

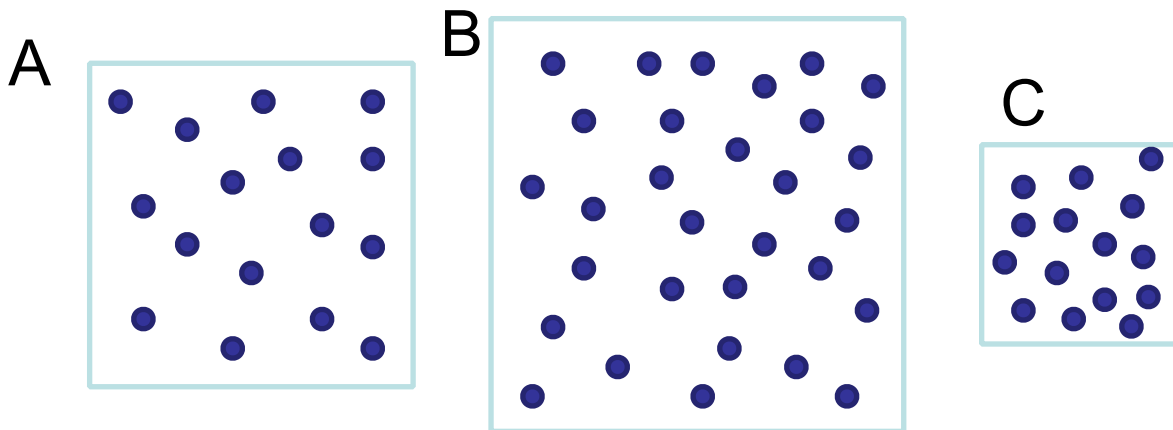
# wellness wednesday



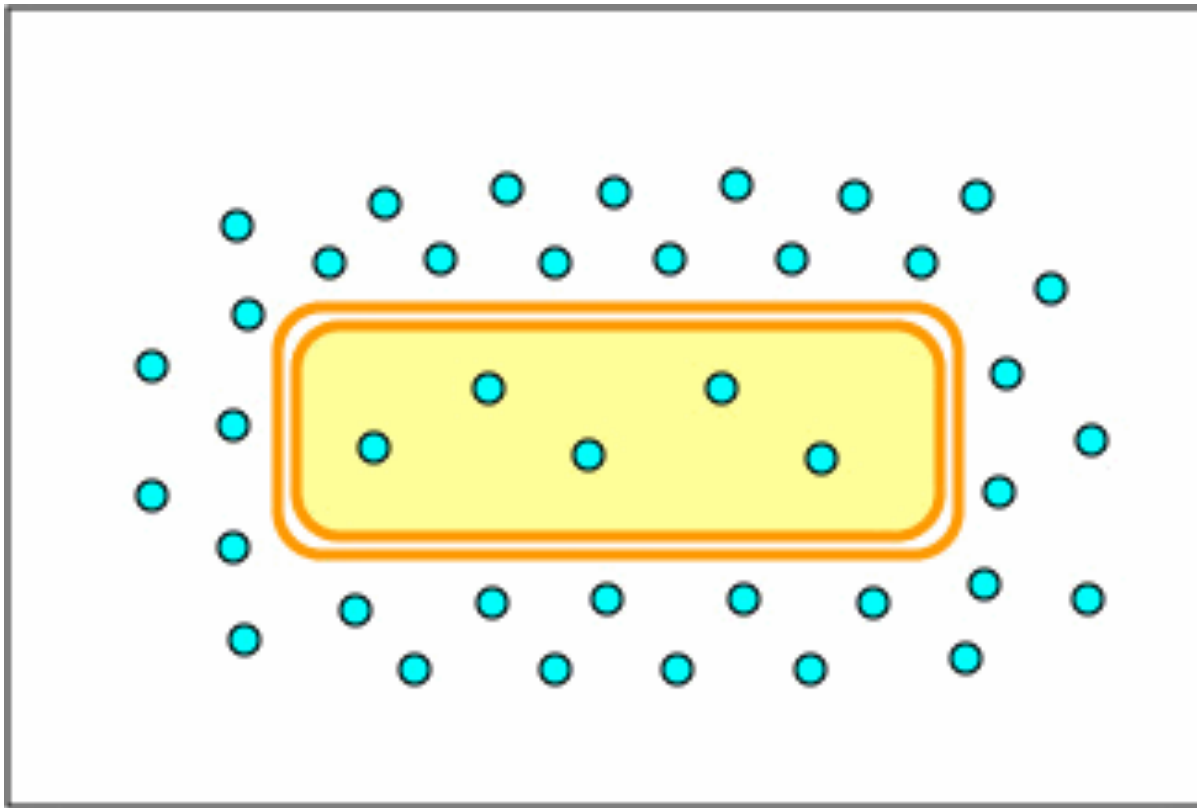
Yes!!  
I Got This!!



- » Name five different chemical compounds that must get into the cell.
- » What does the term 'concentration' mean?
- » Which of the following is more concentrated?



