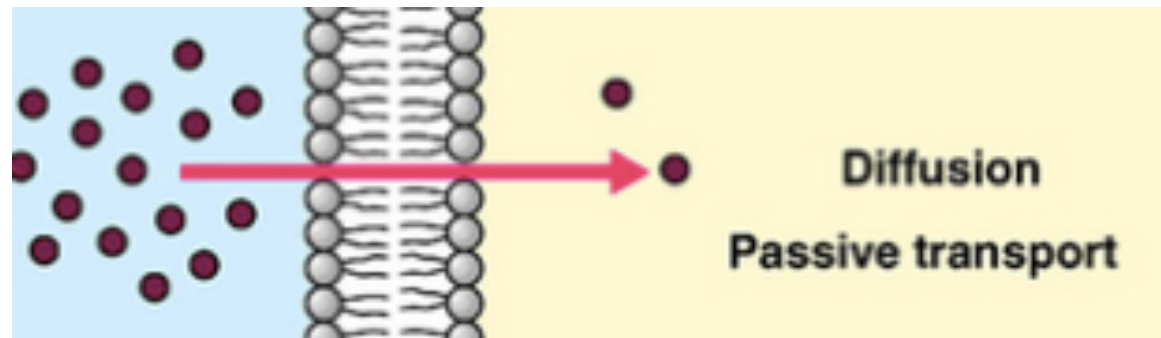


# Warm Up(8/24- 8/25)

1. What is the difference between a solute and a solvent?
2. Describe the function of transport proteins in the cell membrane.
3. Draw a simple sketch of diffusion across a semi- permeable membrane.

# Think Back – Diffusion

- In a solution, molecules move rapidly.
- What is Diffusion?
- Diffusion causes many substances to move across a cell membrane but does not require the cell to use energy.



