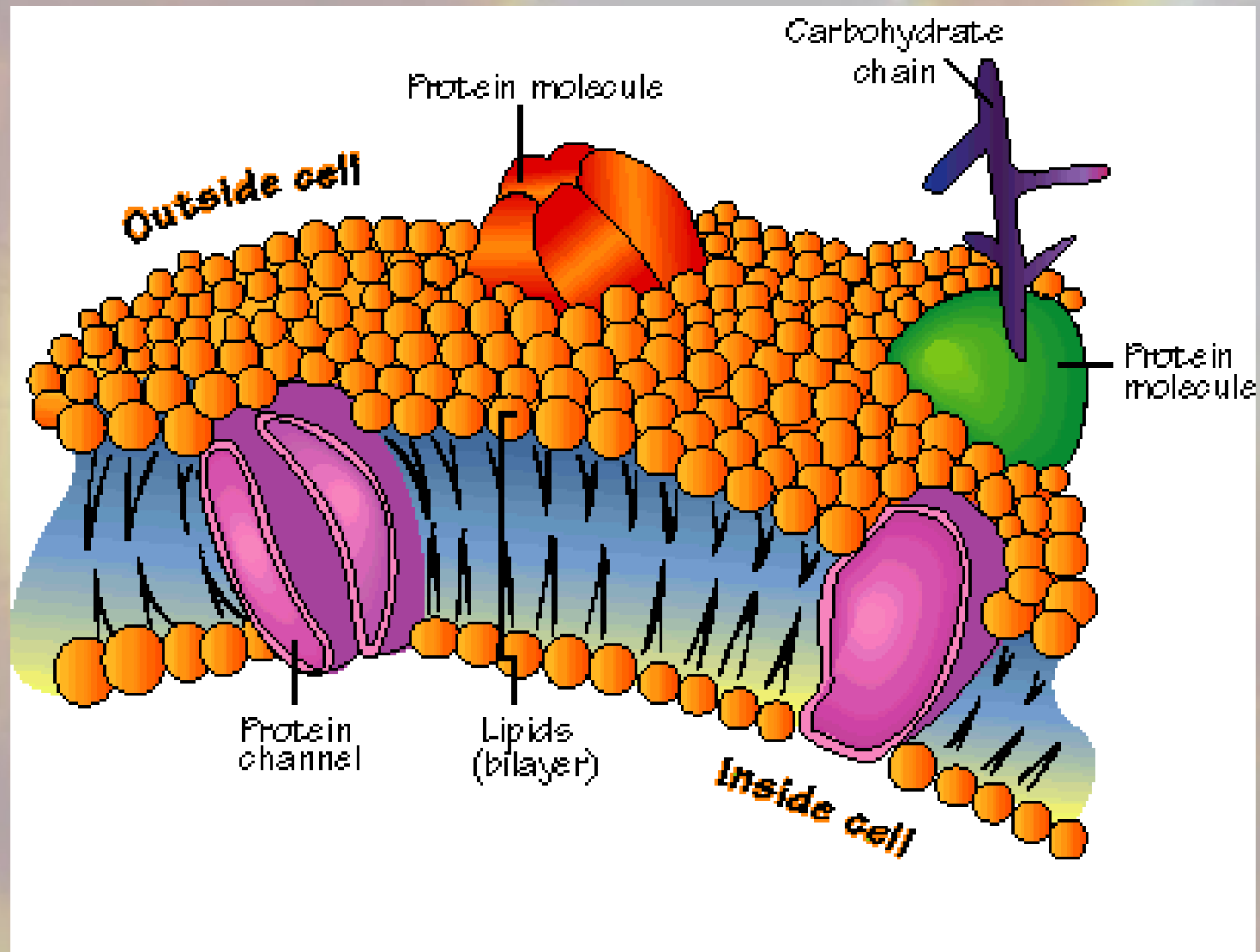


A background image showing a microscopic view of plant cells, likely from an onion skin. The cells are roughly rectangular and arranged in a brick-like pattern. The cell walls are clearly visible, and the cytoplasm is stained a light purple or blue color. The overall appearance is that of a typical eukaryotic cell with a thick cell wall.

