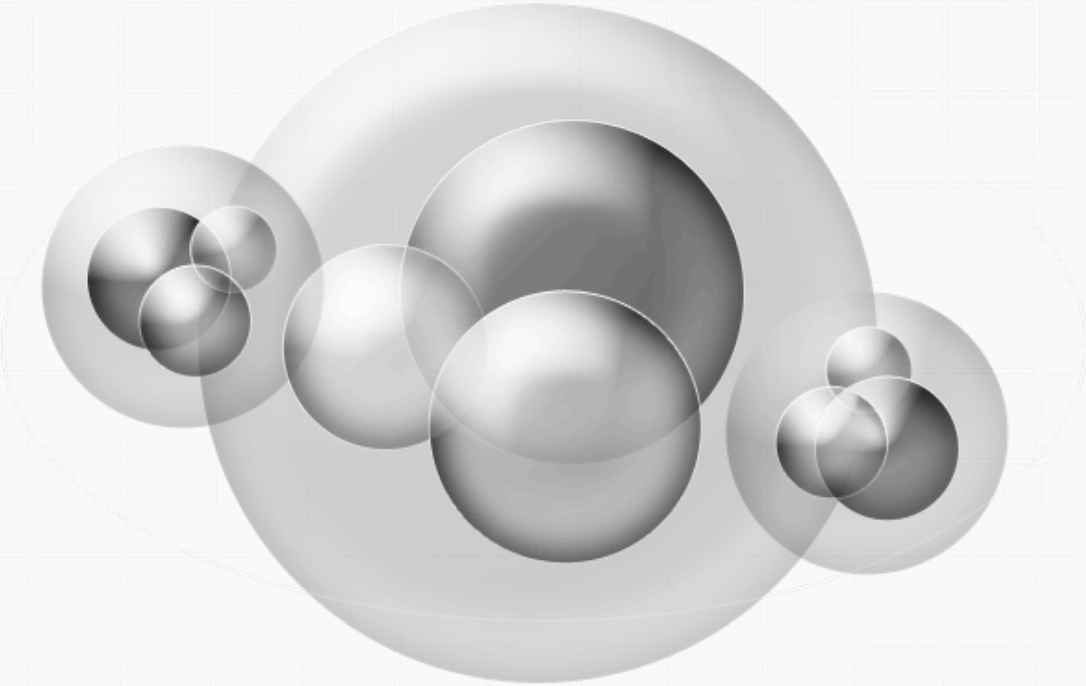


# Chapter 3 Section 2

**SPI 0707.1.5 Explain how materials move through simple diffusion.**

# What you'll learn:

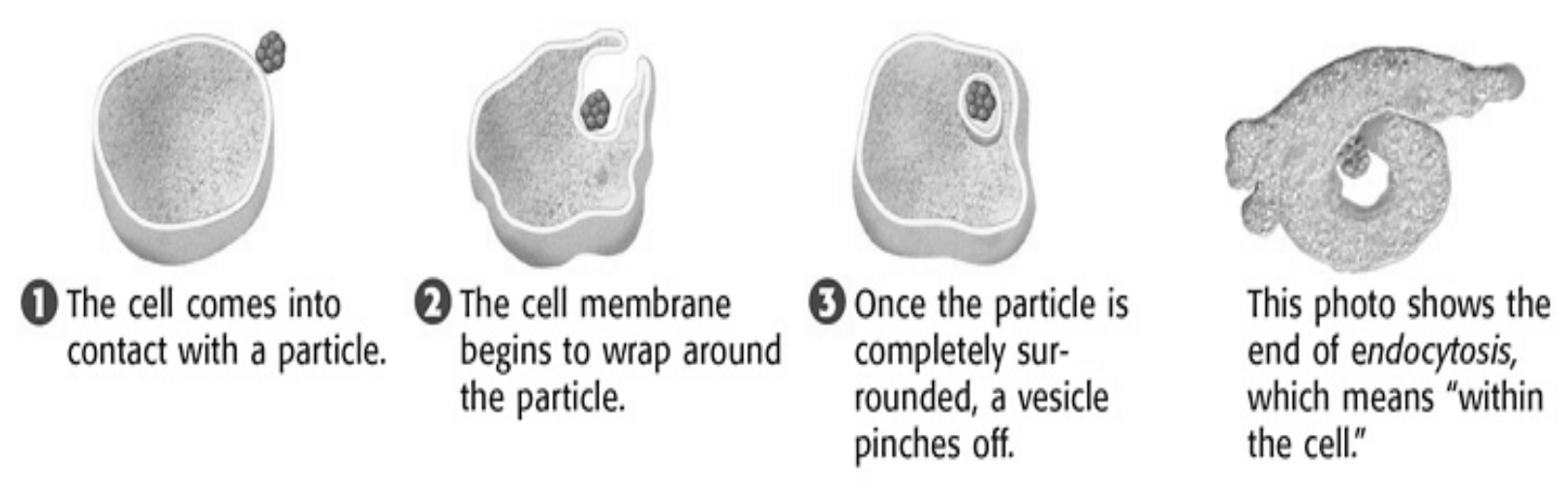
- Describe the function of a selectively permeable membrane.
- Explain how the processes of diffusion and osmosis move molecules in living cells.
- Explain how passive transport and active transport differ.