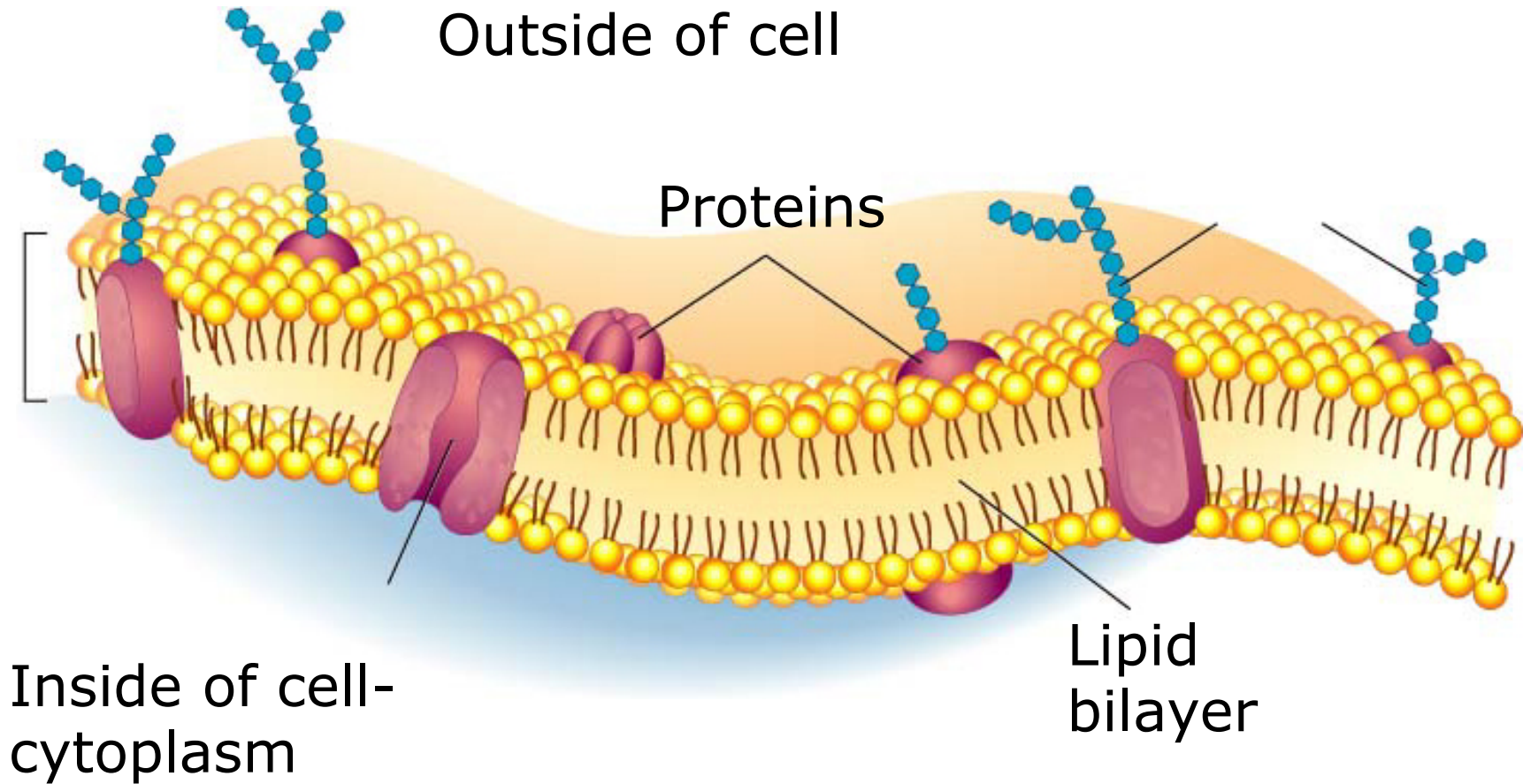
# Agenda

- Warm up
- 8.1 Notes: Cellular Transport
- Worksheets and colorings
- Quick Quiz

**Homework due Wed/Thurs:**

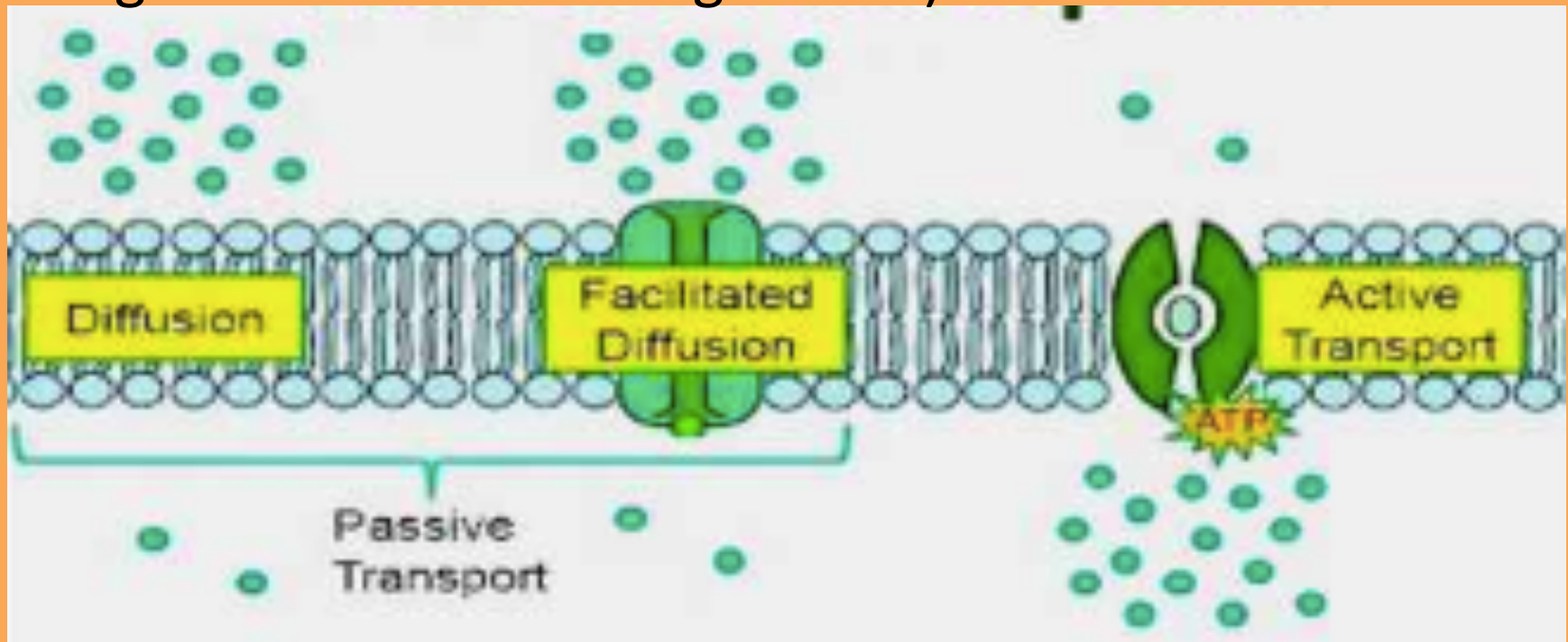
- *8.1 Section Assessment* (#s 1-5, pg 200)