The Cell Membrane

The Master of Homeostasis

The Cell Membrane

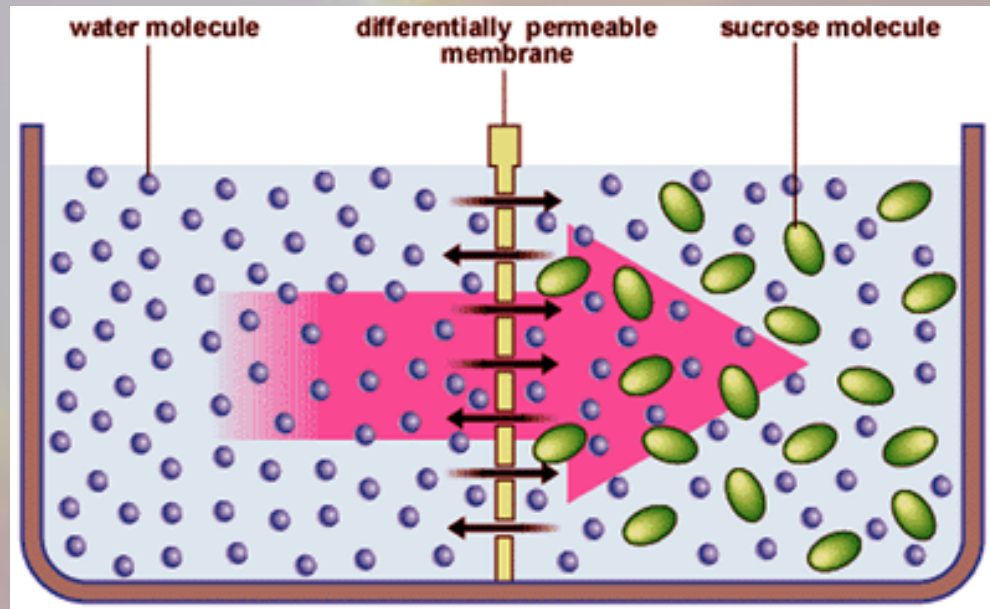


How Do Cells Receive Nutrients?

