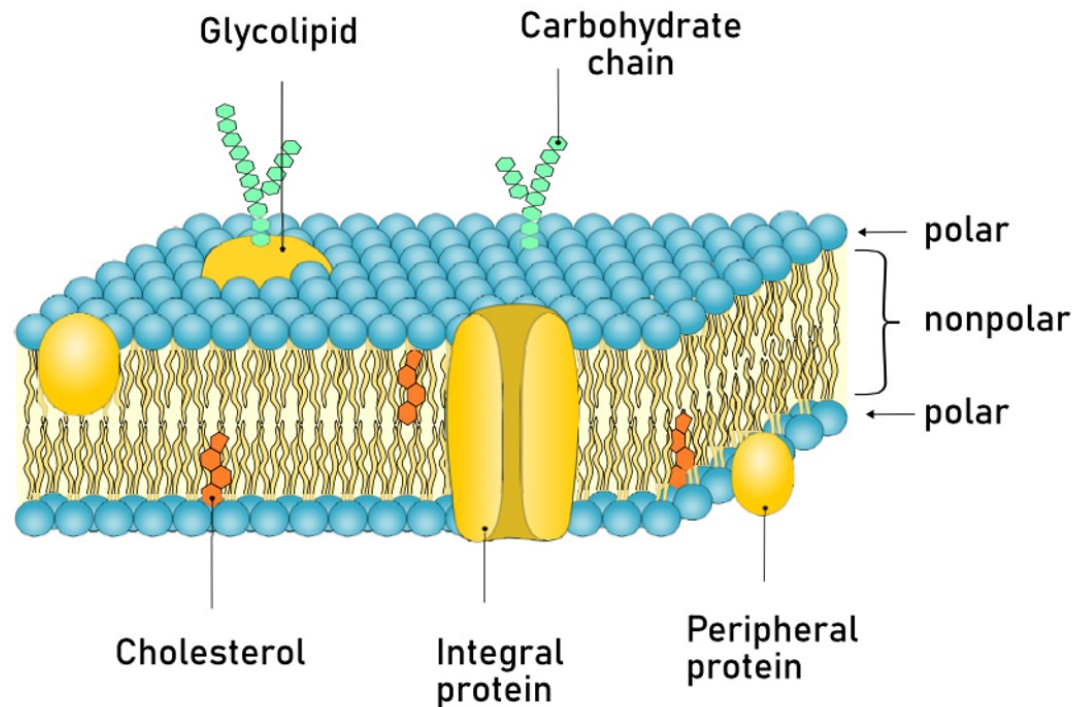
Lipids of Cell Membranes

- Cell membranes are made of a special kind of fat called phospholipids
- Membranes are made of two layers of these



Cell Membrane

- The cell membrane _____
- The cell needs to allow some materials in and others out



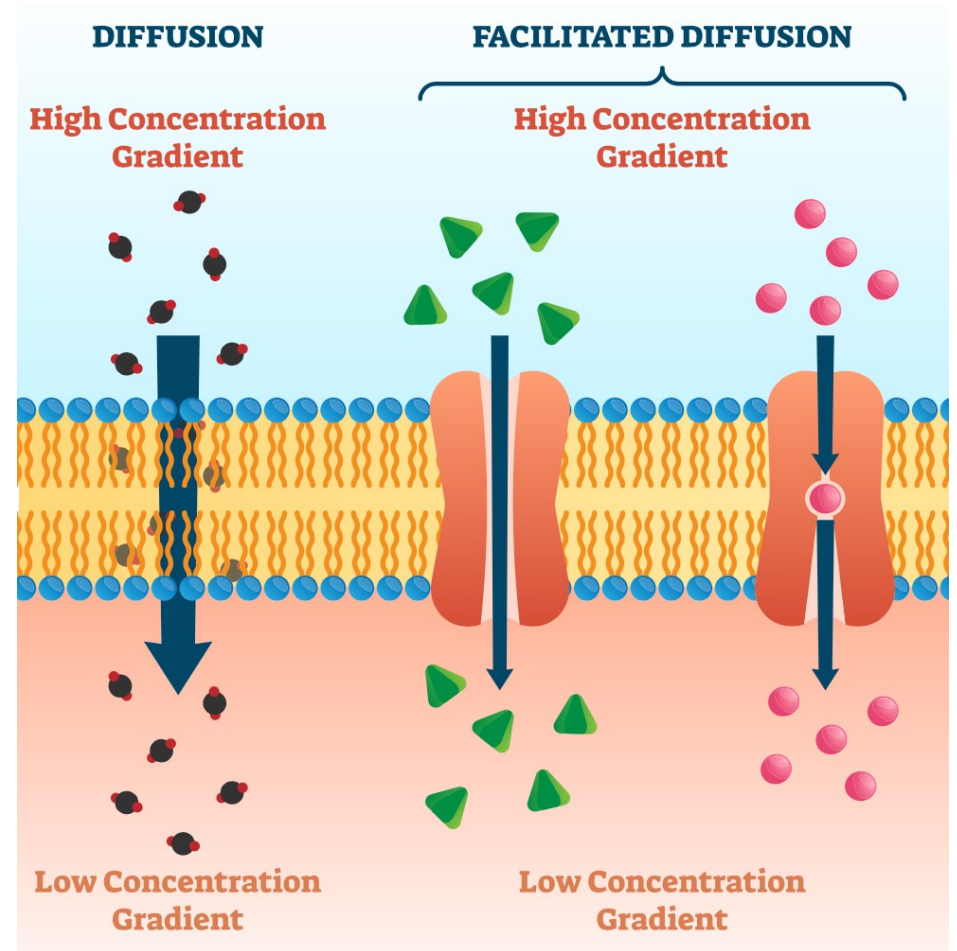
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Thinking Map