# Think Back – Cell Membrane



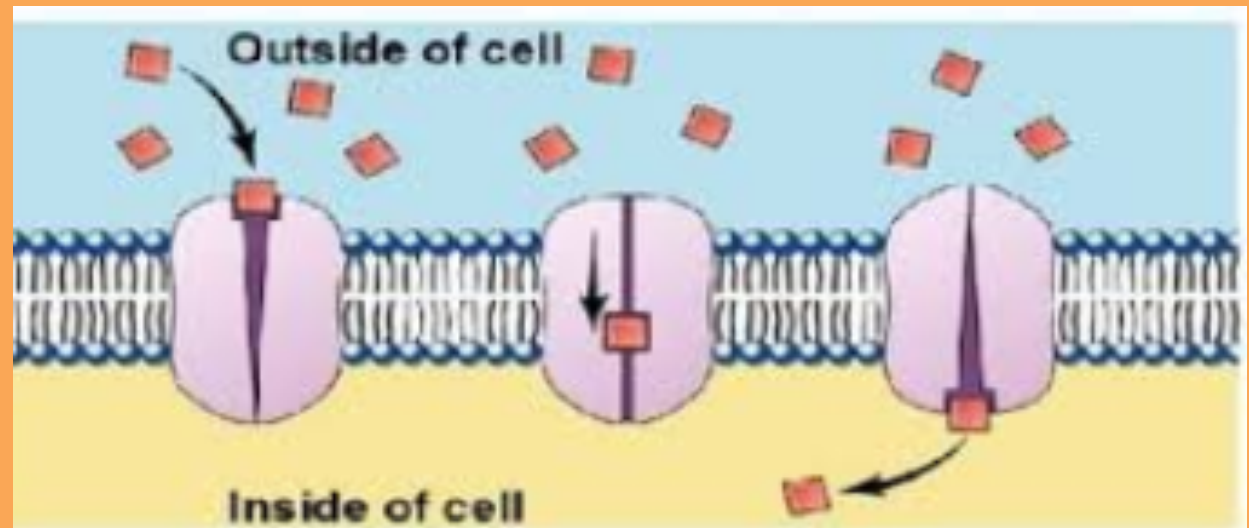
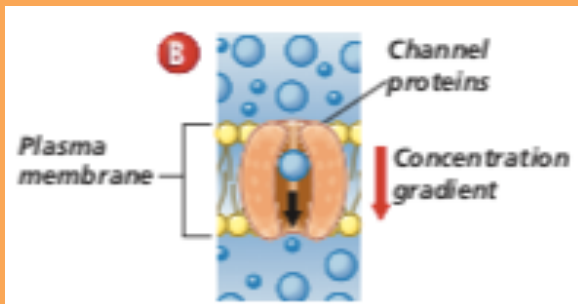
# Passive vs. Active Transport of Molecules Across the Plasma Membrane

- Passive transport: Cell uses no energy (moves molecules with concentration gradient)
- Active transport: Cell uses energy (moves molecules against concentration gradient)