- Cell Membrane
 - The membrane allows in:
 - Food
 - Water
 - Oxygen

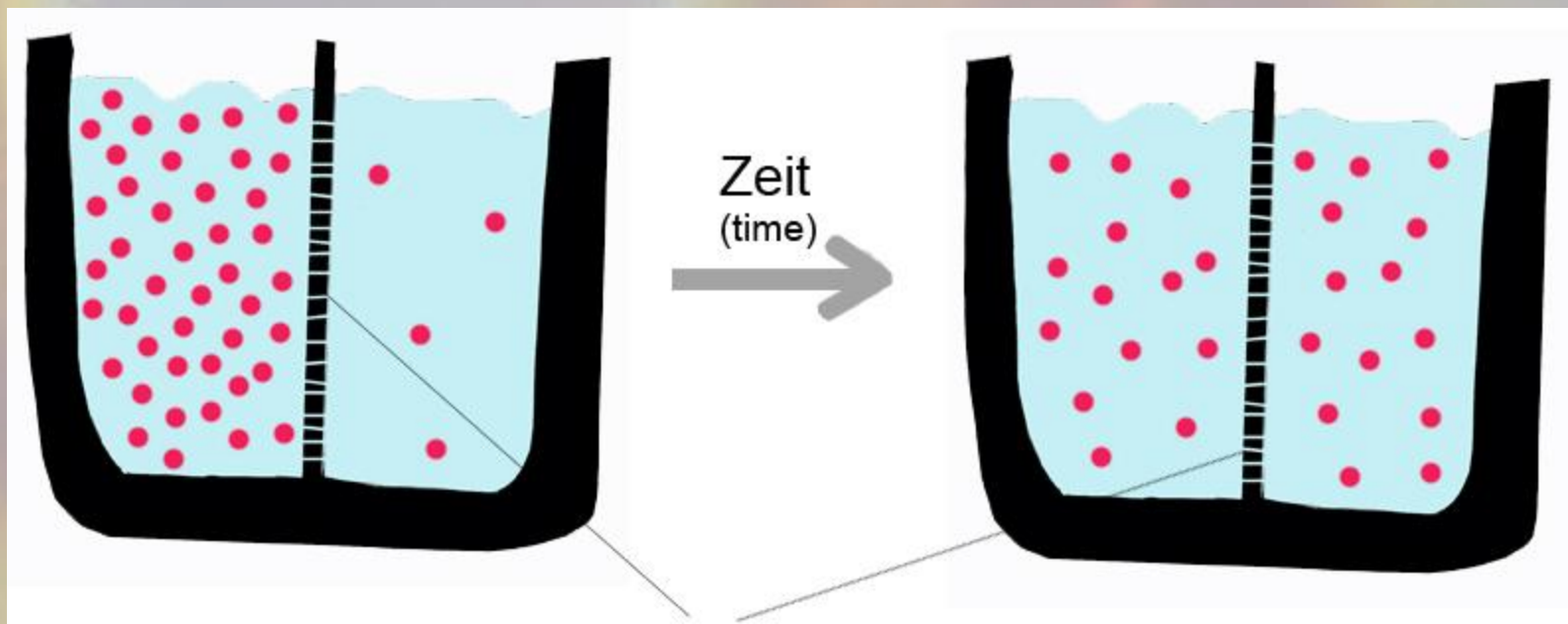
The Cell Membrane

- Allows certain things **in** (water & nutrients)
- Lets other things out (cell waste)
- **Selective permeability**- allows only certain materials to pass in or out



Diffusion

- **Diffusion**- the movement of particles
- from an area of **higher concentration** to an area of **lower concentration** through the cell membrane.



Osmosis

- **Osmosis-** the movement of water molecules from areas of higher concentration to areas of low concentration through the cell membrane.

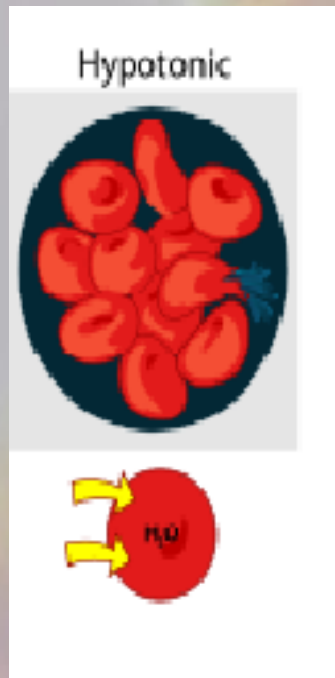
I'm Learning By Osmosis



© PWS

Osmosis- Hypotonic

- Concentration of water outside the cell is **greater** than the inside of the cell. (until equilibrium is reached)
 - (HIPPO-Tonic) cell becomes fat & hippos are fat



Osmosis-Hypertonic

- If the concentration of dissolved substances is higher outside of a cell than inside, then the concentration of water is higher inside and the water will rush outside of the cell with the gradient until dynamic equilibrium is reached
 - This cell is said to be in a **hypertonic solution**
 - You may think of **hyper** students running outside of a classroom and the classroom, or (cell) shrinks in size



The Cell Membrane

- **Homeostasis** – the ability of an organism to maintain a constant internal balance even when the conditions around it change.
- Examples:
 1. **Turgor Pressure** – the force of the cell contents pushing against the cell wall

The Cell Membrane

- 2. Passive Transport** – the **movement** of substances through the cell membrane without using energy.
- 3. Active transport** – the **movement** of molecules from areas of lower to higher concentration with the use of energy.

A background image showing a microscopic view of plant cells, likely from an onion skin. The cells are roughly rectangular and arranged in a brick-like pattern. The cell walls are clearly visible, and the cytoplasm is stained a light purple or blue color. The overall appearance is that of a typical eukaryotic cell with a cell wall.