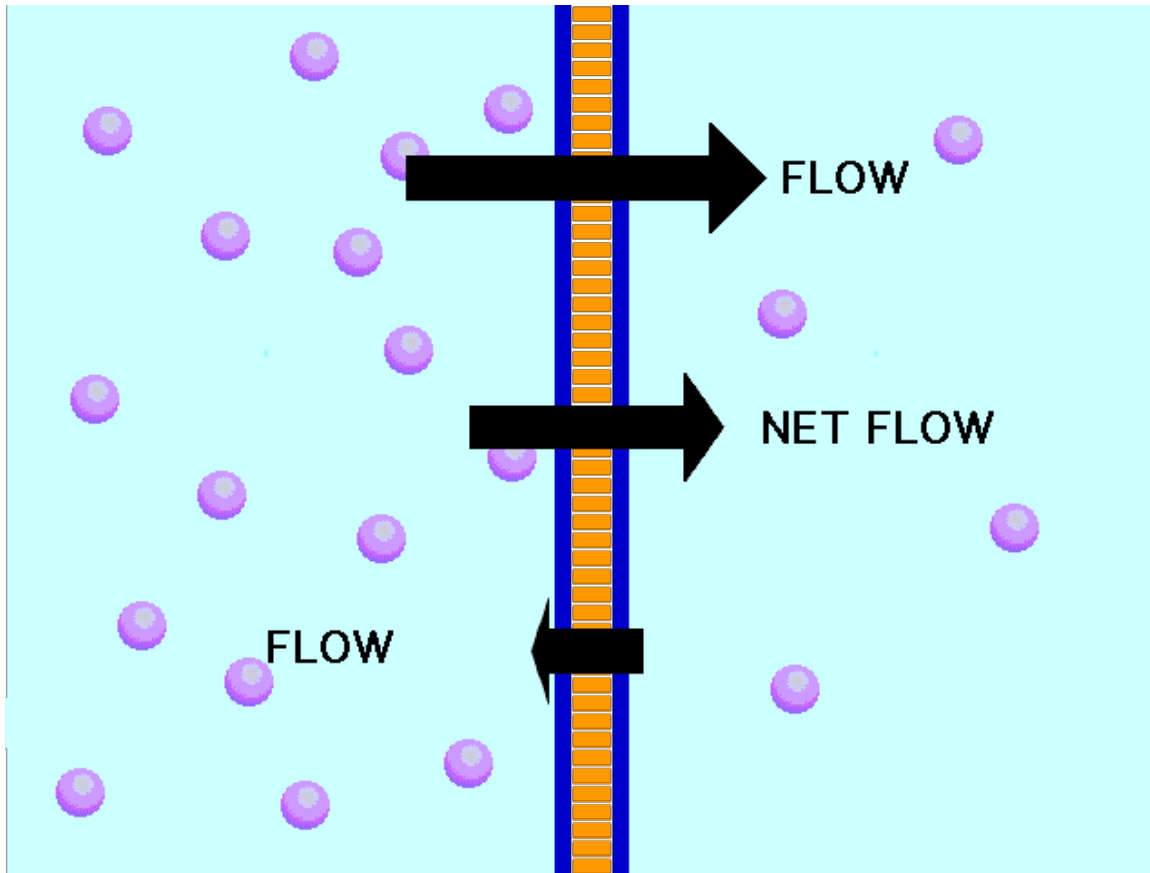
# Passive Transport Across Membranes



# Passive Transport

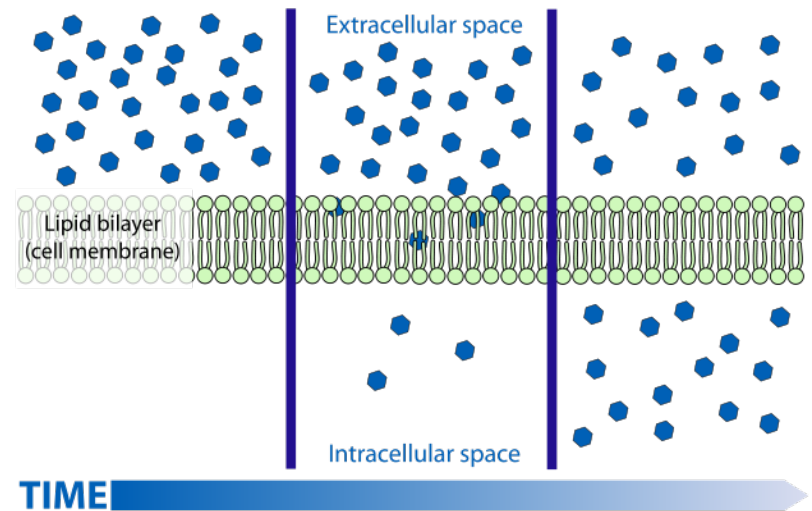
- the movement of materials across the cell membrane without the use of chemical energy (ATP)
- occurs because of diffusion