# Facilitated Diffusion

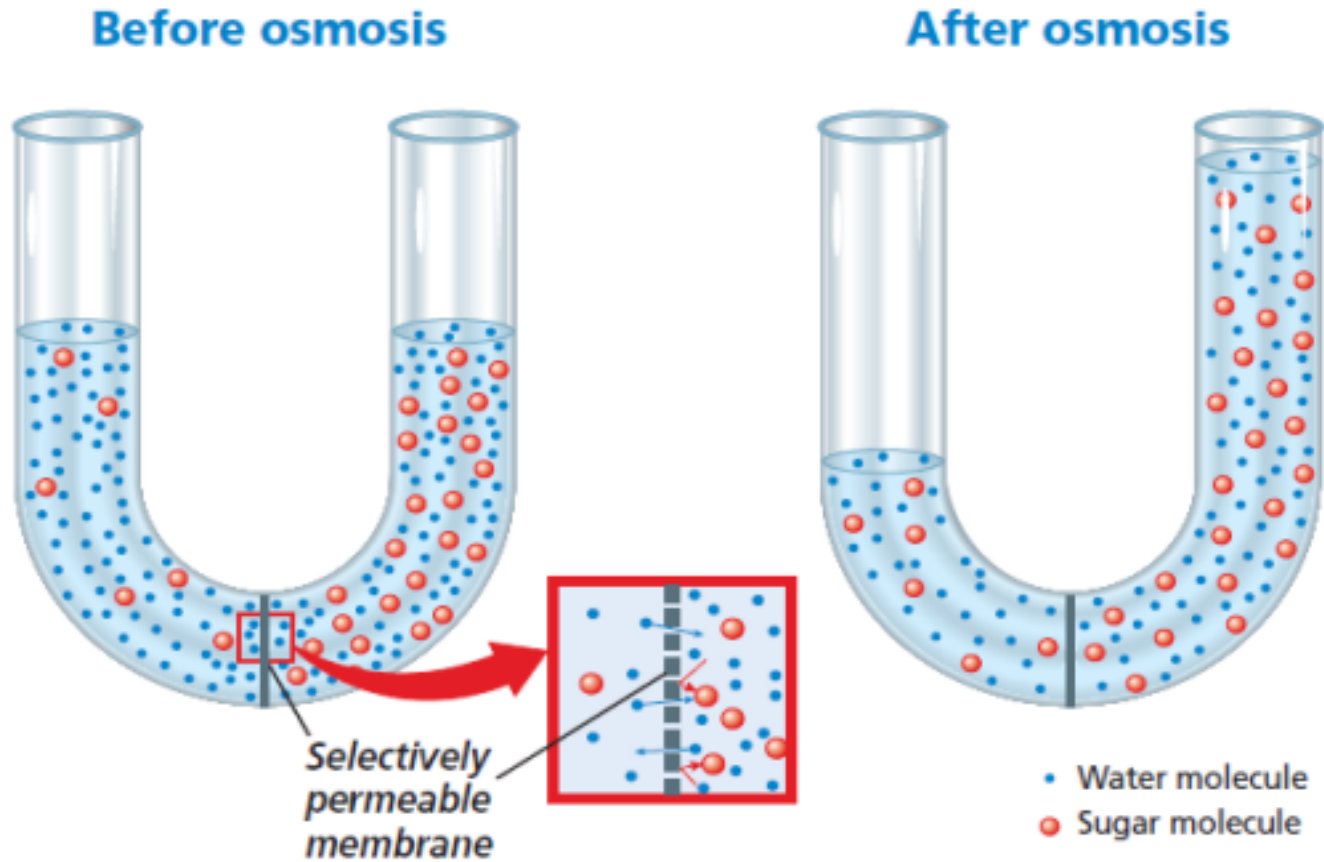
- **Facilitated Diffusion:** Movement of specific molecules across cell membranes through protein channels.
- Does not require energy. Moves with concentration gradient.



# Osmosis

- **Osmosis:** the diffusion of **water** through a selectively permeable membrane from high to low based on the solute concentration.
  - Form of passive transport
- Water moves towards the higher concentration of solute until equilibrium is reached on both sides of the membrane.