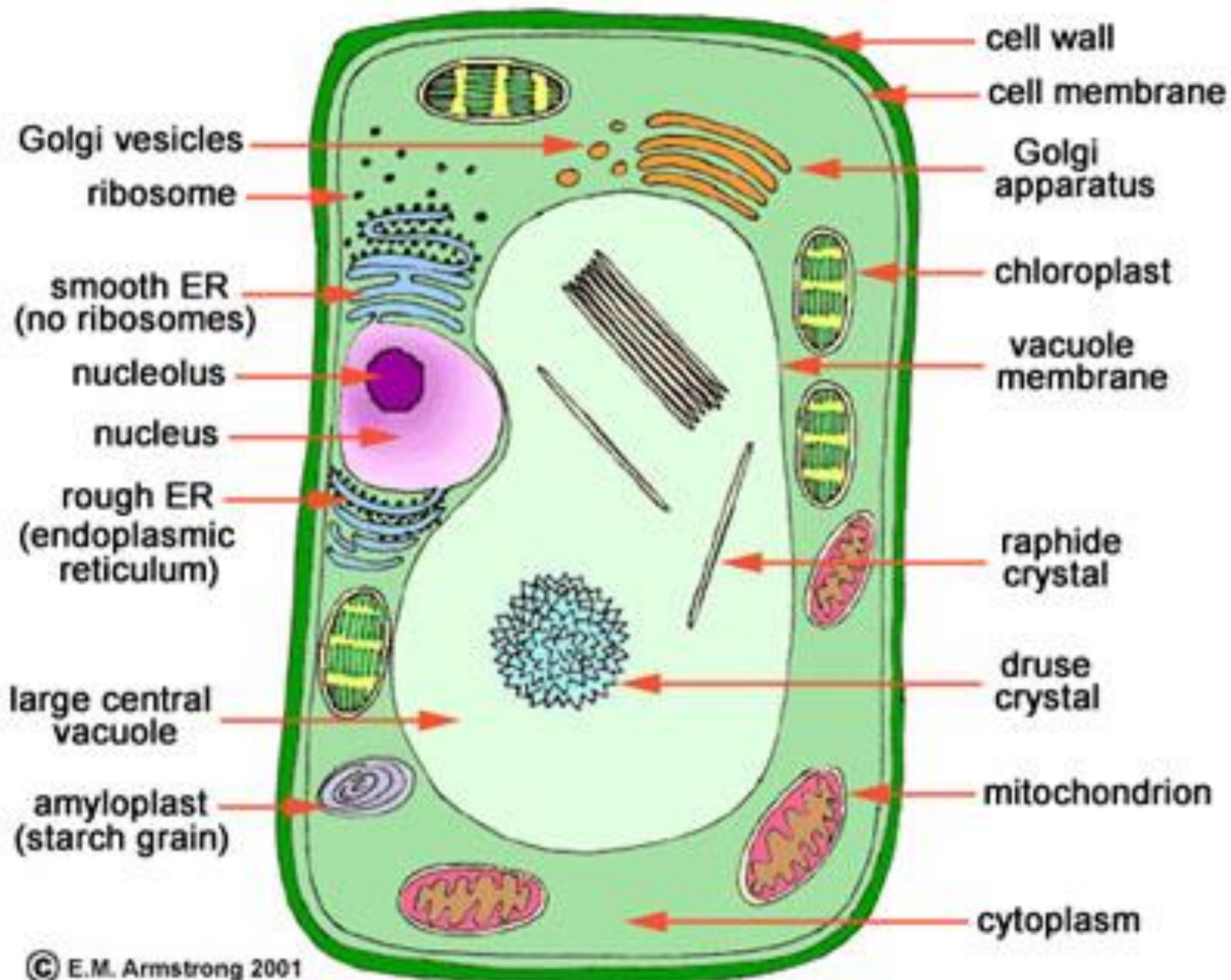
Cell Organelles

The Nuts and Bolts of a Cell

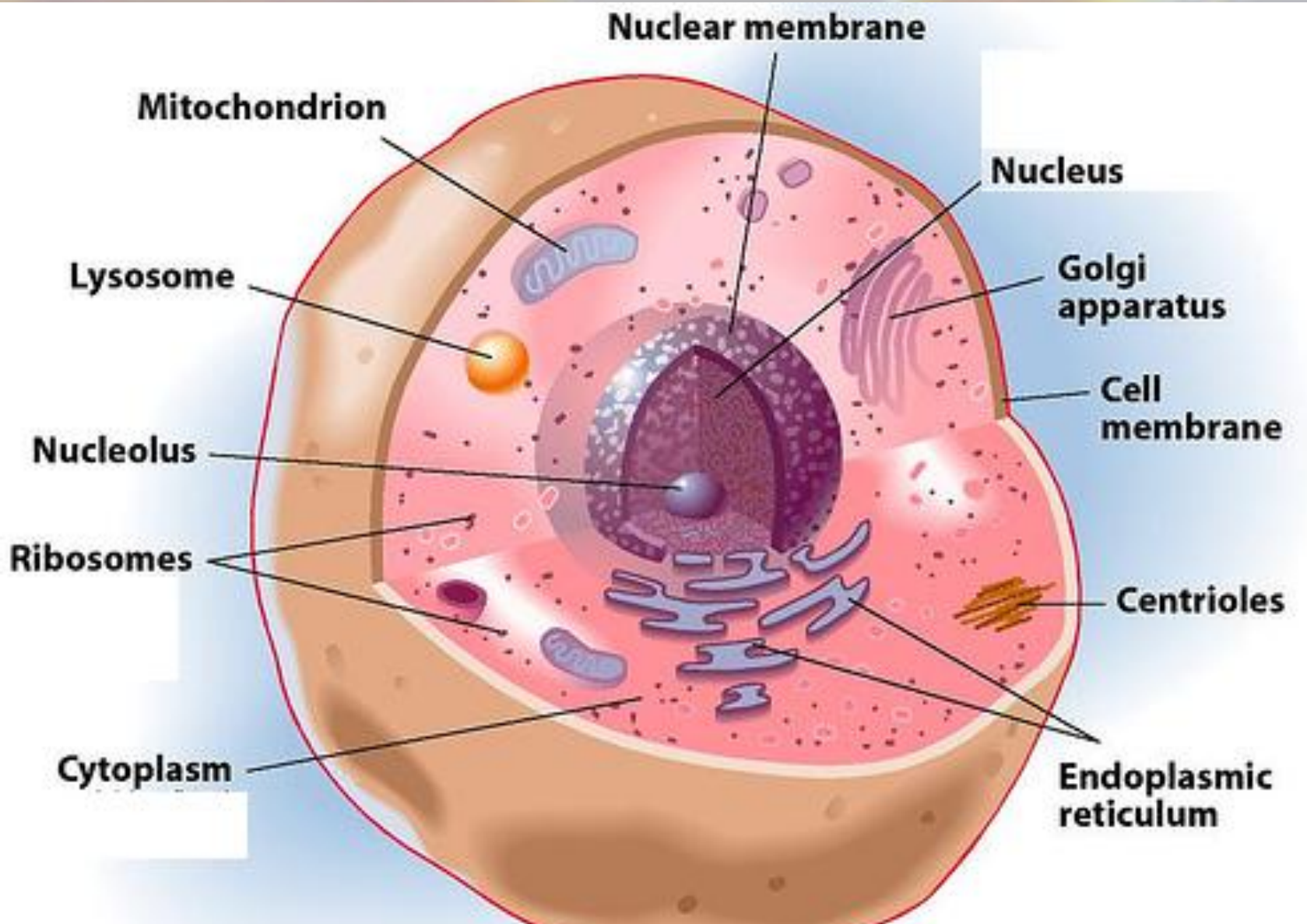
Terms to Know

- Organelle
- Plasma membrane
- Cell wall
- Mitochondria
- Golgi apparatus
- Lysosome