# Diffusion



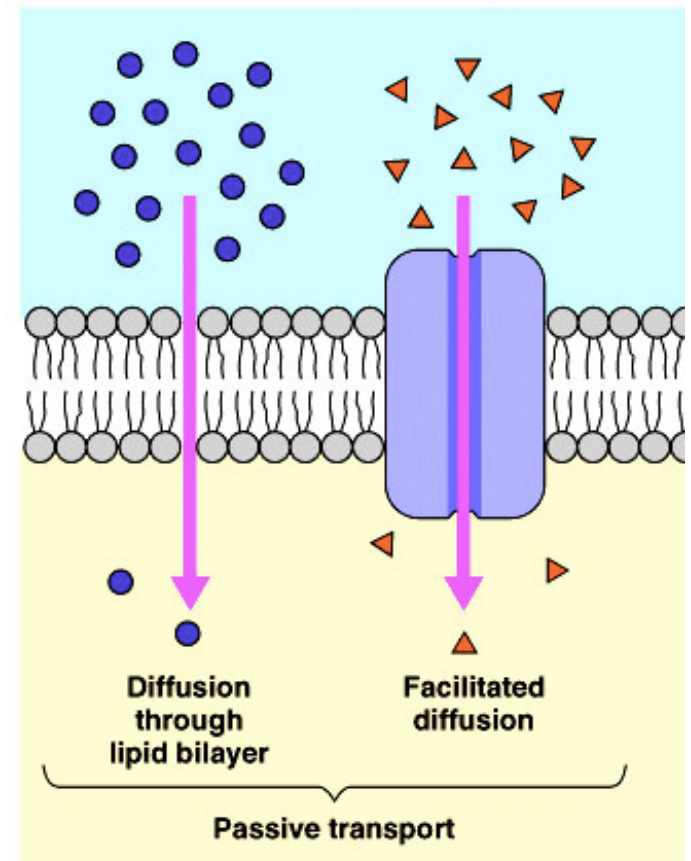
# Diffusion

- the net movement of a substance from an area of higher concentration to an area of lower
- **dynamic equilibrium**

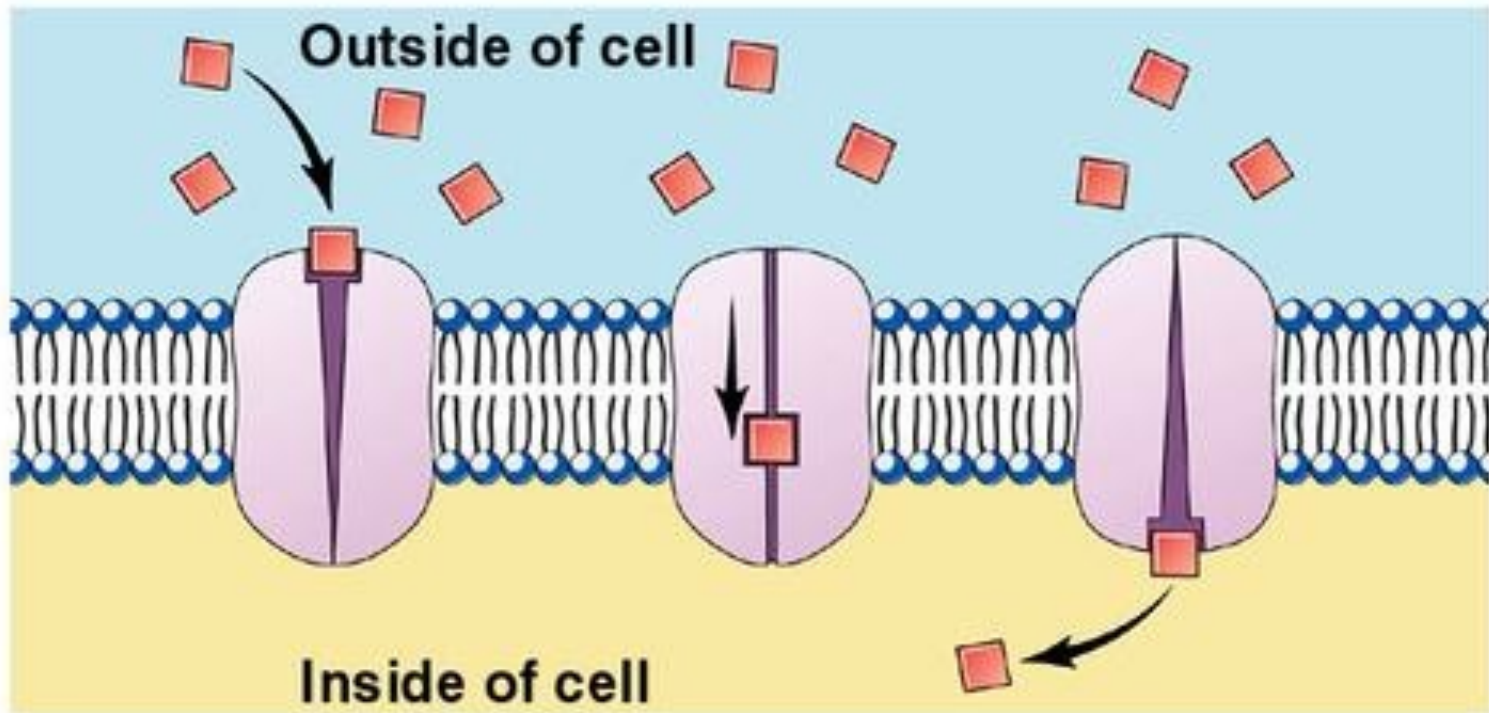


# Simple Diffusion

- substances move across membrane unassisted
- small non-polar molecules ( $O_2$ ,  $CO_2$ , steroid hormones, some drugs) and small polar molecules ( $H_2O$ , glycerol)
- larger molecules and ions can not pass through membranes unassisted