# Why it's important:

- **Cell membranes control the substances that enter and leave the cells of your body.**

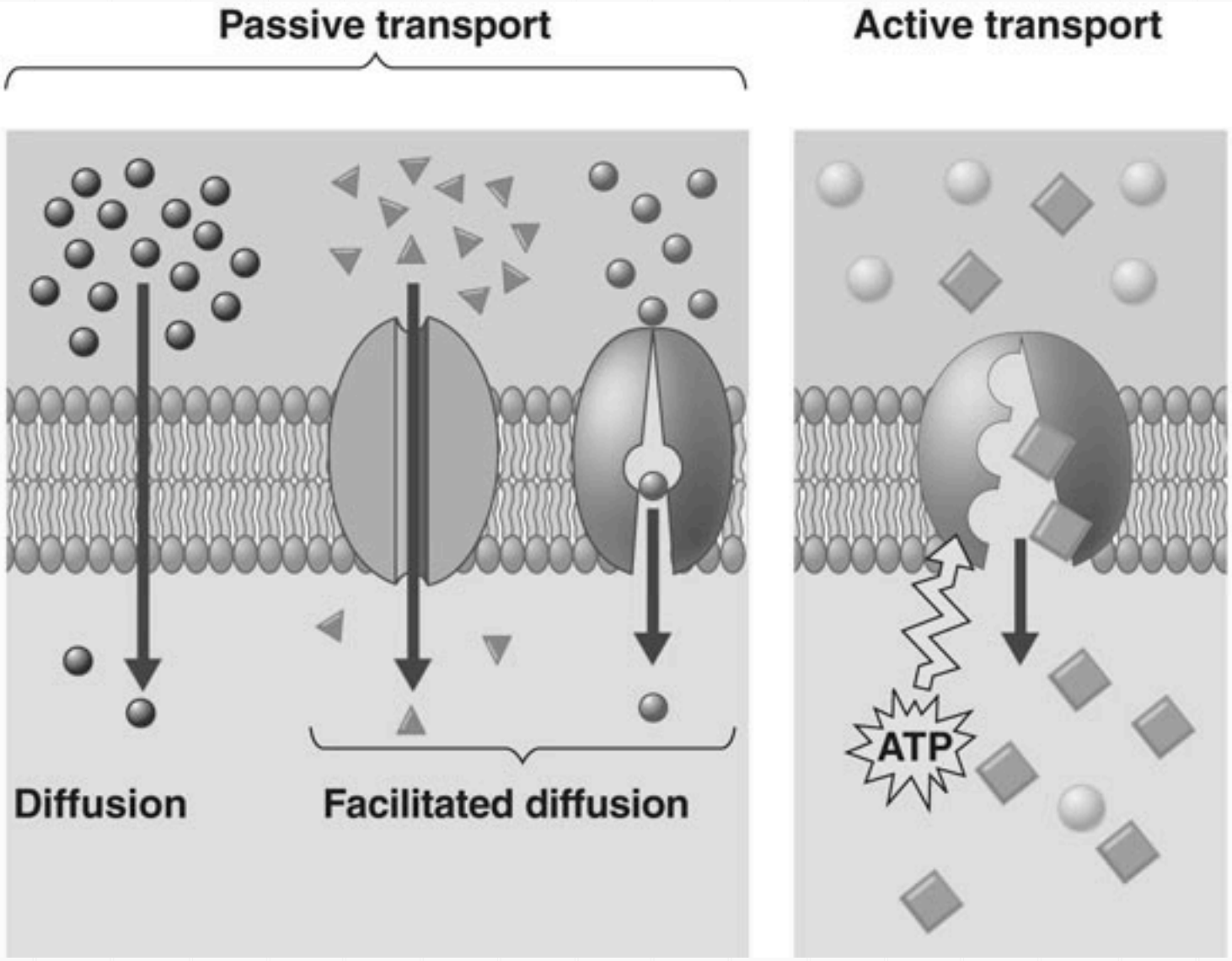
# What does mastery look like?