- Vacuole
- Centrioles
- Chromatin
- Endoplasmic reticulum
- Ribosome
- Cytoplasm
- Nucleus
- Nucleolus
- Nuclear membrane

Plant Cell

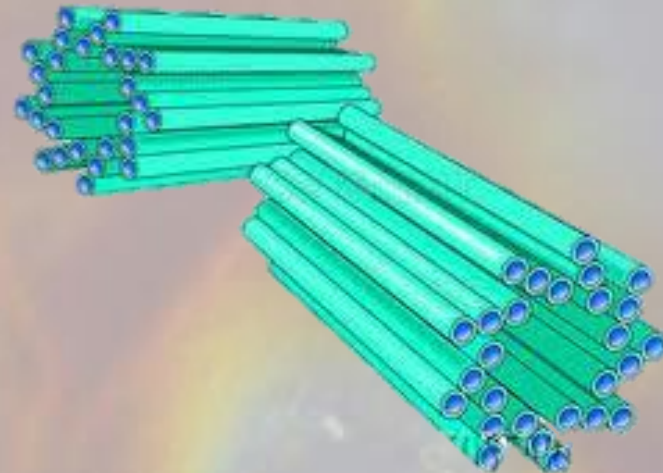
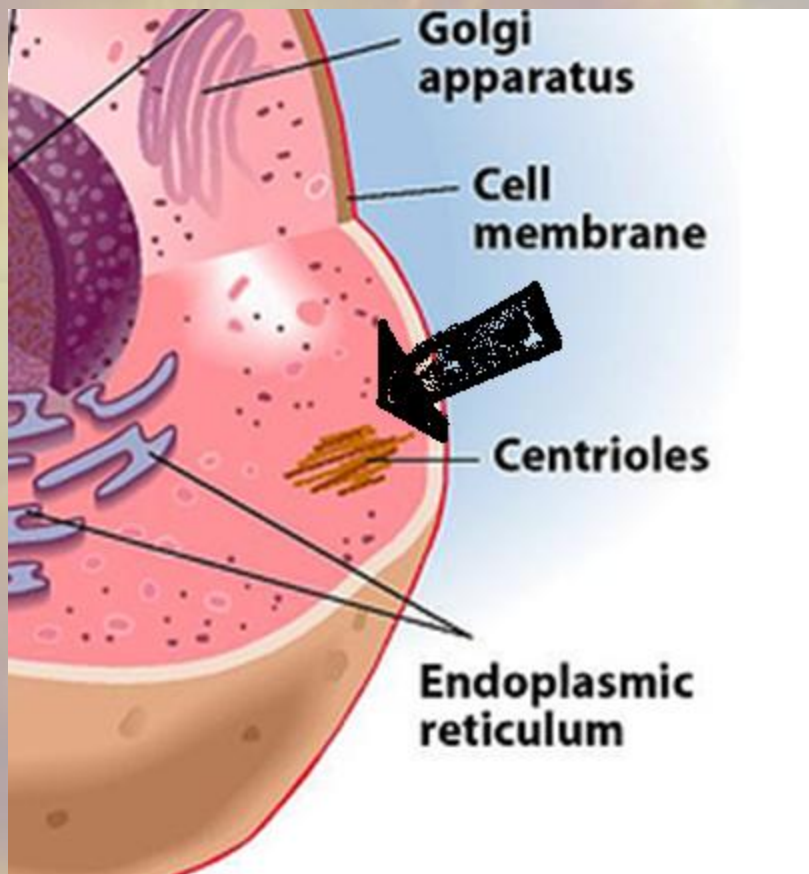


