



High School Science Virtual Learning

Biology

Passive & Active Transport

April 30, 2020



High School General Biology

Lesson: Passive & Active Transport

Objective/Learning Target:

Students will understand how passive and active transports work.

Bell Ringer Activity

1. If someone is being active what does that mean?
2. If someone is being passive what does that mean?



Bell Ringer Answers

1. If someone is being active that means they are marked by energetic activity.

2. If someone is being passive they are accepting what happens to others without an active response.

Keep these definitions in mind as we discuss the differences between what active and passive transport are in biology.

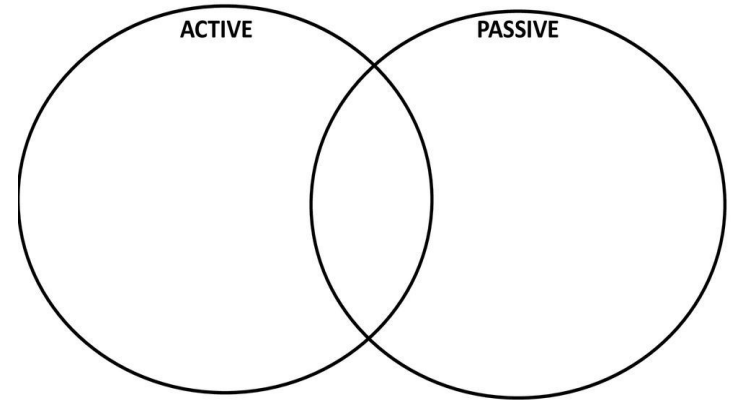
Let's Get Started!

Lesson Activity:

Directions:

1. Watch this [video](#).
2. Create a Venn Diagram like the one you see here --->
3. Compare and contrast Active and Passive Transport by the information you learn from the video.

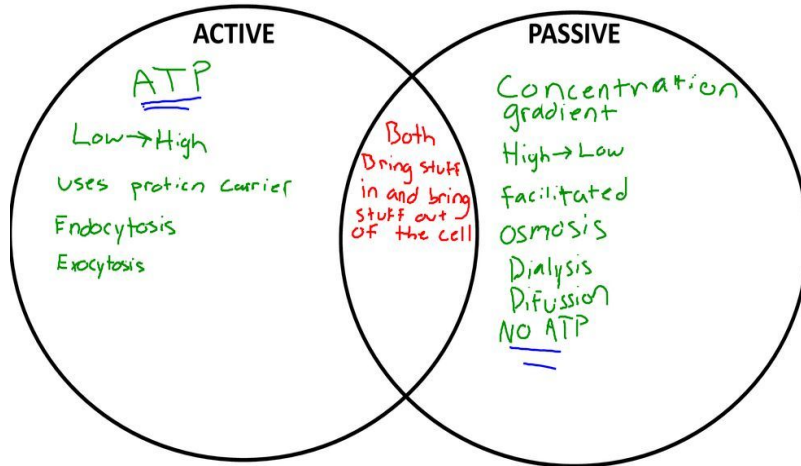
Active vs. Passive Transport



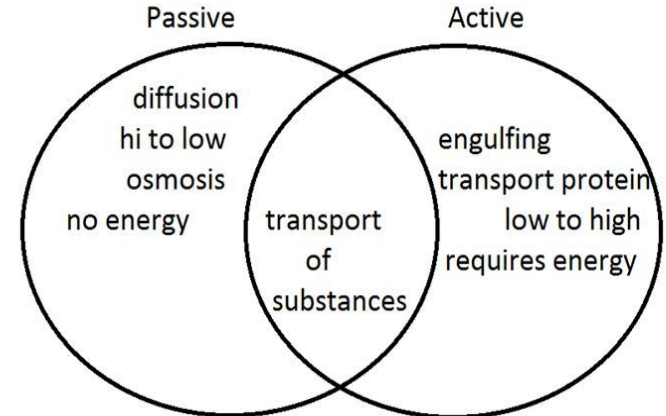
Lesson Questions Answers

Venn Diagram Examples:

Active vs. Passive Transport

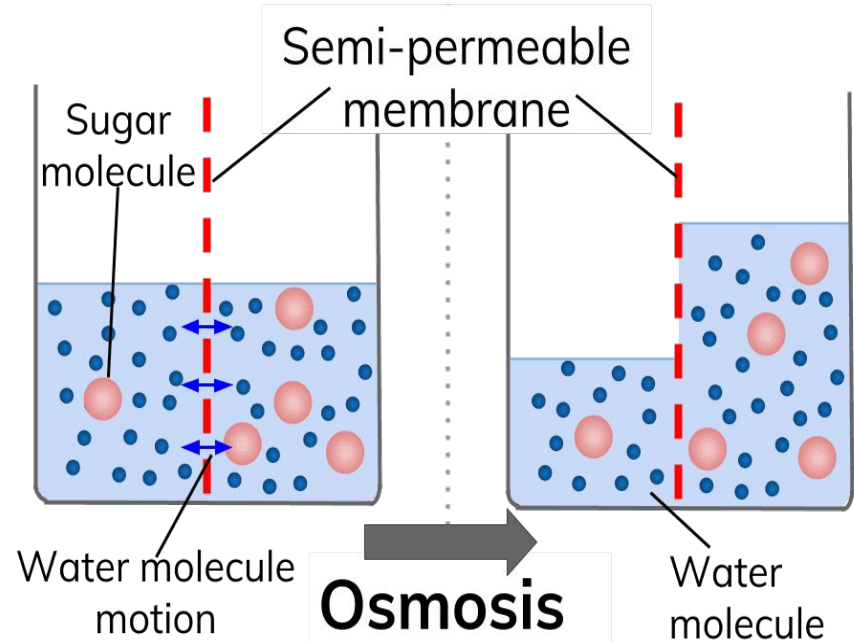


REVIEW



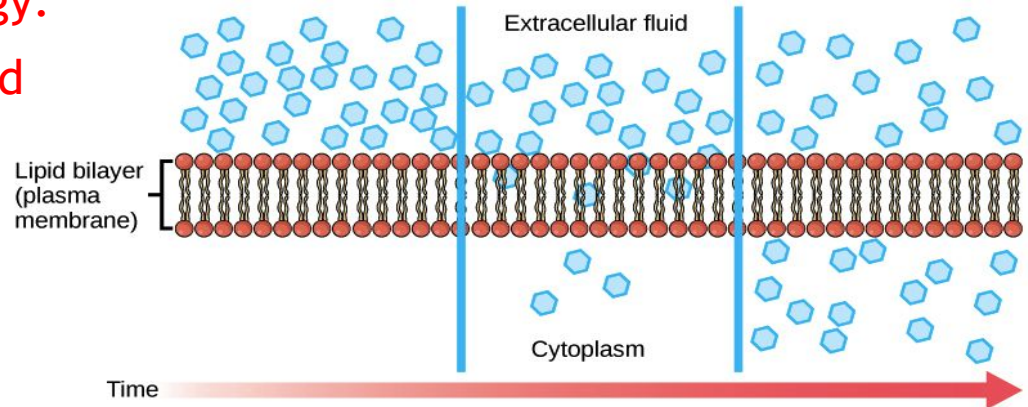
Practice Questions

1. What is passive transport?
2. What is active transport?
3. What is the difference between diffusion and osmosis?
4. What is the difference between endocytosis and exocytosis?
5. What are the differences between facilitated diffusion and active transport by a protein pump?



Answers to Practice Questions

1. Passive transport is the movement of materials across the cell membrane without using cellular energy.
2. Active transport is the movement of materials against a concentration difference; it requires energy.
3. In diffusion, both solvent and solute particles are free to move; however, in osmosis only water molecules cross the semipermeable membrane.



Answers to Practice Questions Continued

4. Endocytosis is the process of capturing a substance or particle from outside the cell by engulfing it with the cell membrane, and bringing it into the cell. Exocytosis describes the process of vesicles fusing with the plasma membrane and releasing their contents to the outside of the cell.
5. Facilitated diffusion is a passive process and does not require energy. Active transport uses carrier proteins to transport molecules against their concentration gradient; in such, energy is used to change the shape of the carrier protein.