## What is being shown in the diagram below?



# Active Transport

- Sometimes a substance is needed inside a cell even though the amount of that substance inside the cell is already greater than the amount outside the cell.
- When an input of energy is required to move materials through a cell membrane, _____ _____ takes place.
- http://www.brainpop.com/science/cellularlifeandgenetics/activetransport/


Passive transport
Active transport
Diffusion
Facilitated diffusion
ATP

# Endocytosis and Exocytosis

- Some molecules and particles are too large to move by diffusion or to use the cell membrane's transport proteins.
- Large protein molecules and bacteria, for example, can enter a cell when they are surrounded by the cell membrane.
- The cell membrane folds in on itself, enclosing the item in a sphere called a vesicle. Vesicles are transport and storage structures in a cell's cytoplasm.

# Endocytosis and Exocytosis

- The process of taking substances into a cell by surrounding it with the cell membranes is called endocytosis. Some one-celled organisms take in food this way.
- The contents of a vesicle can be released by a cell using the process called exocytosis. Exocytosis occurs in the opposite way that endocytosis does.
- A vesicle's membrane fuses with a cell's membrane, and the vesicle's contents are released.

# Exit Ticket

- **Active Transport BP quiz**

# Concept Review

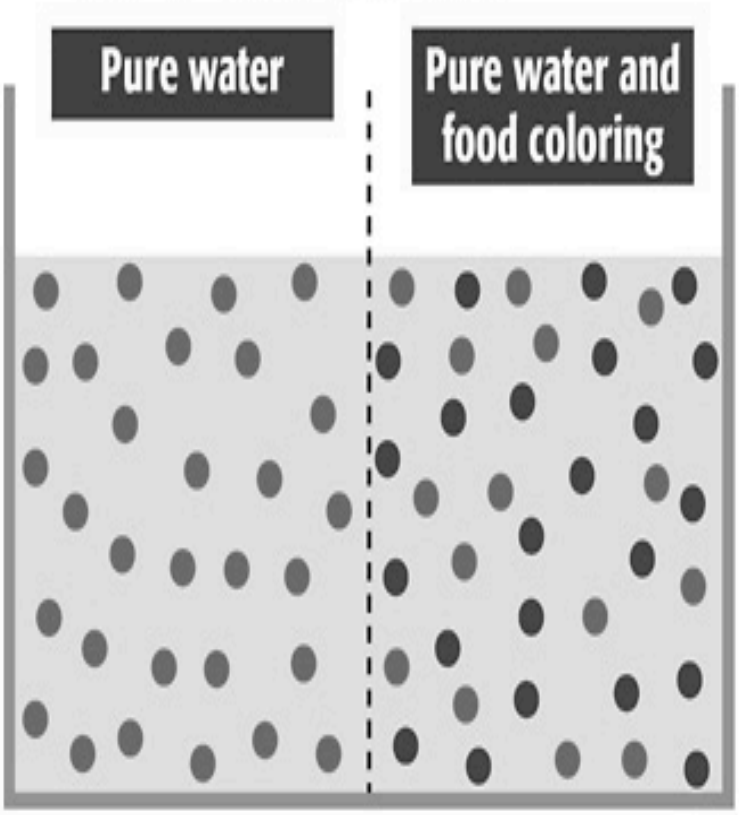
- Let's review what we've learned this week…