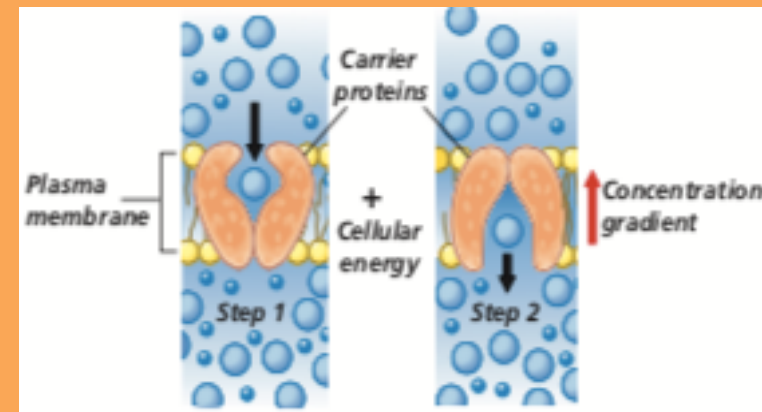
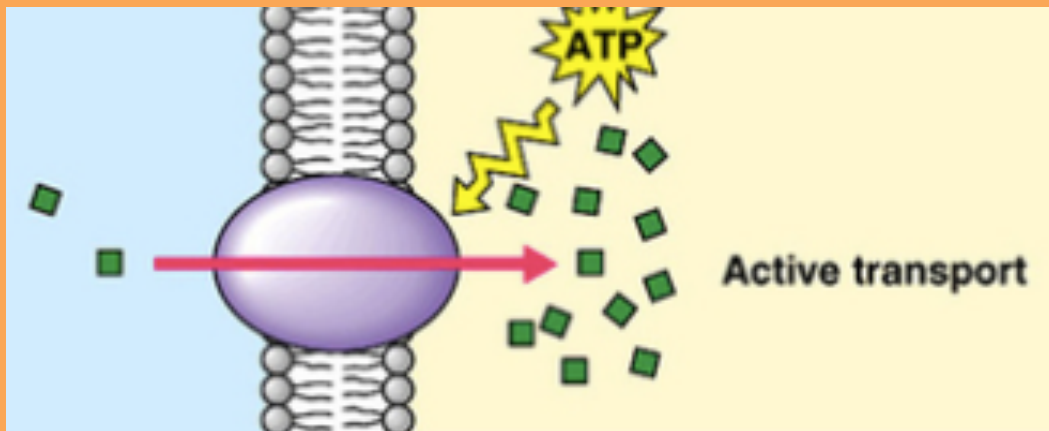
# Osmosis





# Active Transport

- **Active Transport:** Energy-requiring process that moves materials across a cell membrane against a concentration gradient.
- Requires energy.