Animal Cell



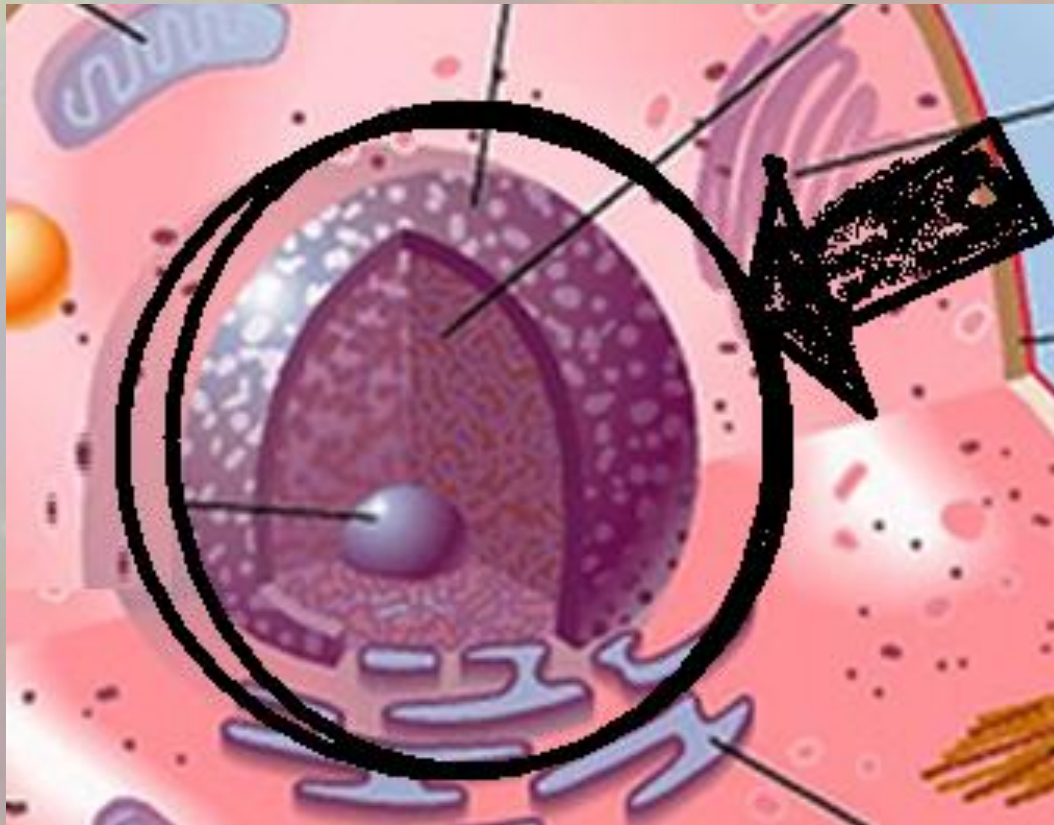
Centrioles

- Help in cell division



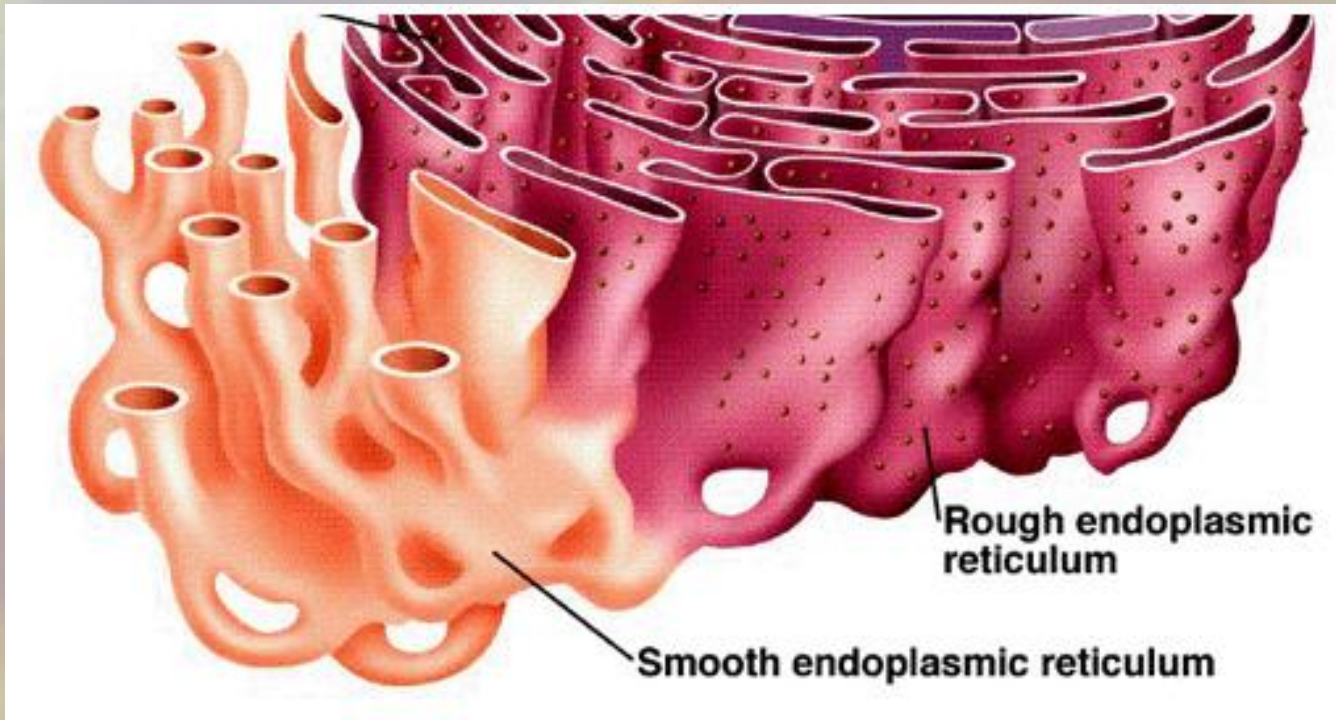
Nucleus

- The CONTROL center of the Cell



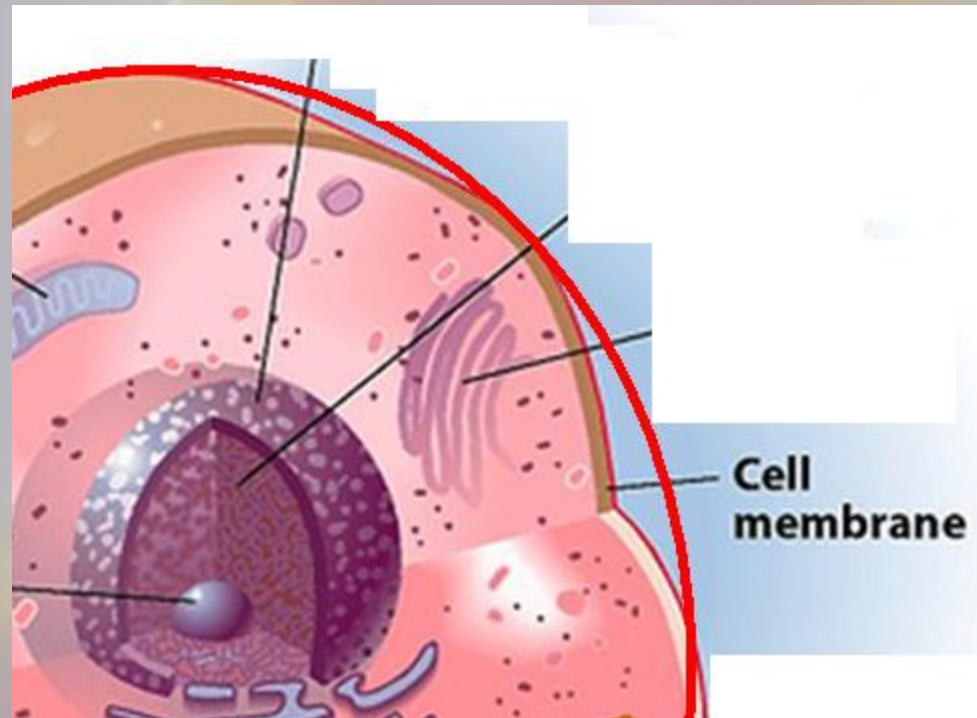