# Concept Review

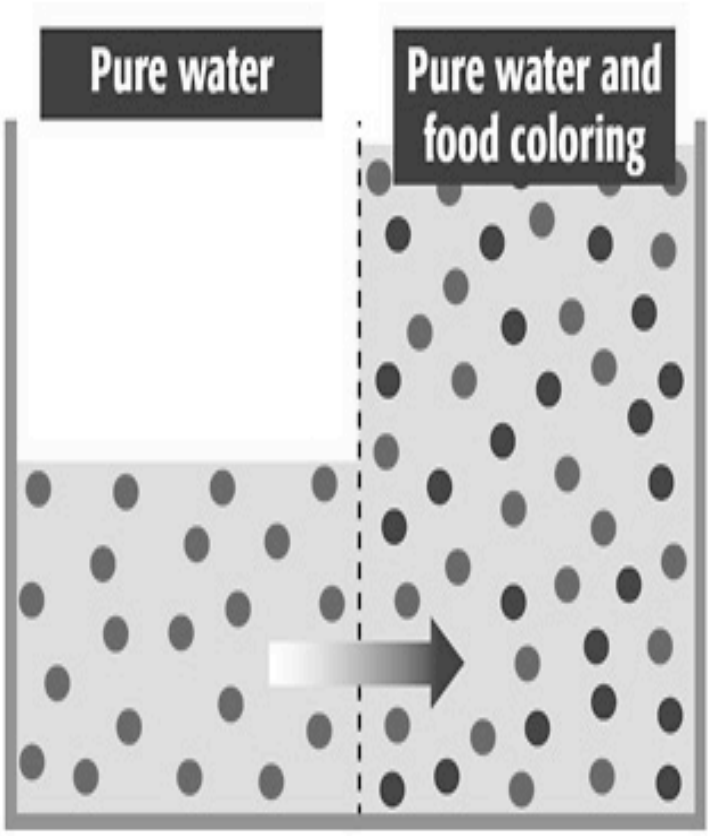
- Diffusion is the movement of a substance from areas of high concentration to areas of low concentration.