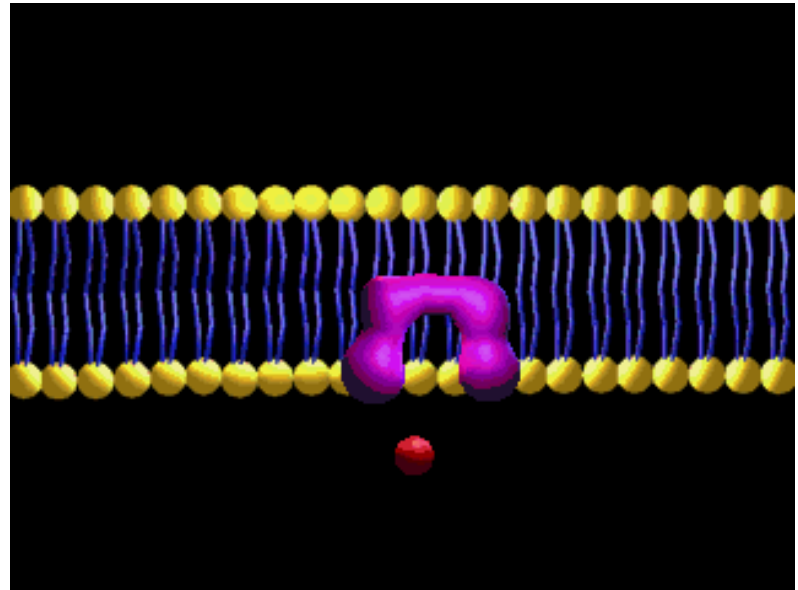
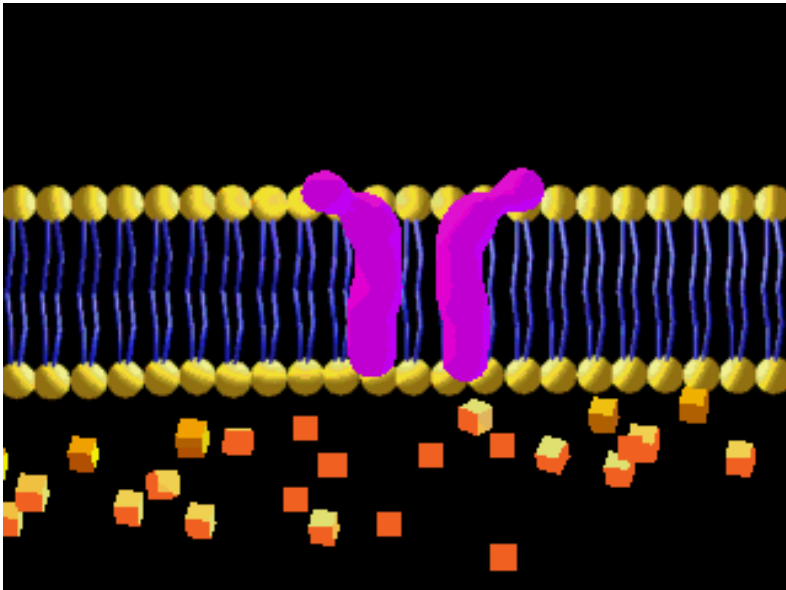


# Facilitated Diffusion





- diffusion across membrane assisted by integral membrane proteins called transport proteins
- channel proteins vs. carrier proteins
- ions, water, amino acids, sugars, etc.



# P.E.O.E.

**Predict** - What will happen when starch and iodine are placed in a beaker separated by a membrane?

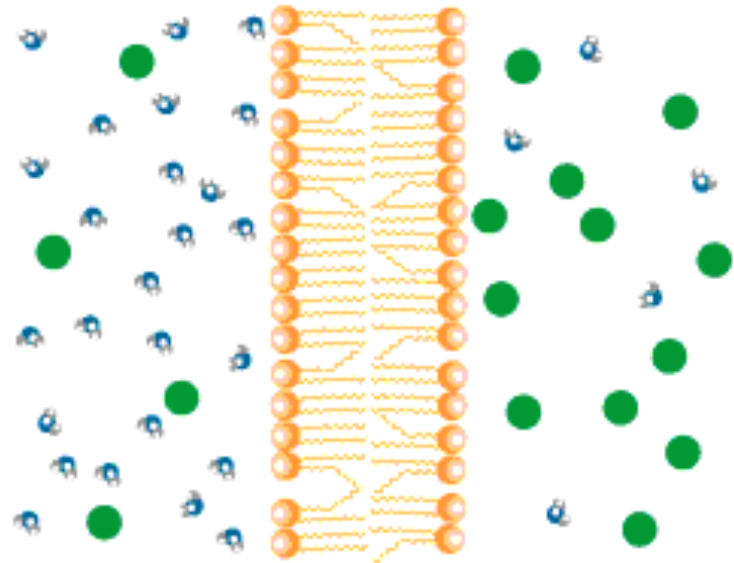
**Explain** -Your prediction?