Endoplasmic Reticulum

- A system of canals which **transports** substances to the inside of the cell. It is also called a chemical **“Work Bench”**
- Can be smooth or “rough” (has ribosomes)



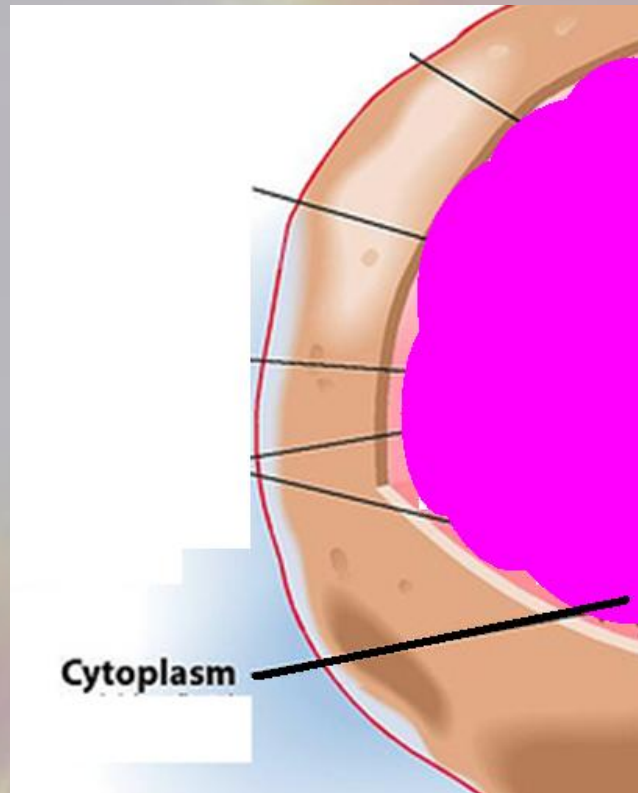