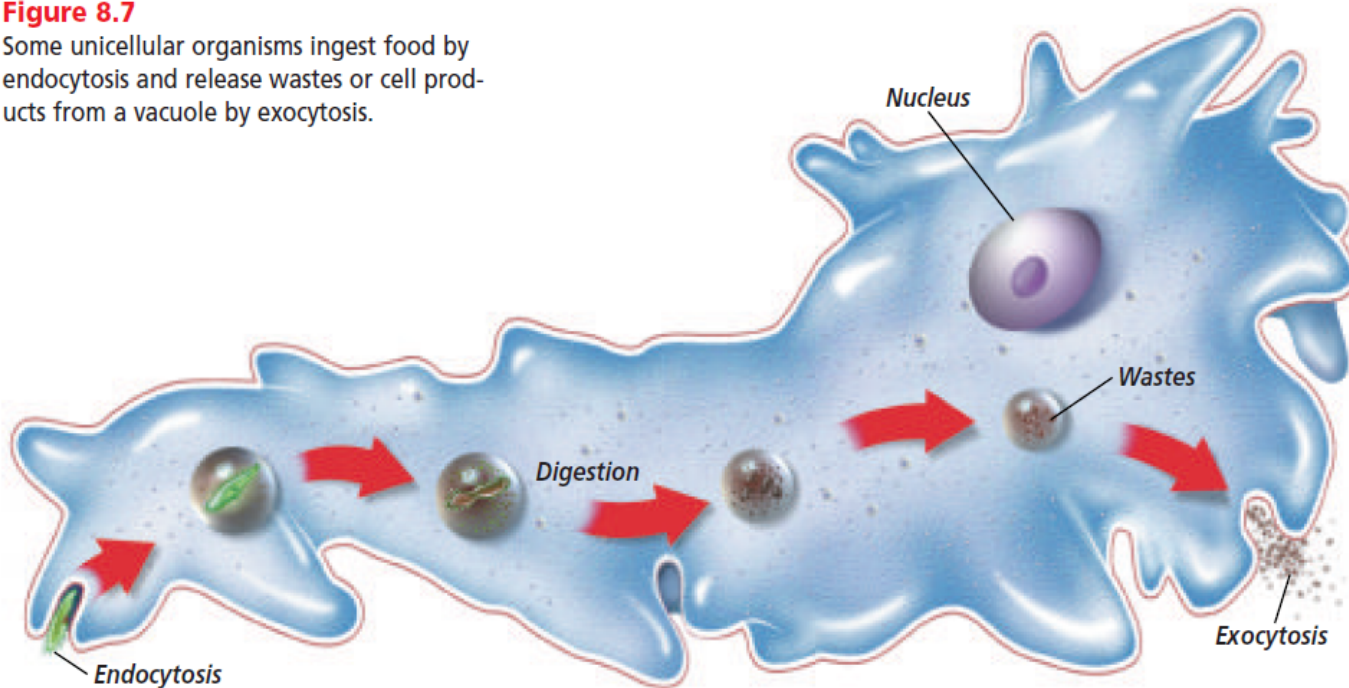
# Endocytosis & Exocytosis

**\*\*Both involve moving masses of material= require energy\*\***

- Endocytosis: cell surrounds and takes in material from its environment
- Exocytosis: Expulsion or secretion of materials from a cell

**Figure 8.7**

Some unicellular organisms ingest food by endocytosis and release wastes or cell products from a vacuole by exocytosis.



# Review

**Table 8.1 Transport Through the Cell Membrane**

Type of Transport	Transport Protein Used?	Direction of Movement	Requires Energy Input from Cell?	Classification of Transport
Simple Diffusion	No	With concentration gradient	No	Passive
Facilitated Diffusion	Yes—channel proteins or carrier proteins	With concentration gradient	No	Passive
Active Transport	Yes—carrier proteins	Against concentration gradient	Yes	Active

# Complete worksheet

Concentration Gradient

## Transport of Molecules

Factors that affect diffusion:

- 
- 
- 

### Passive Transport

Diffusion      Osmosis      Facilitated Diffusion

### Active Transport

Endocytosis      Exocytosis

# Three Types of Solutions

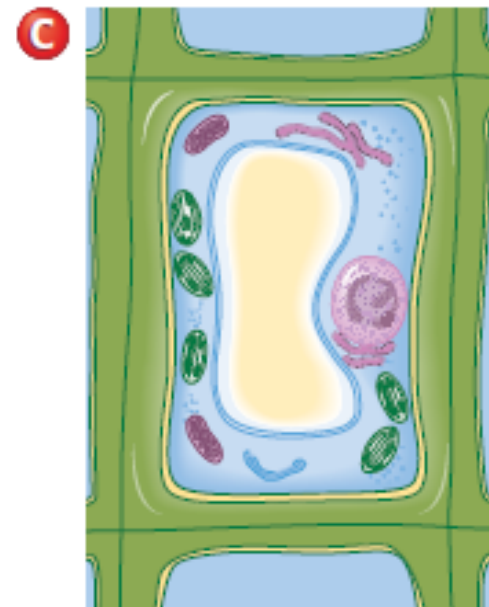
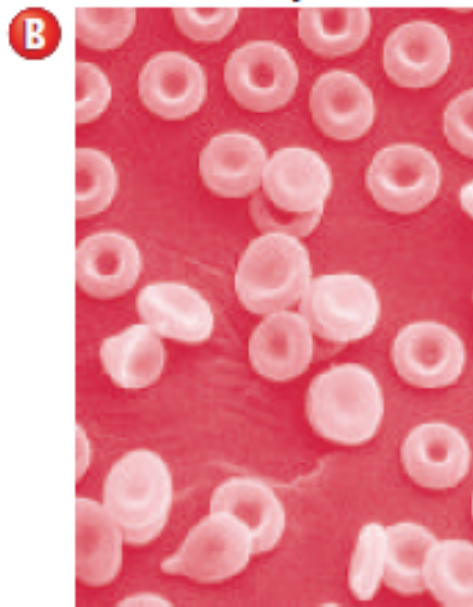
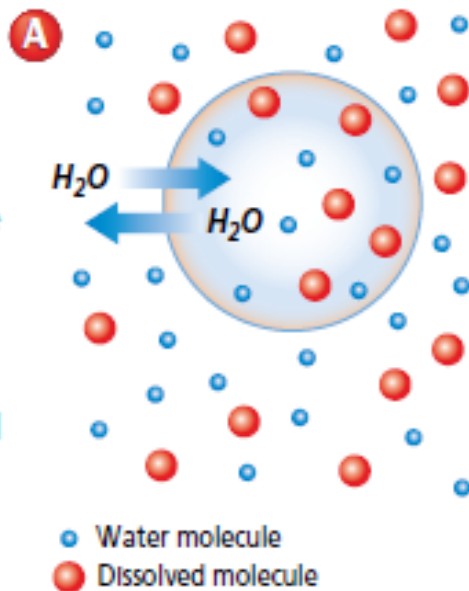
- **Isotonic Solution**
- **Hypotonic Solution**
- **Hypertonic Solution**

# Isotonic Solution

Concentration of dissolved substances in the solution is the same as the concentration of dissolved substances inside the cell.