**Observe** - What happened?

**Explain** What produce the results you observed? (DRAW and EXPLAIN)

# Osmosis

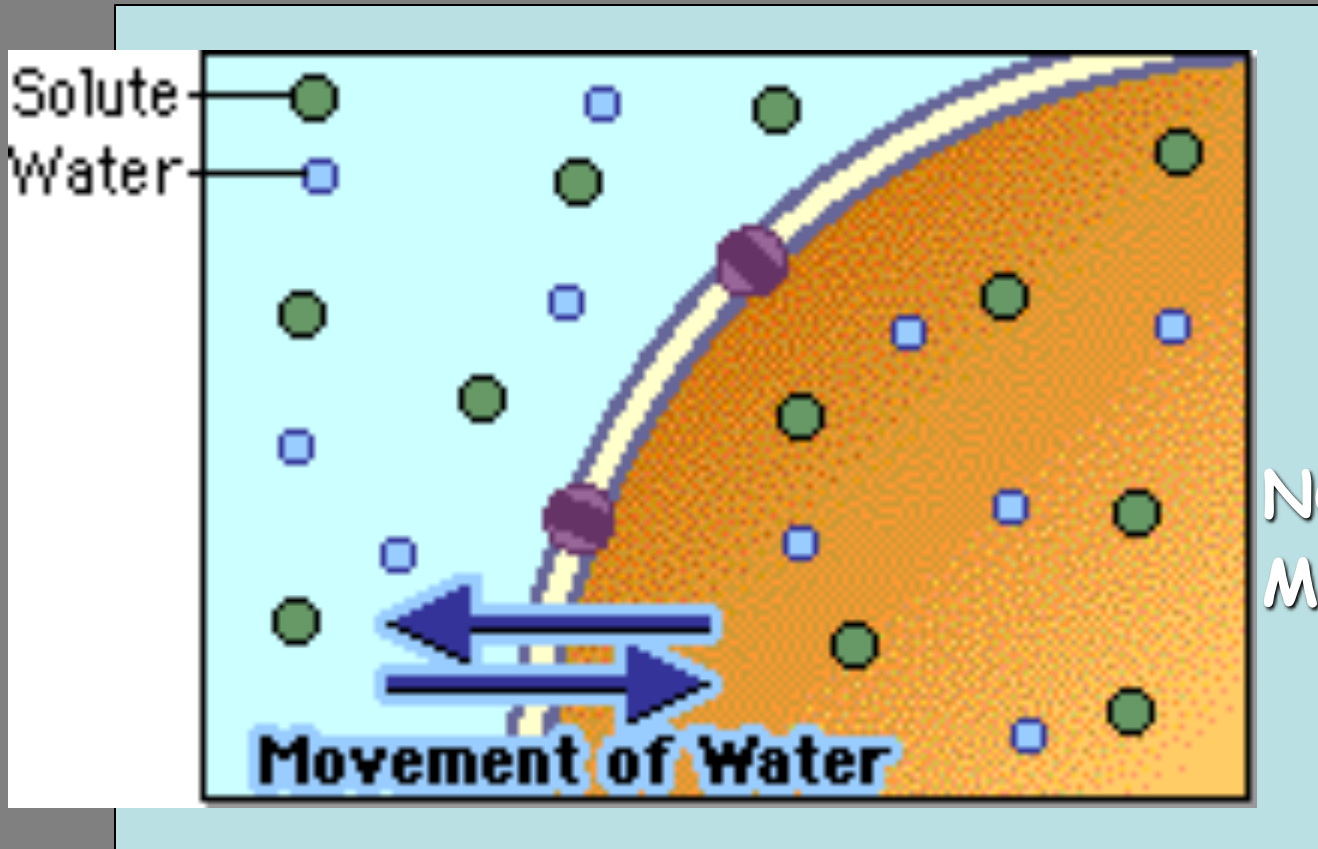
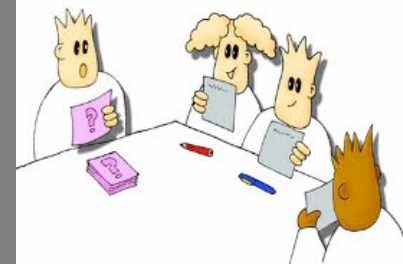
- the diffusion of water across a membrane
- water follows concentration gradient until equilibrium



# Osmosis

- direction of osmosis changes depending on type of solution surrounding the cell:
- isotonic solution
- hypotonic solution
- hypertonic solution