# Concept Review

1. The side that holds only pure water has the higher concentration of water particles.



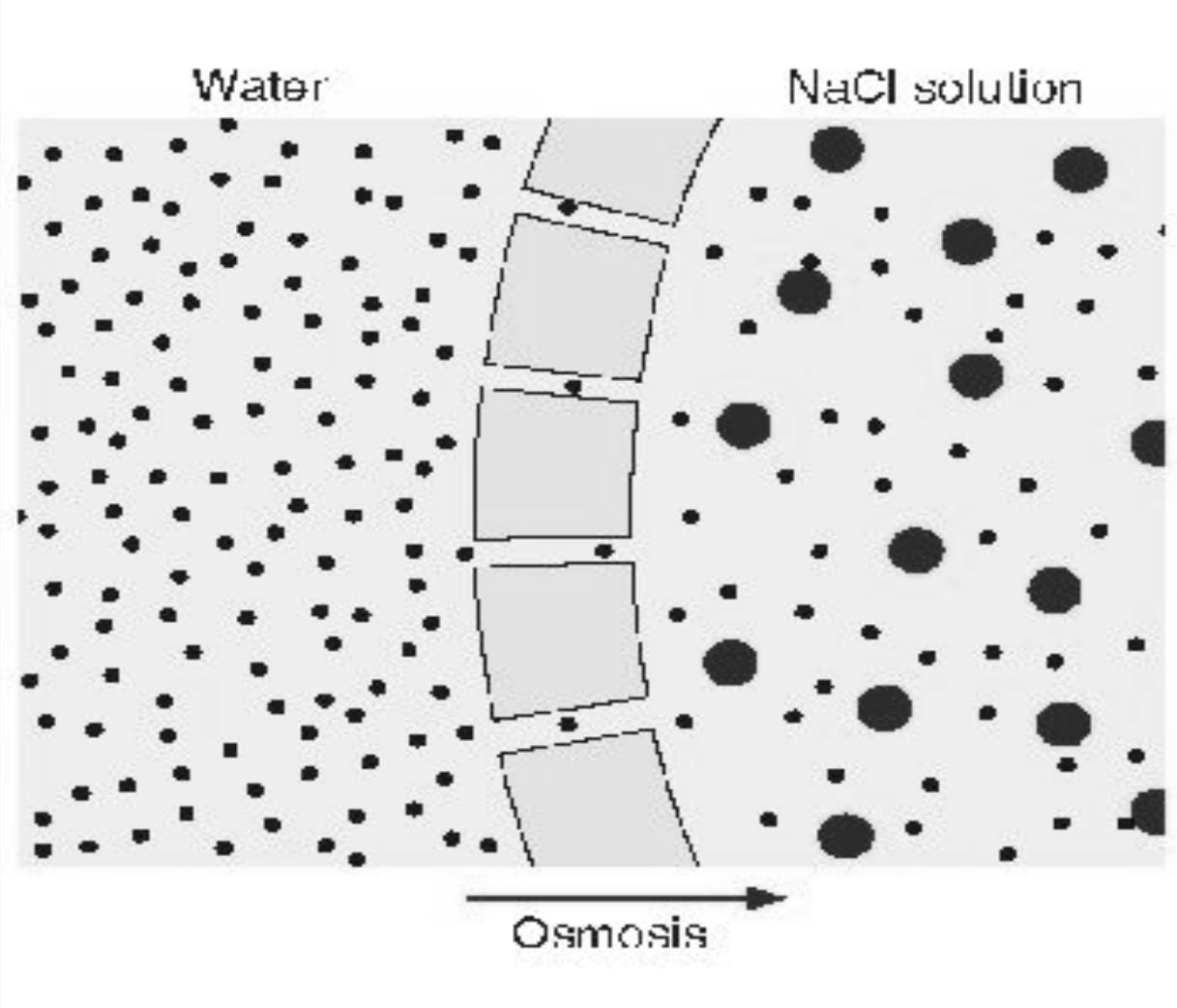

2. During osmosis, water particles move to where they are less concentrated.



# Osmosis

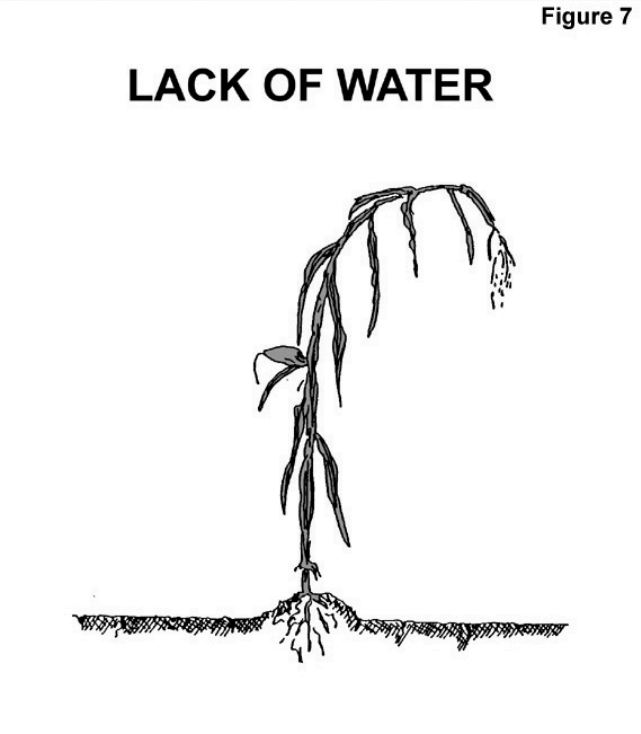
- **Osmosis is the diffusion of water through semi-permeable cell membranes.**