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

- Cell membrane transport can be _____
- Passive transport includes simple diffusion, facilitated diffusion, and osmosis



Simple Diffusion

Simple diffusion is the
movement of
substances

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Temperature

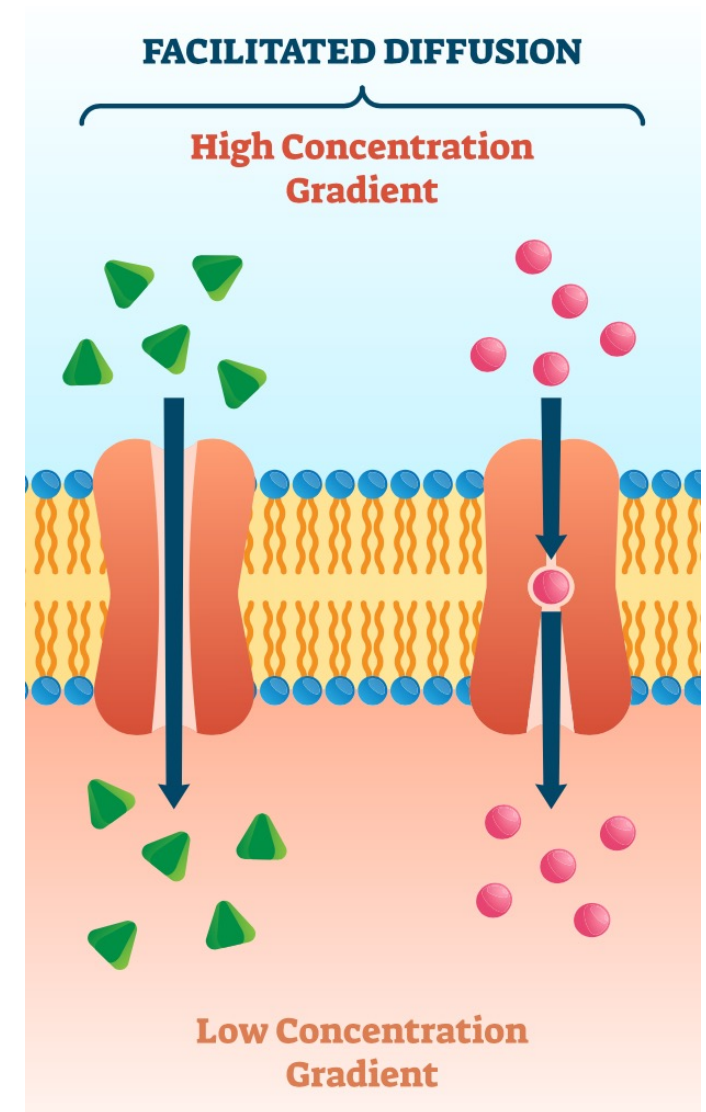
- As the temperature increases, the molecules gain energy
- As they gain energy, the speed of diffusion will also increase