**Figure 8.2**

In an isotonic solution, water molecules move into and out of the cell at the same rate, and cells retain their normal shape (A). Notice the concave disc shape of a red blood cell (B). A plant cell has its normal shape and pressure in an isotonic solution (C).

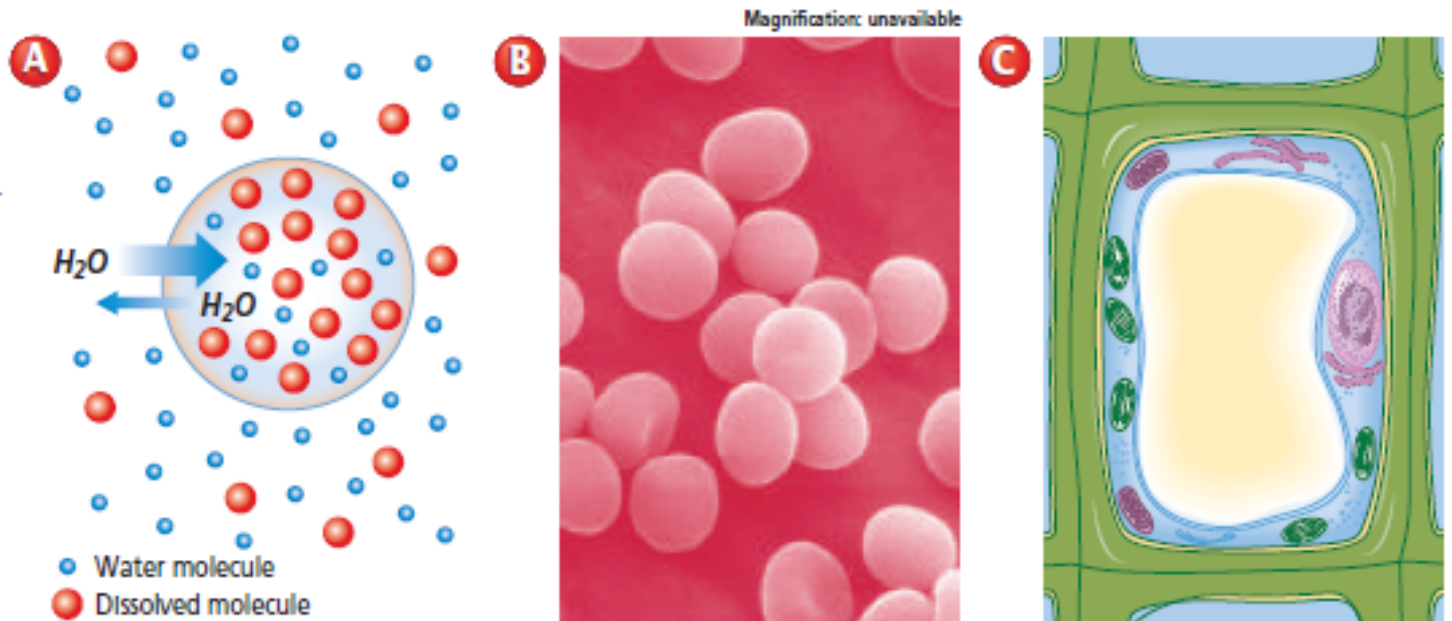


# Hypotonic Solution

Concentration of dissolved substances is lower in the solution outside the cell than the concentration inside the cell.

**Figure 8.3**

In a hypotonic solution, water enters a cell by osmosis, causing the cell to swell (A). Animal cells, like these red blood cells, may continue to swell until they burst (B). Plant cells swell beyond their normal size as pressure increases (C).

