

Notes for Cells Test

History of Cells

Discovery of Cells

Robert Hooke

1660's

first to observe NON-LIVING cells

NAMED cells (thought they looked like tiny rooms, think jail cells)

Anton Van Leeuwenhoek

1680's

first to observe LIVING cells

Cell Theory

Developed by

- Schleiden
- Schwann
- Virchow

1. All living things are made of cells.
2. Cells are the basic unit of structure and function in living things.
3. All cells come from other cells.

Types of Cells

- Prokaryotic (prokaryotes)- DO NOT have a nucleus (think: pro-no)
 - example: bacteria
- Eukaryotic (eukaryotes)- DOES have a nucleus (think: eu-do)
 - example: plant and animal cells

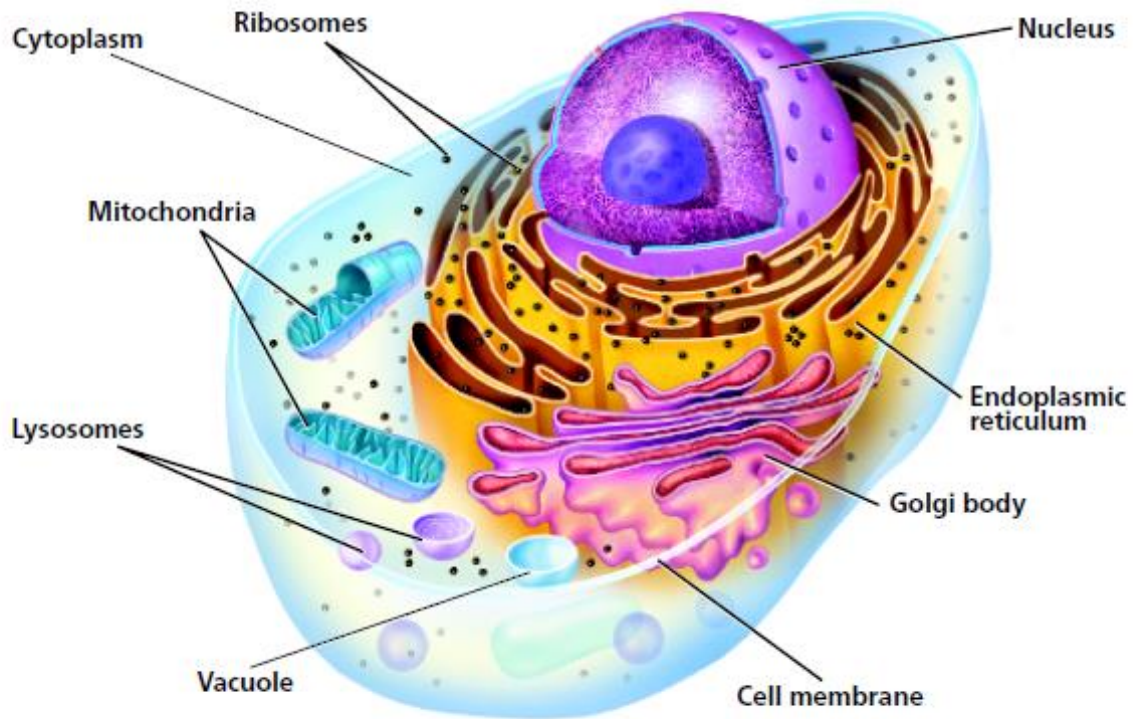
Parts of a Cell

organelle: specialized structure that performs a specific function

Name	Physical Description	Function	Type	Analogy
cell wall	rigid layer of nonliving material that surrounds a plant cell	protects and supports cell	found in plant cell	bricks of a school (outside walls)
cell membrane	thin, flexible barrier around cell (just inside cell wall or outside border of cell)	controls what enters and leaves cell	found in plant and animal cells	police officer of school (monitors who comes in and goes out)
nucleus	large organelle that is usually near the center of a cell	controls the cells activities	found in all eukaryotes	the office of a school
nuclear membrane	small spherical structure within the nucleus that holds in strands of genetic material (DNA)	holds in genetic instructions (DNA) for the cell to do its job	found in all eukaryotes	principal's office of a school
cytoplasm	fluid like material inside the cell membrane	contains organelles, site for chemical reactions, "cell jelly"	found in all cells	the air inside of a school
mitochondria	bean shaped organelle that has a folded inner membrane	breaks down food to release energy for use by the cell	found in all eukaryotes	the power plant of a school
endoplasmic reticulum (ER)	internal membrane system rough- has ribosomes smooth- no ribosomes	assembles parts of cell membranes, modifies proteins	found in all eukaryotes	the copy room of a school
ribosomes	tiny, round structures either attached to the ER or floating in cytoplasm	makes proteins	found in ALL eukaryotes and some prokaryotes	the teachers of a school
Golgi body	stack of membranes in the cytoplasm	receives proteins and other materials from ER, tells proteins where to go	found in all eukaryotes	the busses of a school
chloroplast	tubular organelle that contains chlorophyll (green color)	uses energy from sunlight to make food through photosynthesis	found in many plant cells	the solar energy panels of a school
vacuole	large spacious sack in cytoplasm	stores materials for cell (water, food, waste)	found in all eukaryotes plants: one large vacuole animals: many small vacuoles	the closets of a school
lysosome	small round sacks in cytoplasm	breaks down large food particles and old or damaged organelles	found in all eukaryotes very rare in plant cells	the custodians of a school