Example – Tea diffusion

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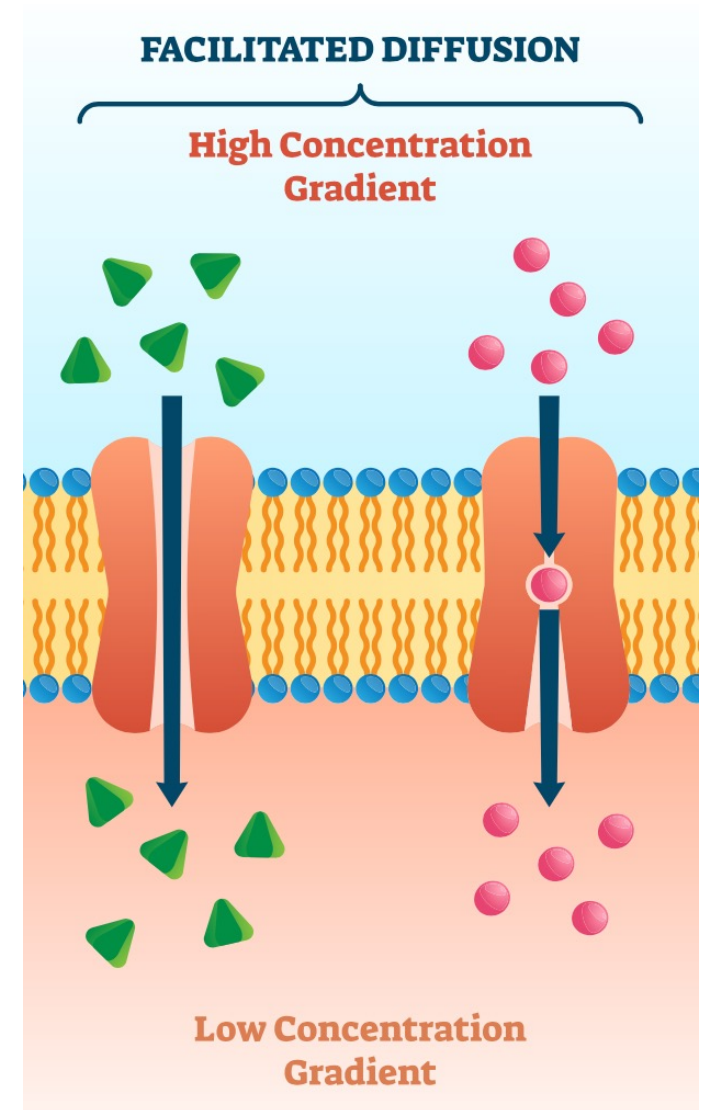
Facilitated Diffusion

- Sometimes, molecules that need to get into a cell are too large or not the correct type to pass through the membrane
- This is when we use facilitated diffusion



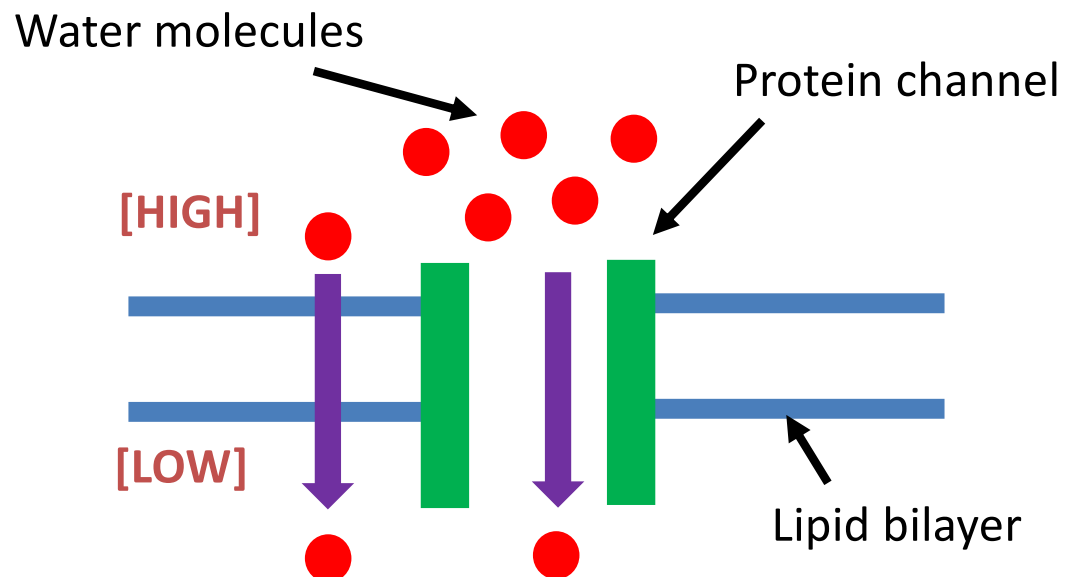
Facilitated Diffusion

Facilitated diffusion is the movement of substances from an area of _____



Osmosis

- _____
- Water moves through the membrane (simple diffusion) and through protein channels (facilitated diffusion)