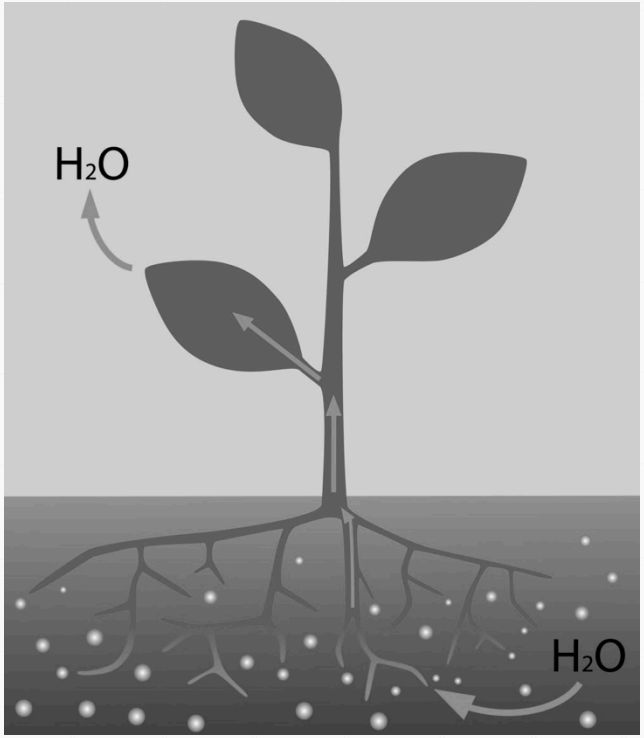
# Concept Review



# Concept Review

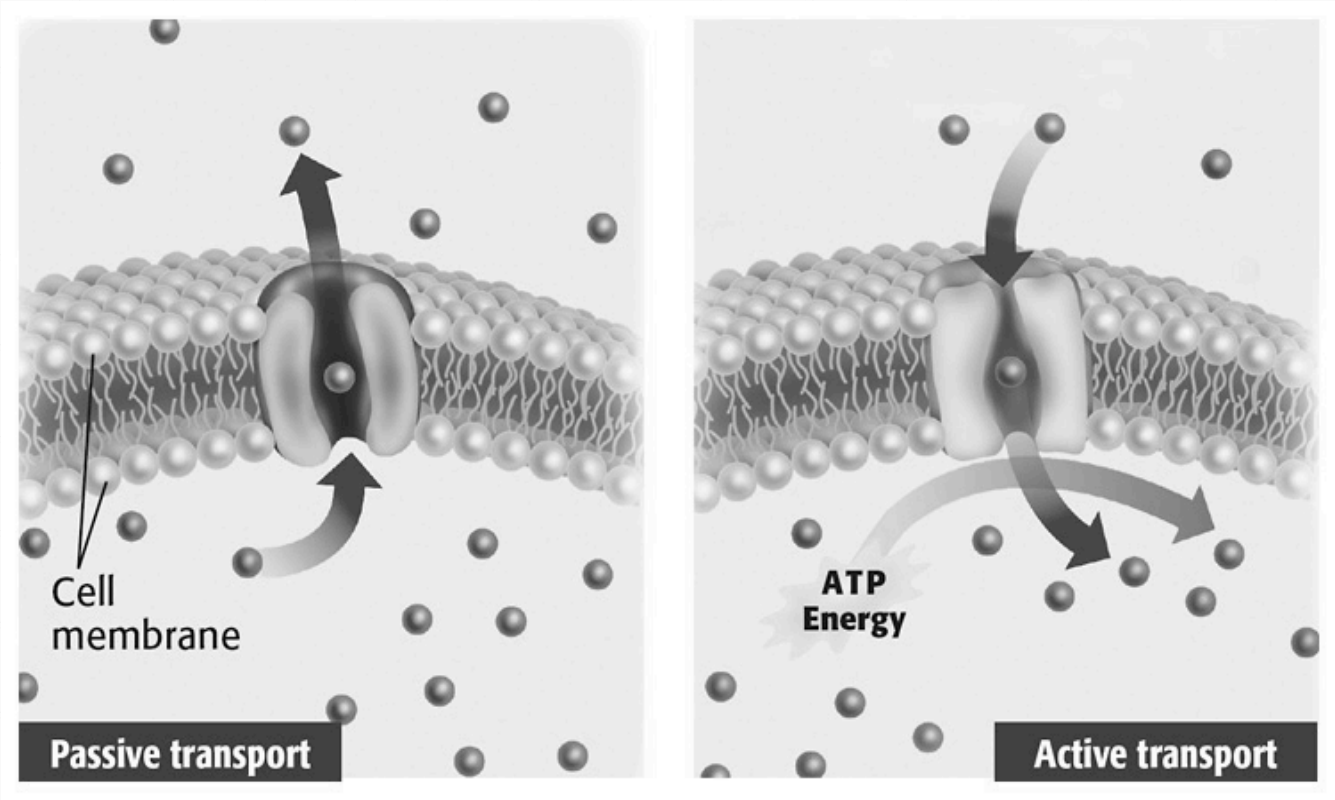
- **Osmosis makes plants firm.**



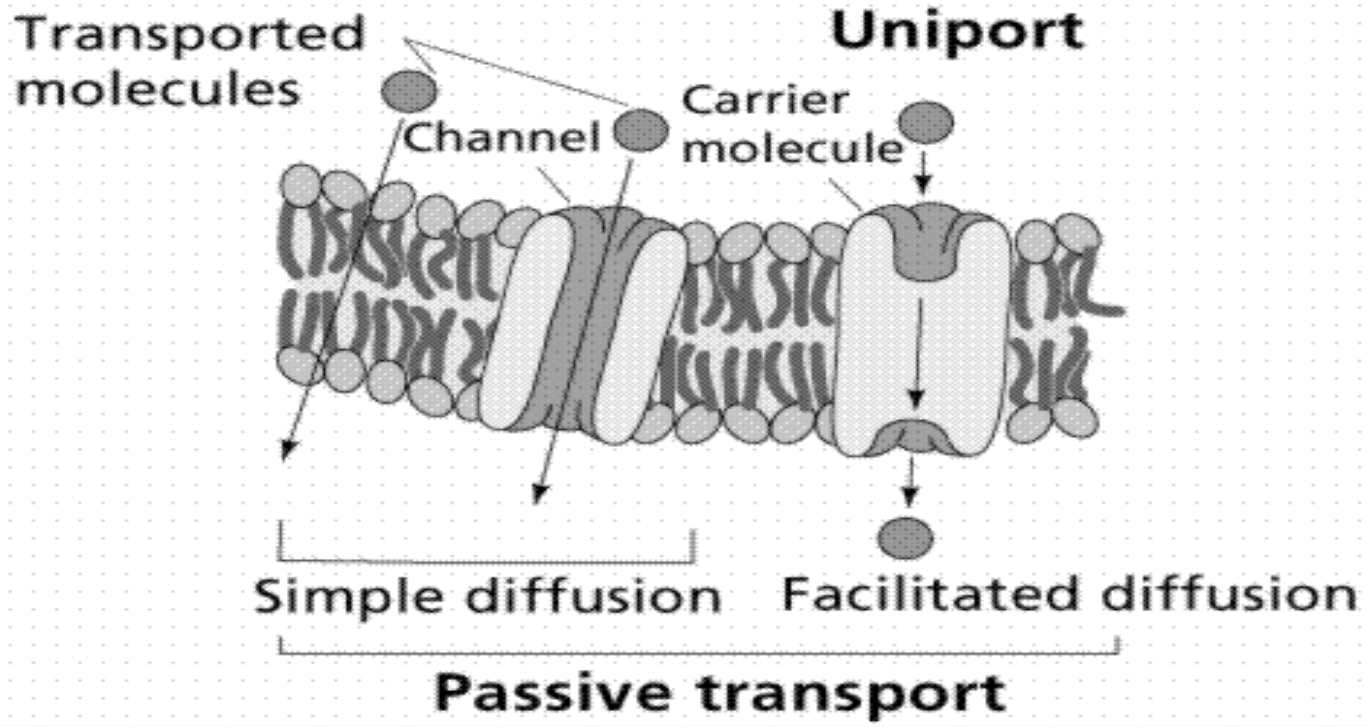
# Concept Review

- **Small particles, such as sugars, cross the cell membrane through passageways called channels.**



# Passive Transport

- **Passive Transport = Without the use of energy (Diffusion and osmosis)**



# Concept Review

- **Active Transport = requires cell to use energy**
- Active transport usually involves the movement of particles from an area of low concentration to an area of high concentration.