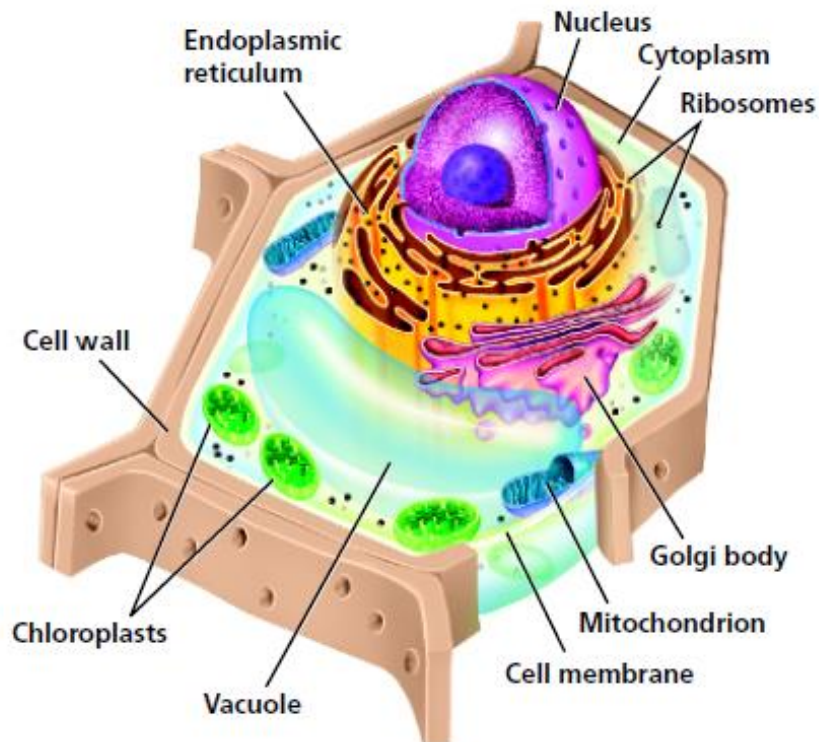
C5

An Animal Cell

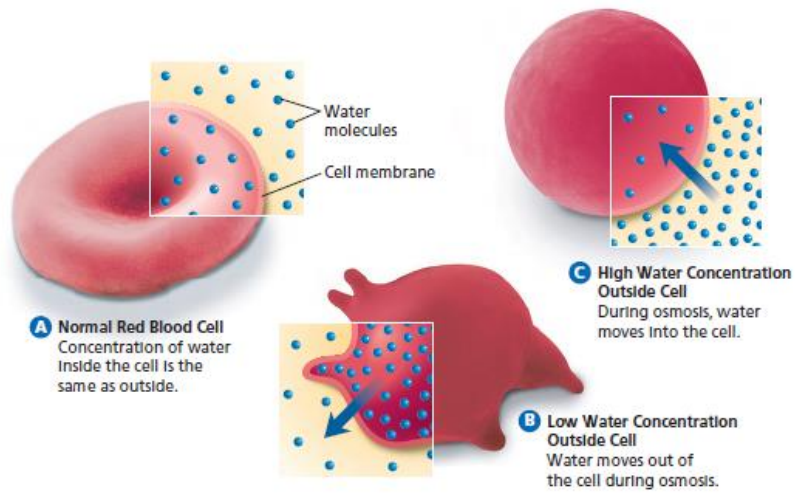


C4

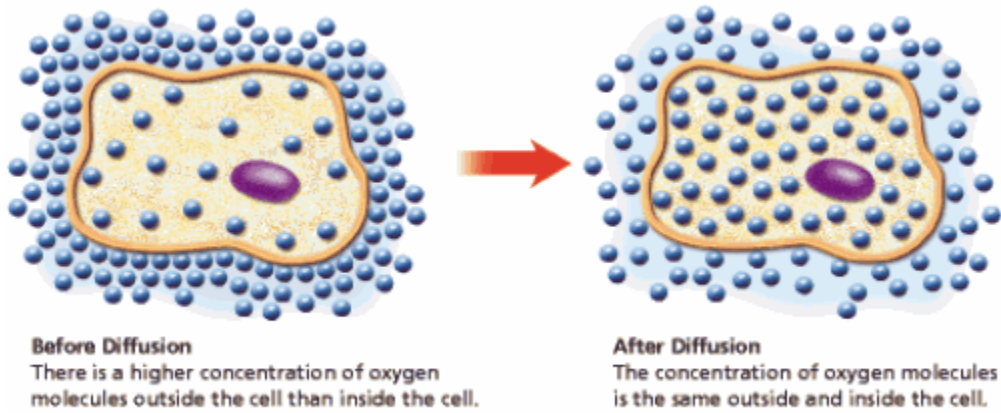
A Plant Cell



Osmosis: the diffusion of water molecules through a selectively permeable membrane

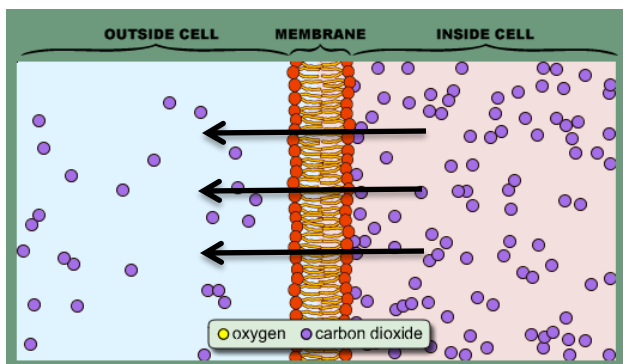


Diffusion: process in which molecules move from an area of higher concentration to an area of lower concentration

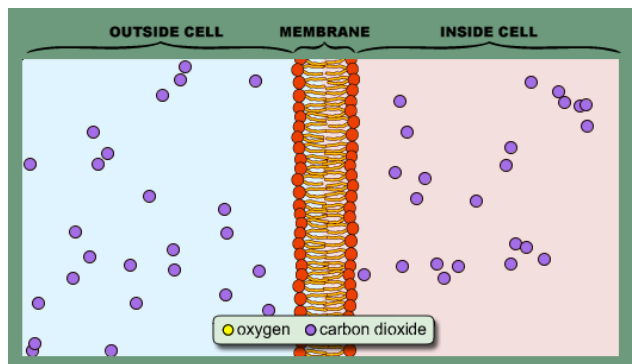


Active Transport: the movement of materials through a cell membrane using energy

Passive Transport: movement of materials through a cell membrane without using energy



Direction of Diffusion



Equilibrium