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Think About It

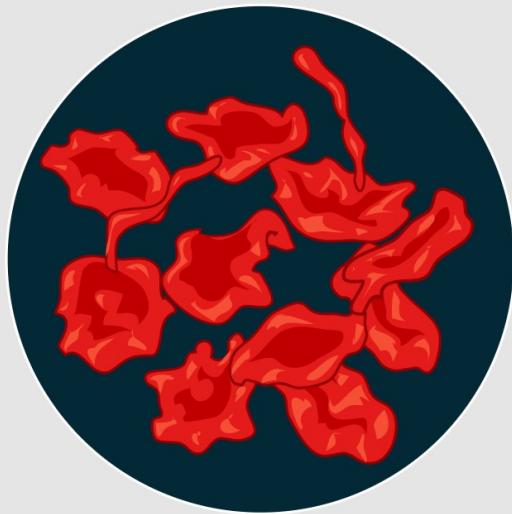
Why do they spray vegetables in the grocery store?

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Water Balance

Cells can shrink or get bigger depending on the kind of liquid it is in.

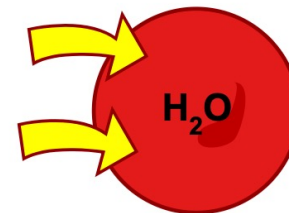
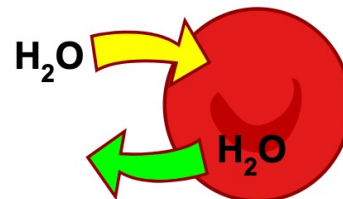
Hypertonic



Isotonic



Hypotonic



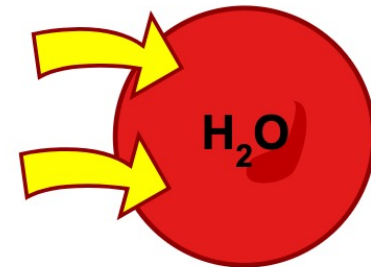
Hypotonic Solution

- _____

Hypotonic



- This causes the cell to get bigger and can burst

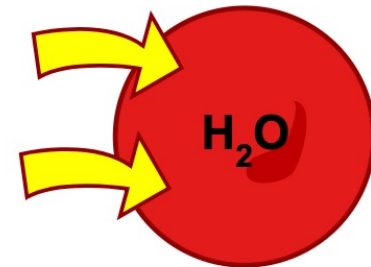


Hypotonic Solution

Example: A cell in a saltwater fish placed in freshwater.