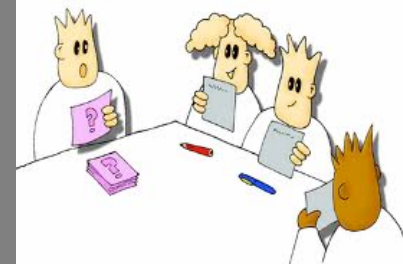
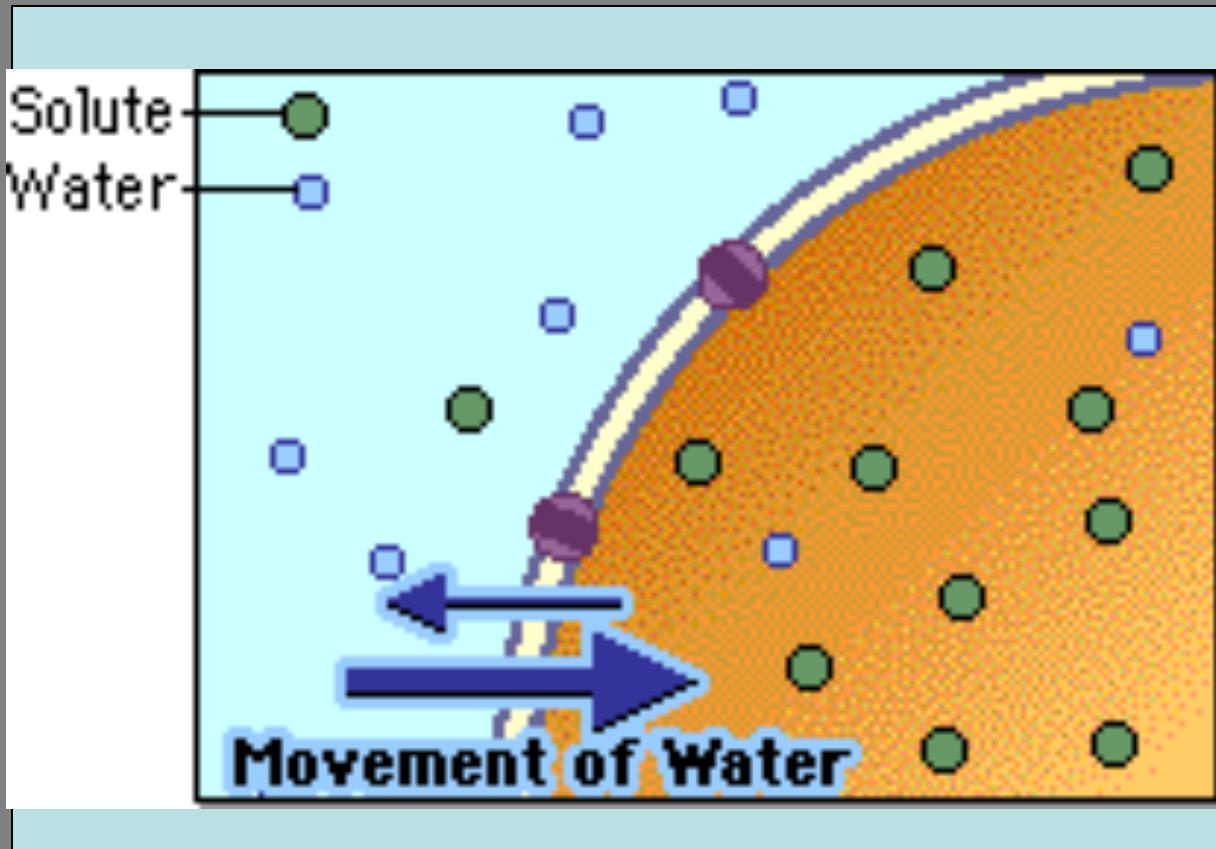
# Cell in Isotonic Solution



What is the direction of water movement?

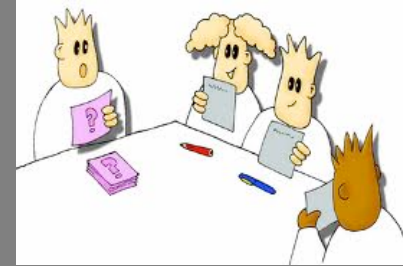
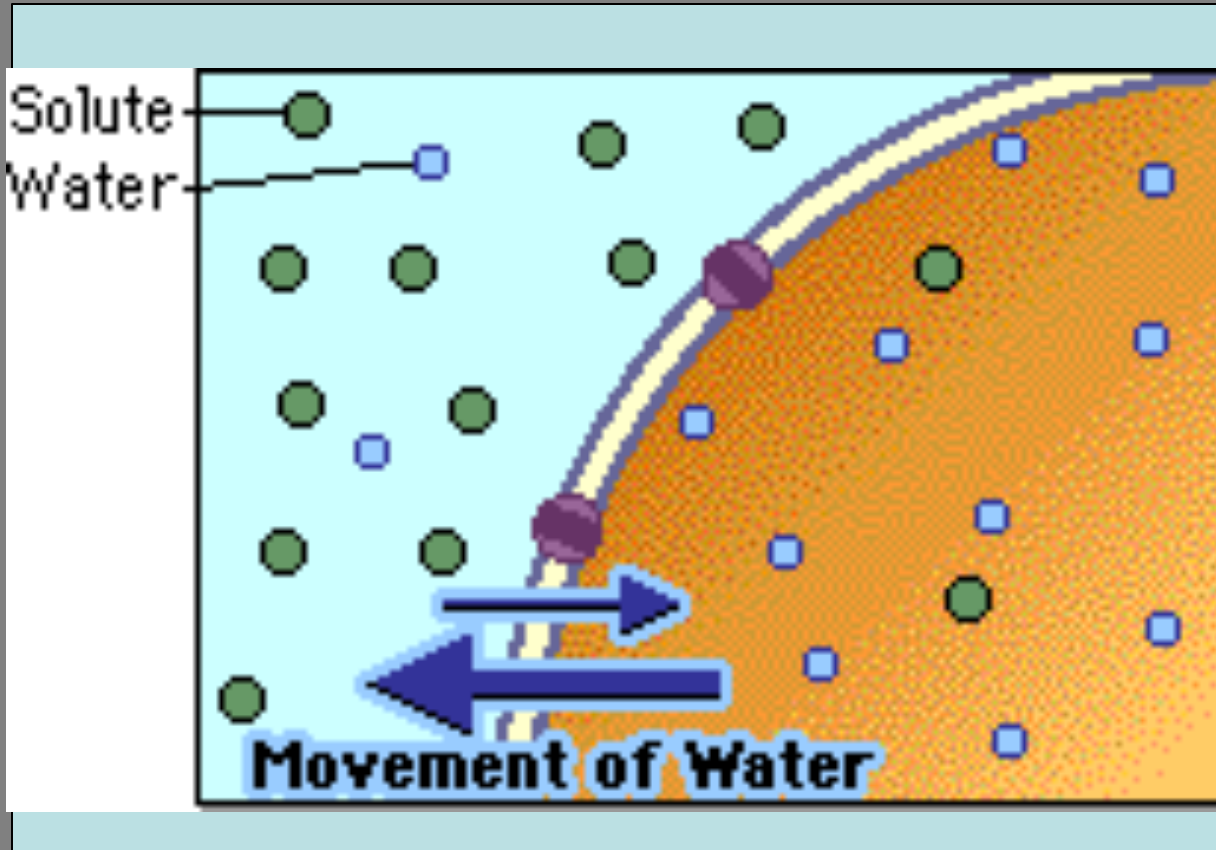
The cell is at equilibrium.