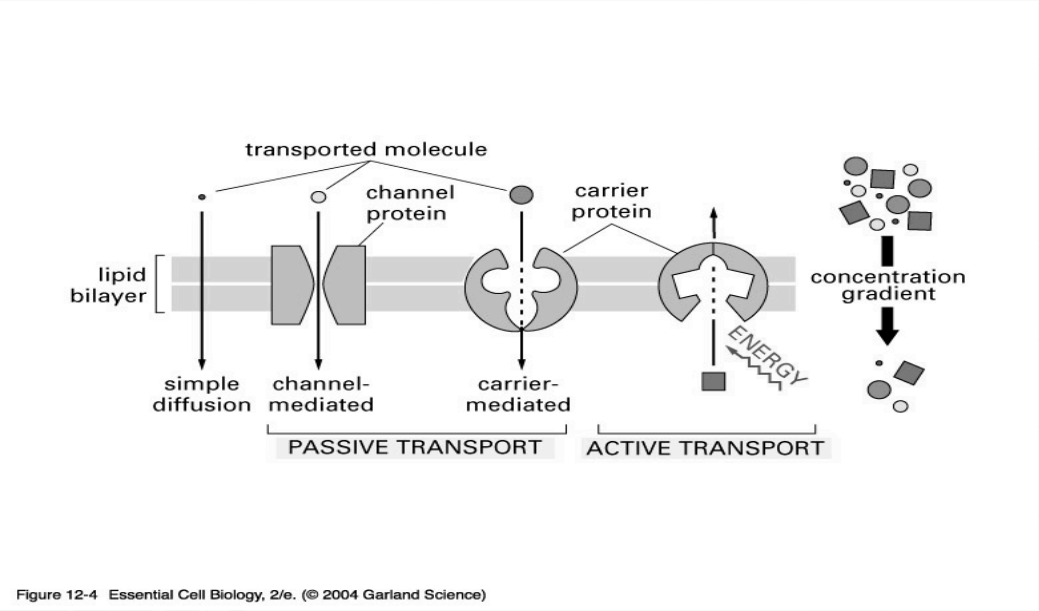


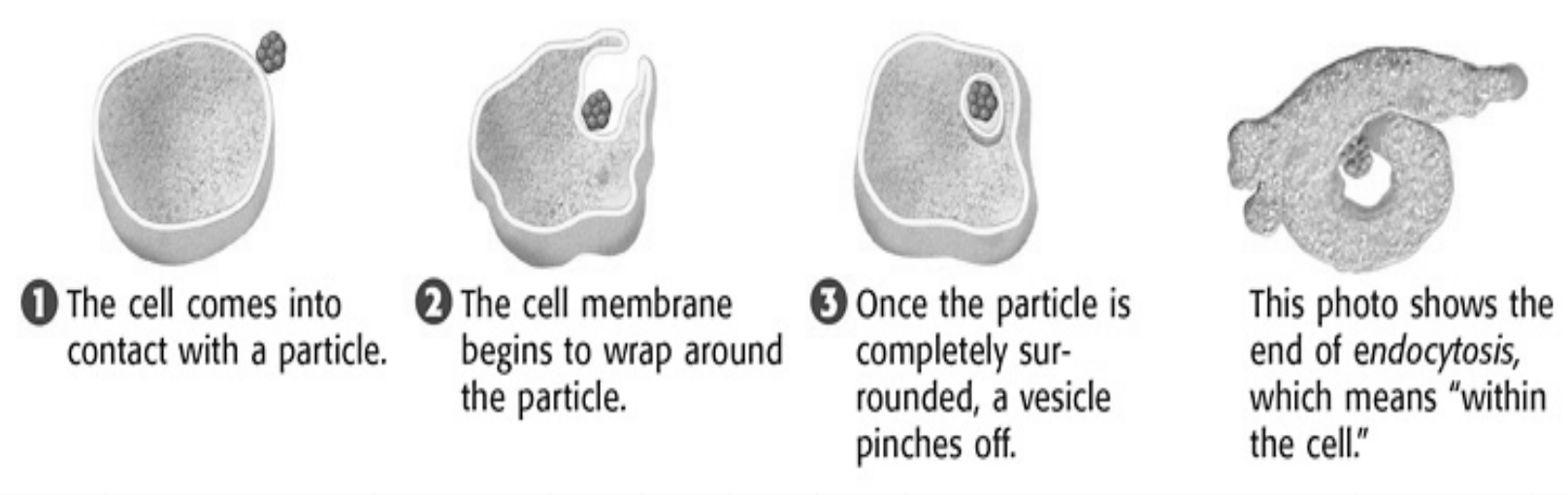

Figure 12-4 Essential Cell Biology, 2/e. (© 2004 Garland Science)

# Concept Review

- **Moving Large Particles**
- **Large particles move into and out of the cell by endocytosis and exocytosis.**

# Concept Review

- **Endocytosis**
- **The active-transport process by which large particles, such as large protein, are taken into the cell.**



1 The cell comes into contact with a particle.

2 The cell membrane begins to wrap around the particle.

3 Once the particle is completely surrounded, a vesicle pinches off.

This photo shows the end of *endocytosis*, which means "within the cell."

# Concept Review

- **Exocytosis**
- **The active-transport process by which large particles, such as wastes, leave the cell.**