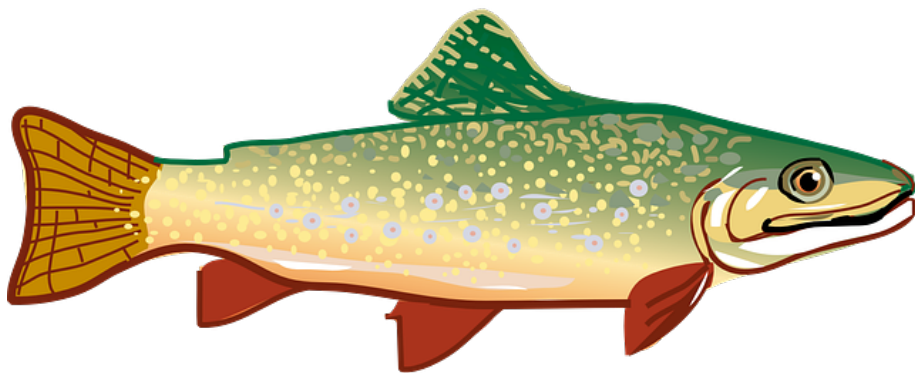
Hypotonic



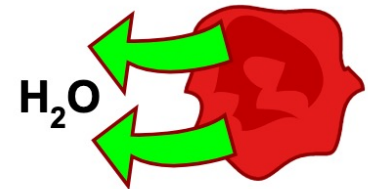
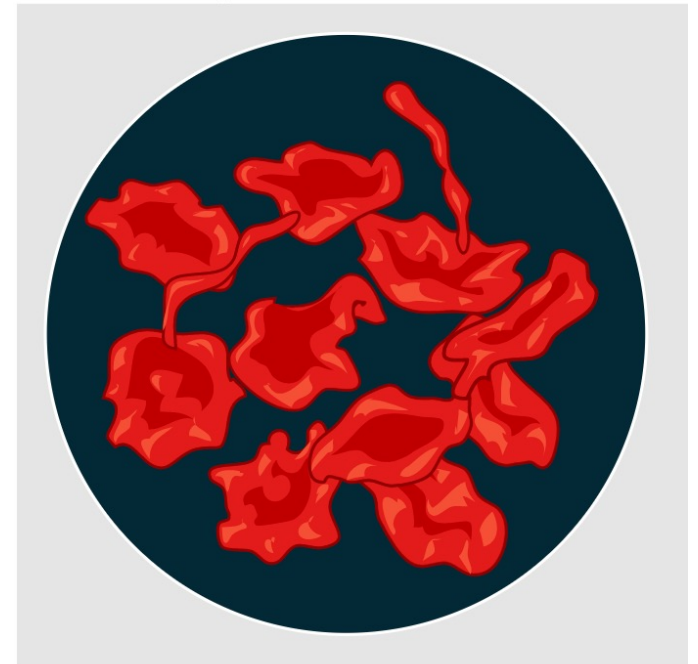
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Hypertonic Solution

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



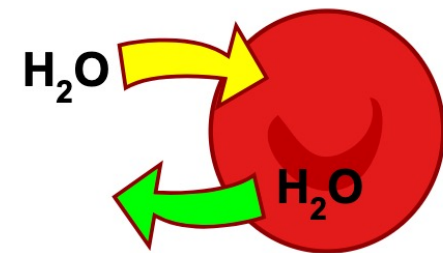
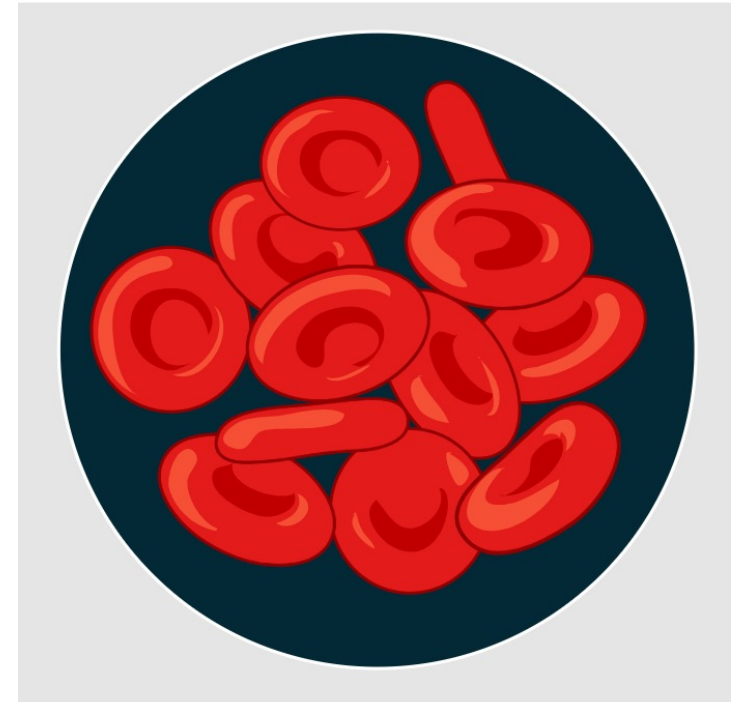
Hypertonic