# Cell in Hypotonic Solution

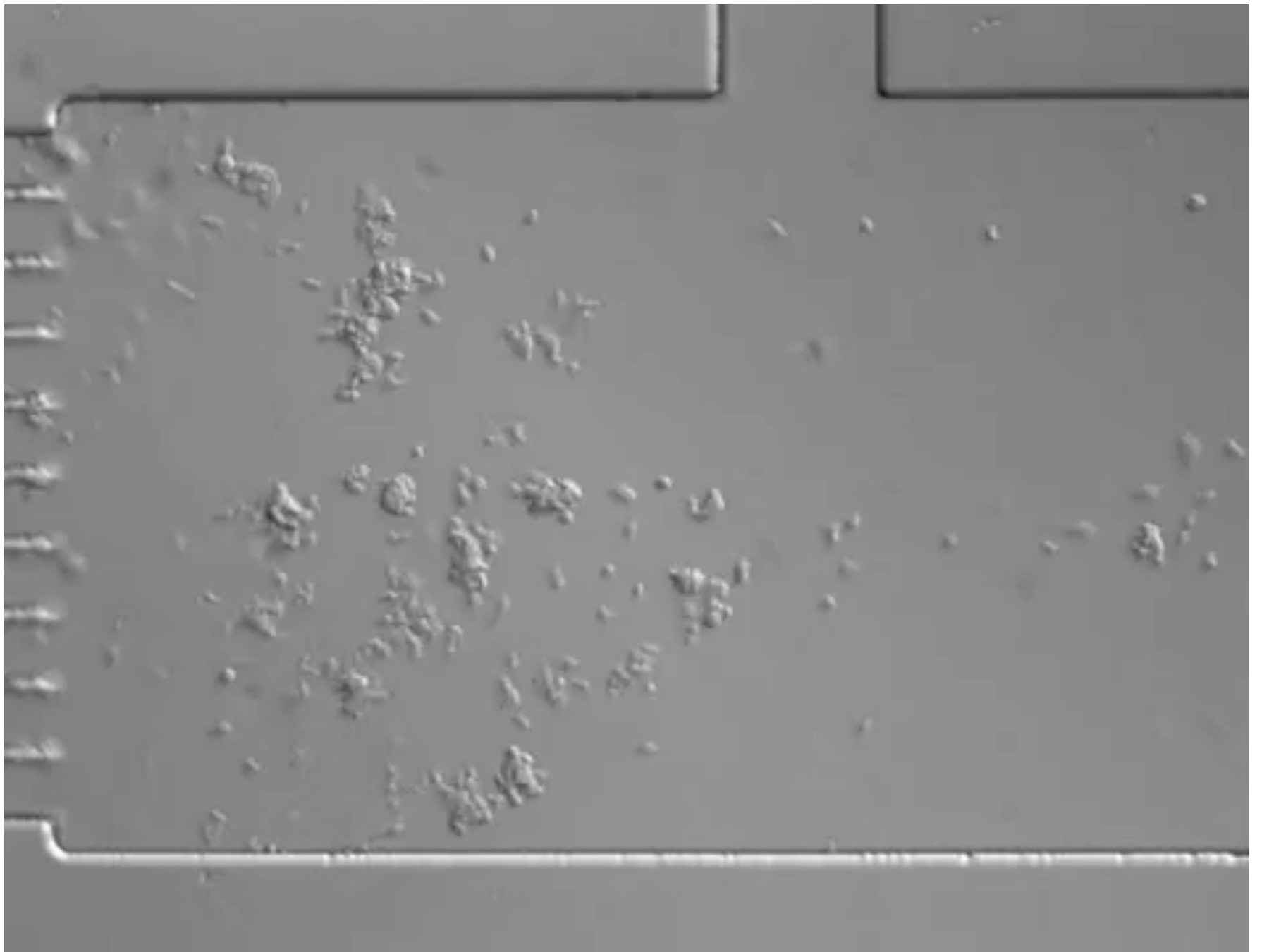


What is the direction of water movement?

# Cell in Hypertonic Solution



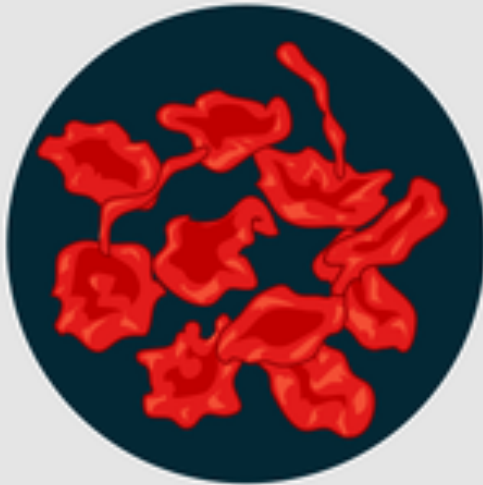
What is the direction of water movement?