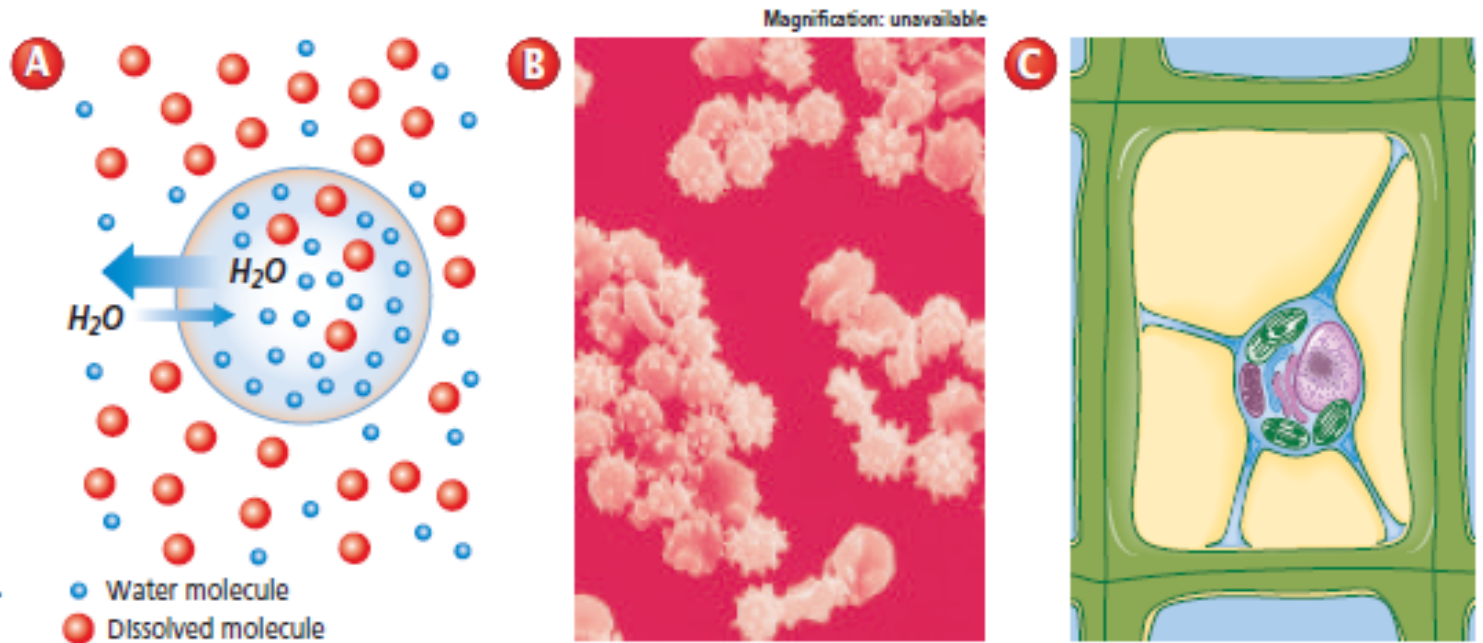


# Hypertonic Solution

Concentration of dissolved substances outside the cell is higher than the concentration inside the cell.

**Figure 8.4**

In a hypertonic solution, water leaves a cell by osmosis, causing the cell to shrink (A). Animal cells like these red blood cells shrivel up as they lose water (B). Plant cells lose pressure as the plasma membrane shrinks away from the cell wall (C).





# Complete worksheet

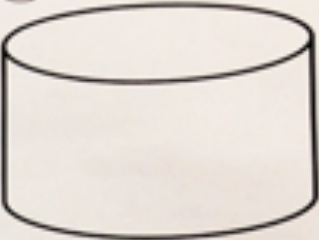
Tonicity

**HYP TONIC**

[ solutes in solution ]   [ solutes in cell ]

Water moves \_\_\_\_\_

Animal cells will \_\_\_\_\_

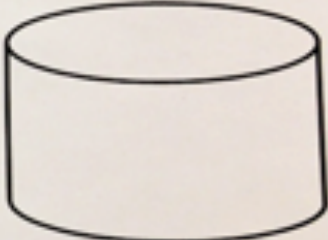


**ISOTONIC**

[ solutes in solution ]   [ solutes in cell ]

Water moves \_\_\_\_\_

Animal cells will \_\_\_\_\_



**HYP ER TONIC**

[ solutes in solution ]   [ solutes in cell ]

Water moves \_\_\_\_\_

Animal cells will \_\_\_\_\_