Isotonic Solution

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

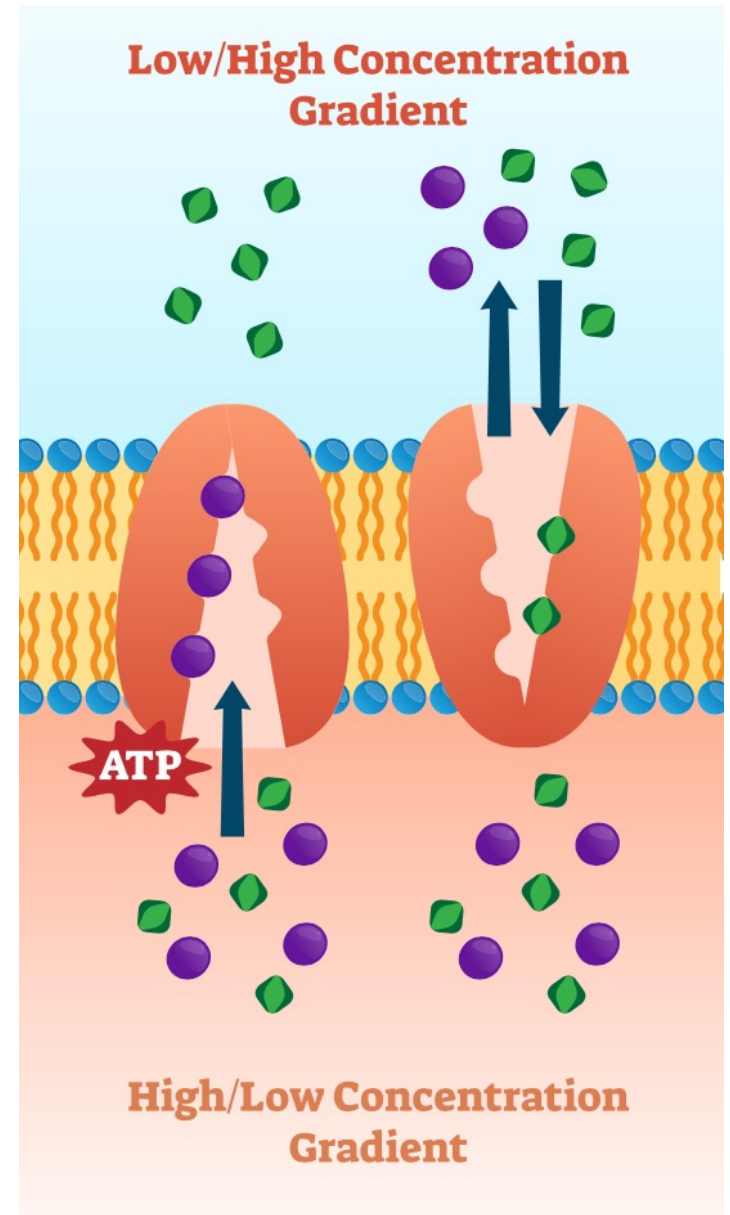
Isotonic



Active Transport

- Molecules go from LOW to HIGH concentration across the membrane

- _____

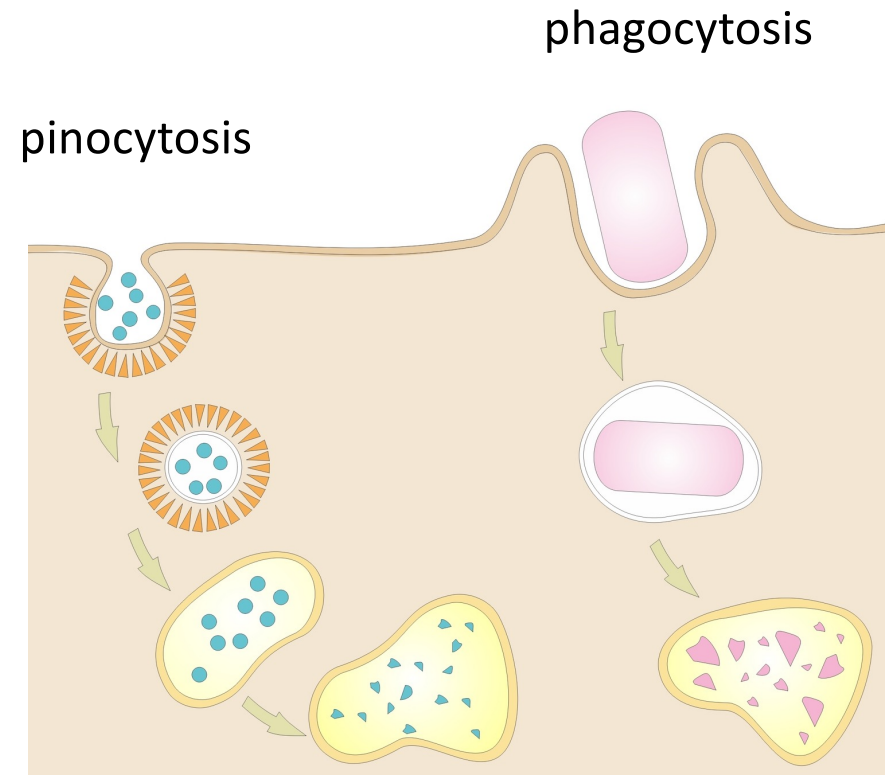


Transport Summary