# Cells and Tonicity

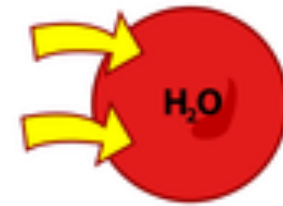
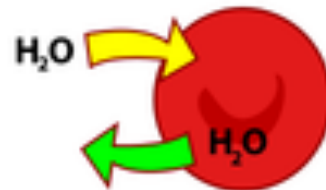
Hypertonic



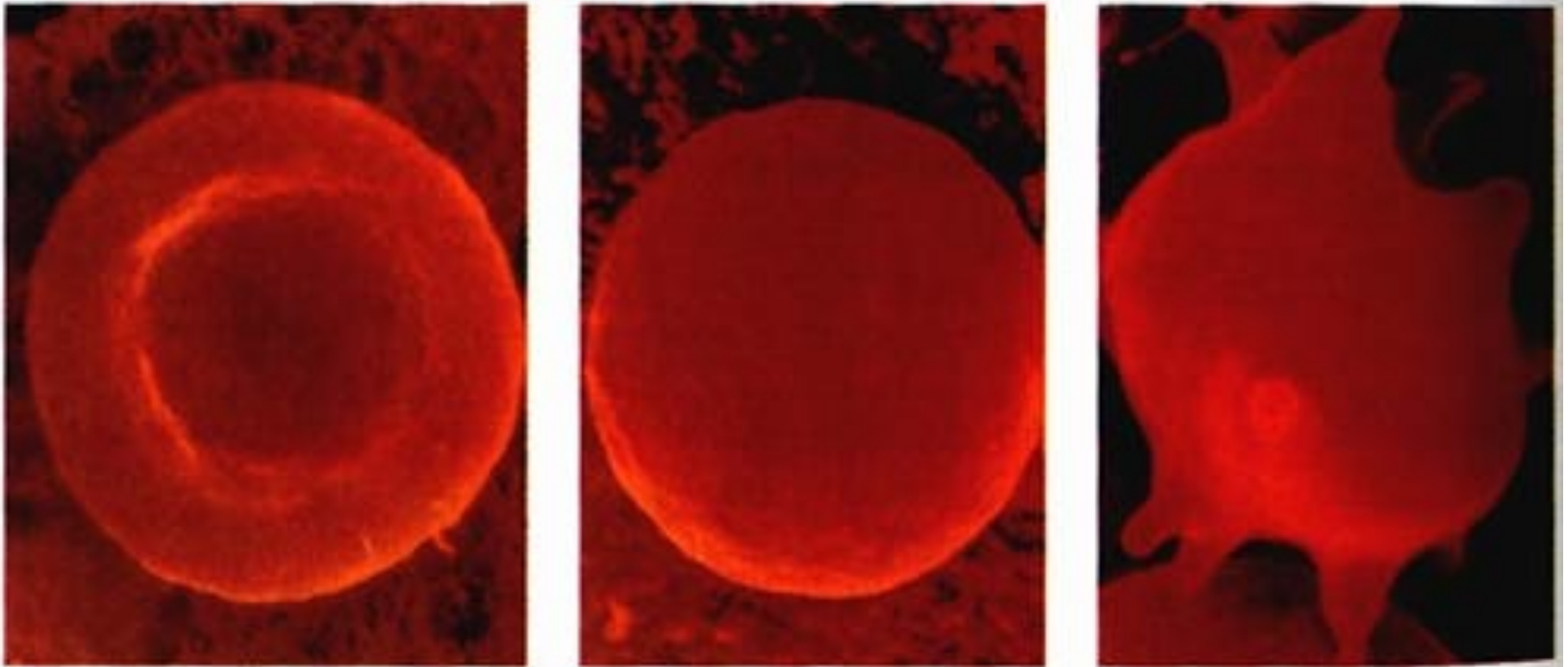
Isotonic



Hypotonic

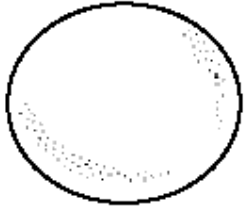


# Red Blood Cells



**STRUCTURES AND FUNCTIONS** The drawings below show the appearance of a red blood cell and a plant cell in isotonic, hypotonic, and hypertonic environments. Label each environment in the spaces provided.

RED BLOOD CELL



**hypotonic**

a



**hypertonic**

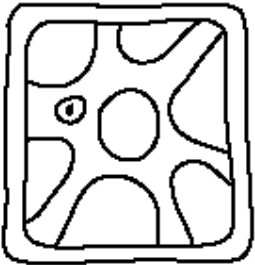
b



**isotonic**

c

PLANT CELL



**hypertonic**

d



**isotonic**

e



**hypotonic**

f



## How does tonicity impact in these situations...

1. a ... a single-celled organism living in a freshwater environment?
  - b ...a single-celled organism living in a salt-water environment?
  - c ...why can't you water a plant with salt water?
  
2. Why do vegetables in the grocery store get sprayed with water periodically

The background is a blue-tinted collage. It features various pieces of scientific equipment, including microscope lenses, objective lenses, and a microscope body. There are also portraits of scientists, including one of Robert Brown and another of a man with a beard. The overall theme is microscopy and biology.

**Nikon MicroscopyU**  
**Digital Video Gallery**

**Paramecium**  
**(Protozoan)**

**Through the Nikon Eclipse**  
**E600 Microscope with**  
**Dark Field Illumination**