

Name: Key

Test on November 8

Cellular Processes Study Guide

What is the **difference** between osmosis & diffusion?

Diffusion is the movement of molecules from high to low concentrations;
Osmosis is the diffusion of water from high to low concentration

What is a **concentration gradient** & how do molecules naturally move in one?

How high or low an area is in solute particles.
Naturally, molecules move from "high" to "low"

What is the difference between PASSIVE & ACTIVE transport?

Passive transport requires no energy, but Active transport DOES need energy

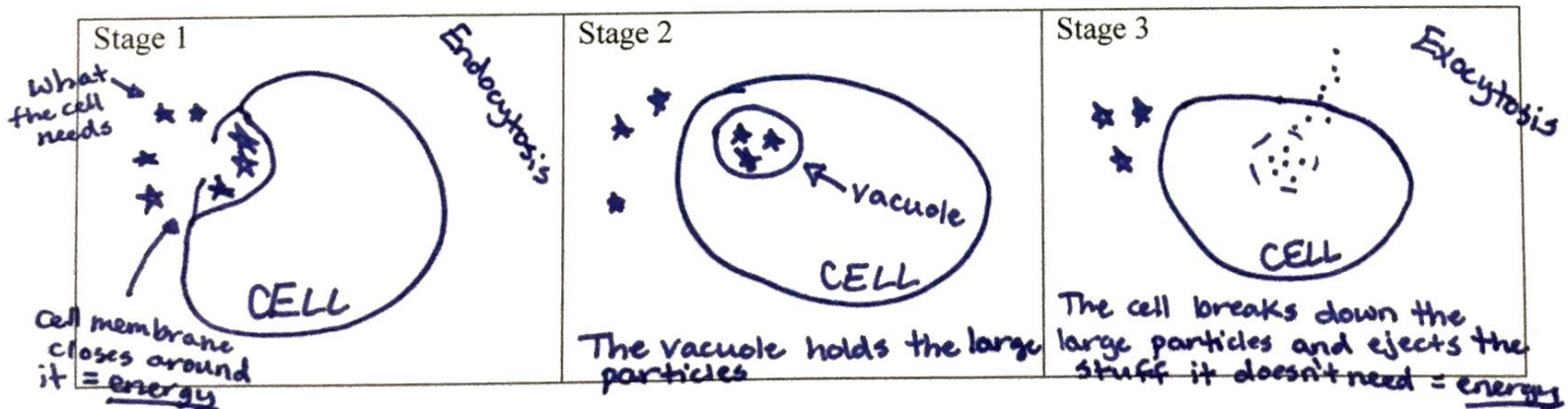
Endocytosis moves particles INTO the cell. ("endo" sounds like "enter")

Exocytosis moves particles OUT OF the cell. ("exo" sounds like "exit")

List two examples of active transport. endocytosis & exocytosis

List two examples of passive transport. diffusion & osmosis

Please draw a diagram below that illustrates what is happening during **Endocytosis** & **Exocytosis** (there was a picture in your notes ☺)



Label the following diagrams as ISOTONIC, HYPERTONIC, or HYPOTONIC

Hypertonic solution
More solute OUT of the cell → water leaves cell



Hypertonic solution
(water leaves the cell)



Isotonic solution
(water goes in and out = equal!)



Hypotonic solution
(water goes in the cell)

Hypotonic solution
More solute IN the cell → water goes in cell

If you sprinkle sugar on fresh strawberries, juice will appear on the strawberries within a few minutes. Explain why this happens (in terms of osmosis & diffusion).

When you sprinkle sugar, it increases the solute concentration outside of the berries. The solvent (water) inside the berries goes to the area of low solvent concentration through osmosis.

Cell membranes are **semi-permeable**. What does that mean & why is this important?

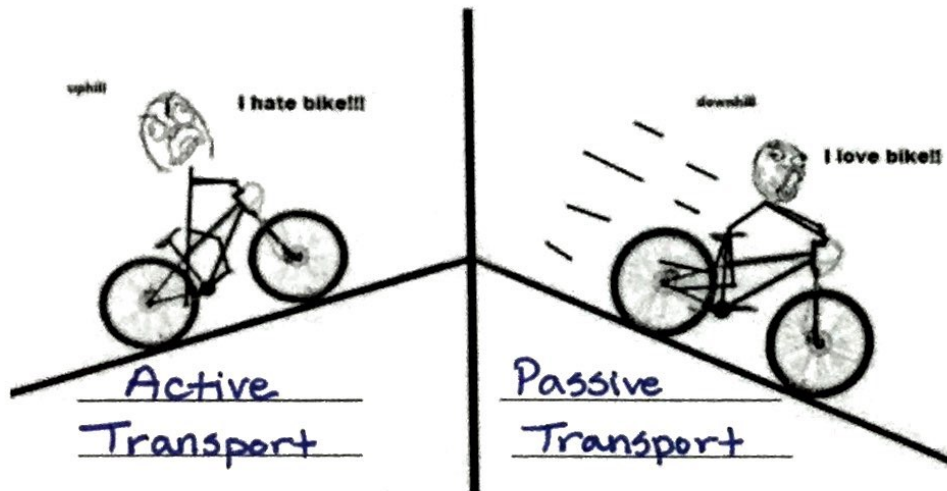
Semi means "partly" and permeable means "pass through". The cell membrane lets some things through into the cell and stops other things.

Why can gargling with salt water when you have a sore throat relieve some of the pain?

Salt water has a high solute concentration, so the liquid that is making your throat swell leaves your throat and goes to the salt water, which lowers the swelling.

Please explain the diagram below and how it can help you remember the different types of transport. Label what each side represents and why. Also label examples of each type and the direction of the concentration gradient.

when I go on a bike



Going ~~uphill~~ from low to high takes ENERGY

Going from high to low is easy = no energy!

How do **photosynthesis** and **cellular respirations** compare to each other?

They are opposites

Where does the **energy** for photosynthesis come from? Sunlight

What **plant pigment** is involved in photosynthesis? chlorophyll

How does your body get the energy it needs from the food you eat (what process allows cellular energy to be made)? ↳ animal cells

Cellular respiration uses sugar, and oxygen to make energy

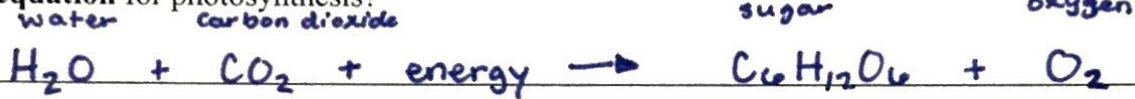
In what organelle of a plant cell does photosynthesis take place? chloroplast

What are the **products** of photosynthesis?

↳ comes out of

Sugar and Oxygen

Write the **equation** for photosynthesis?



What is the overall reaction (**formula**) for cell respiration?



Write the **equation** for cellular respiration.



In what organelle of a cell does cellular respiration take place? mitochondria

What are the **reactants** of cellular respiration?

↳ go into

Sugar and Oxygen

Don't forget to study with your:
+ Photosynthesis / Cellular Respiration visual organizer
(pictures of the process)

+ Vocabulary

Remember: The nucleus directs the cell membrane to let in/out large particles through endocytosis and exocytosis.

* ALL cell organelles work together in the process of photosynthesis and cellular respiration!