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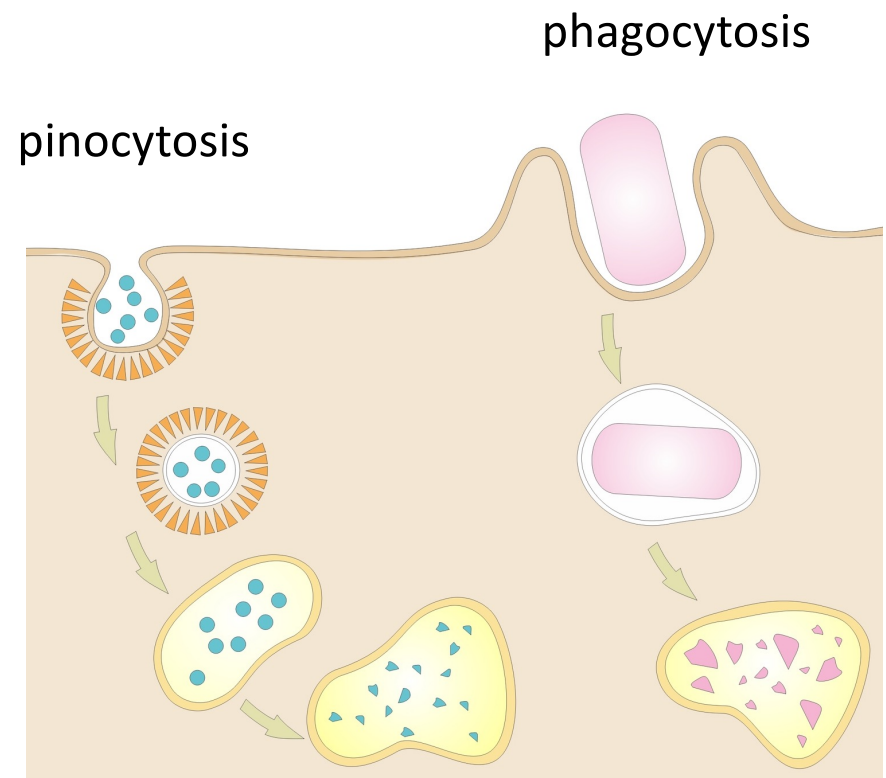
Active Transport - Endocytosis

- _____
- The membrane surrounds the material and brings it inside the cell



Active Transport - Endocytosis

Endocytosis includes
pinocytosis and
phagocytosis.