Common Misconceptions

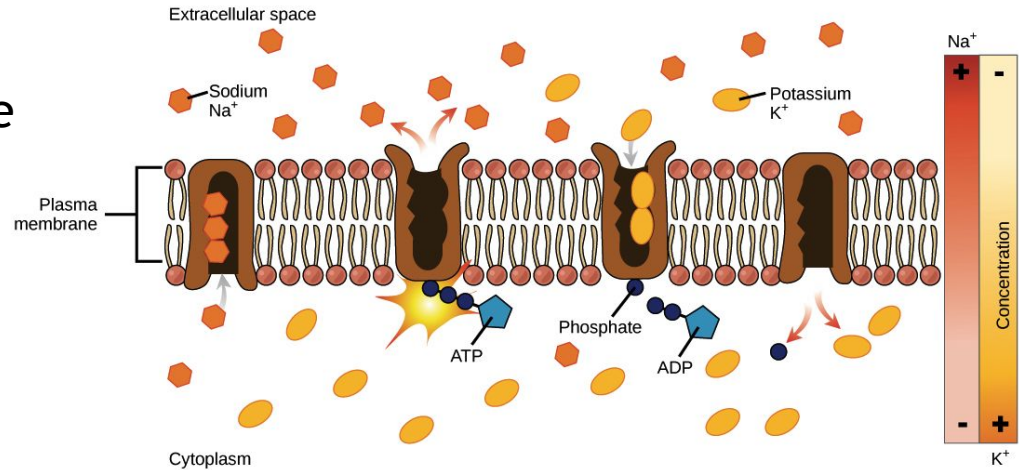
- Not everything enters the cell through passive transport. Only the smallest molecules like water, carbon dioxide, and oxygen can freely diffuse across cell membranes. Larger molecules or charged molecules often require an input of energy to be transported into the cell.
- Even when equilibrium is reached, particles do not stop moving across the cell membrane. Although it may seem as if the concentrations are not changing, nearly equal numbers of particles cross the membrane in both directions. This means that there is no net change in the concentration of the substances.

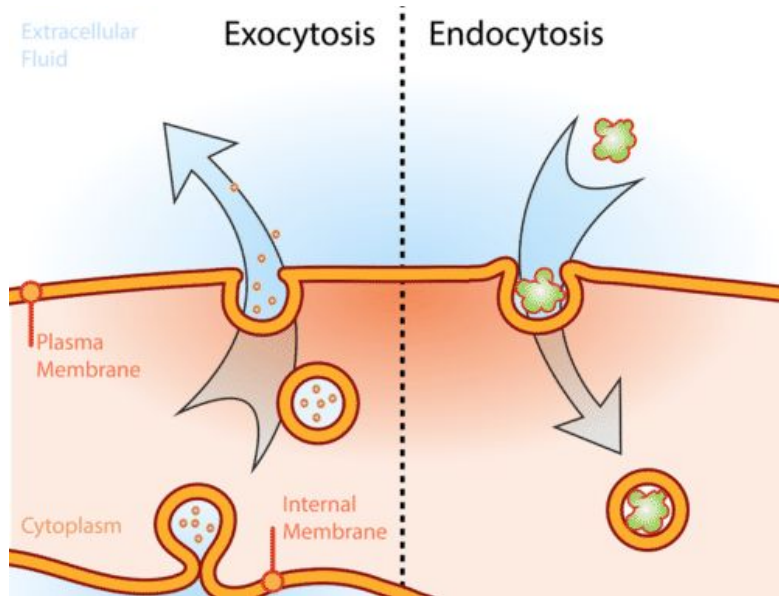
More Practice

Follow the links below to do more practice.

[Passive Transport Practice](#)

[Active Transport Practice](#)





Additional Resources

[Defining Active and Passive Transport](#)

[Differences Between Osmosis and Diffusion](#)

[Exocytosis and Endocytosis](#)