Active Transport - Phagocytosis

Captured product

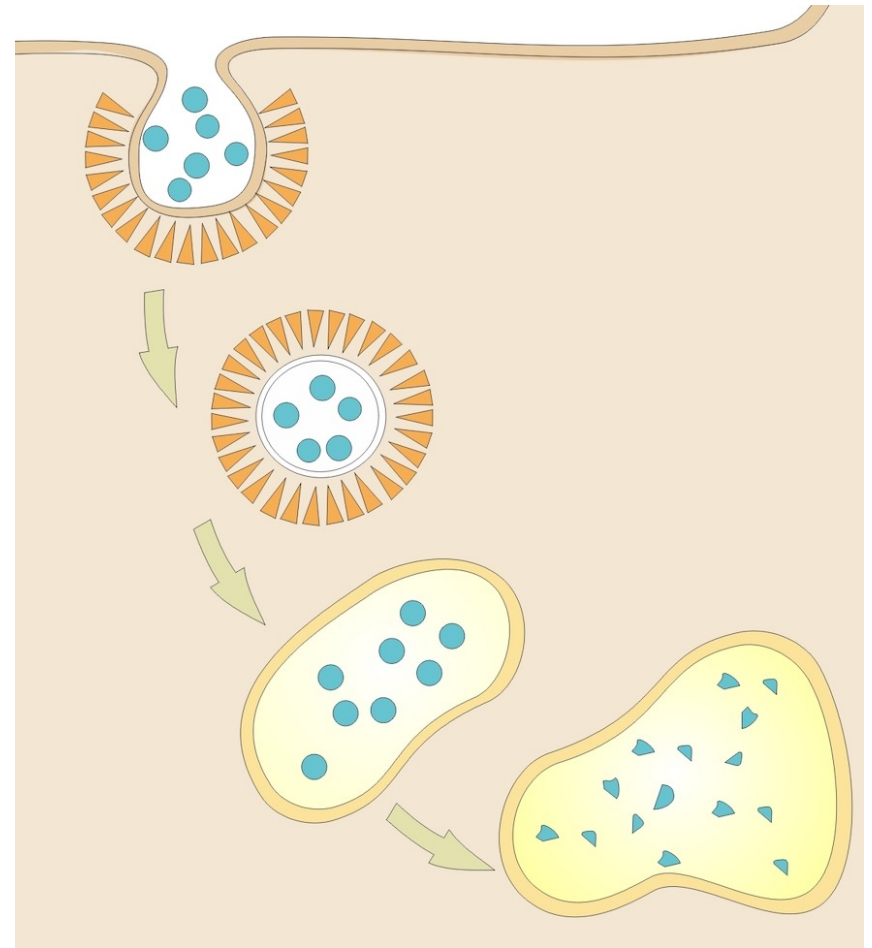


Phagocytosis happens
when a cell uses its
plasma

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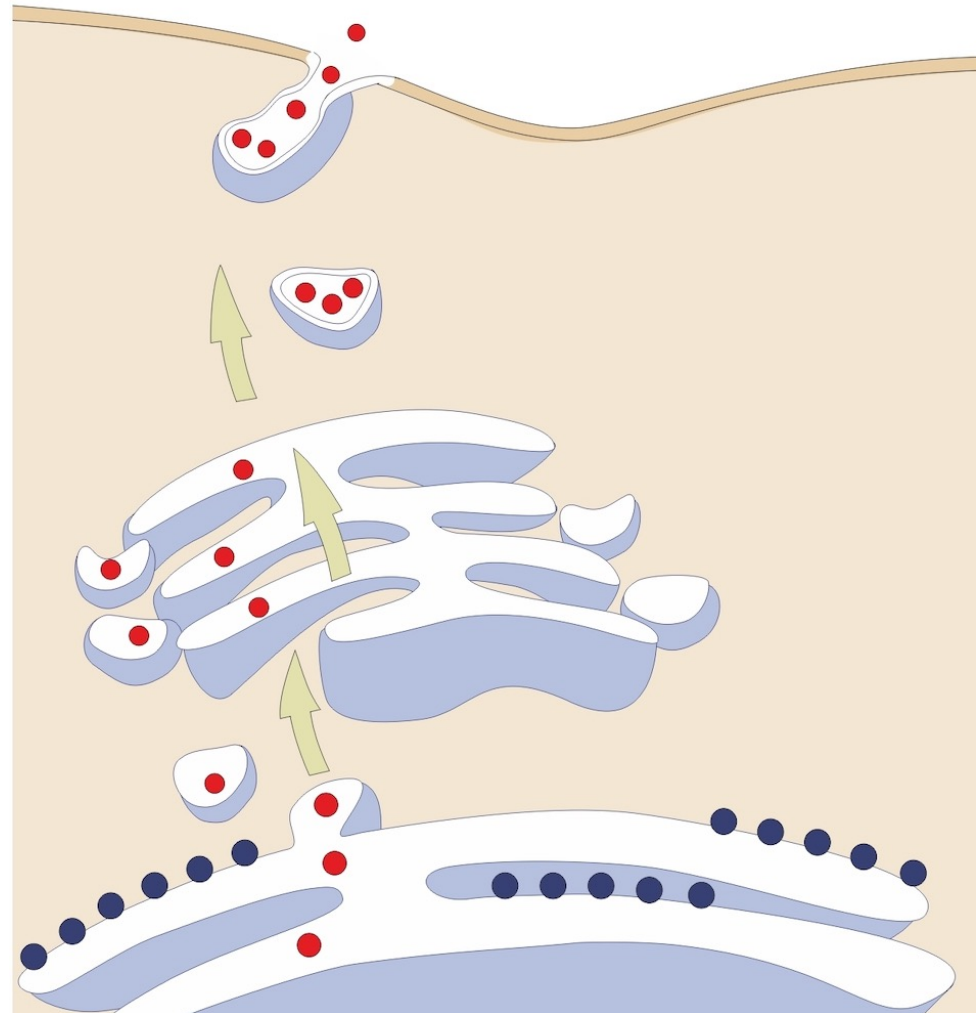
Active Transport - Pinocytosis

Small materials are brought into the cell through a



Active Transport - Exocytosis

- _____
- Cell moves large amounts of material out of cell



Thinking Map

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