The Cell Membrane

- Controls what **enters** and **leaves** the cell
- Contains cell contents and protects the cell.



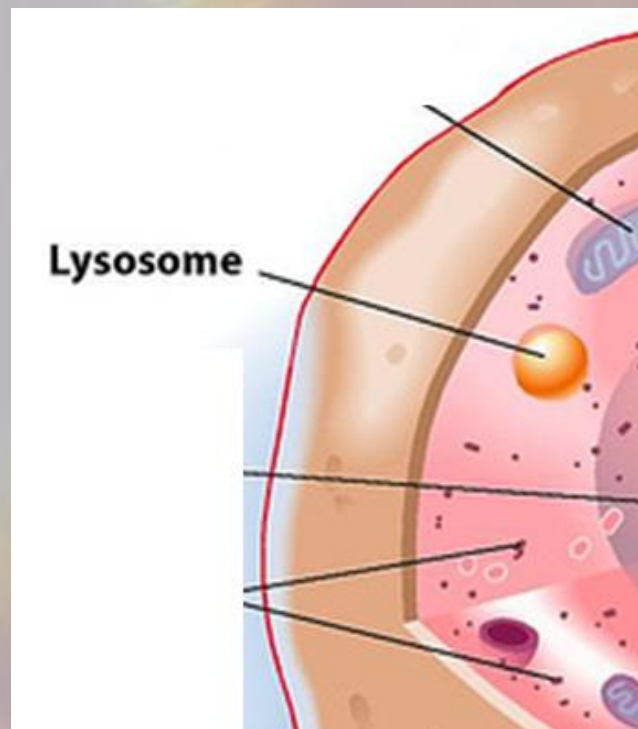
Cytoplasm

- Watery fluid that dissolves material entering the cell.



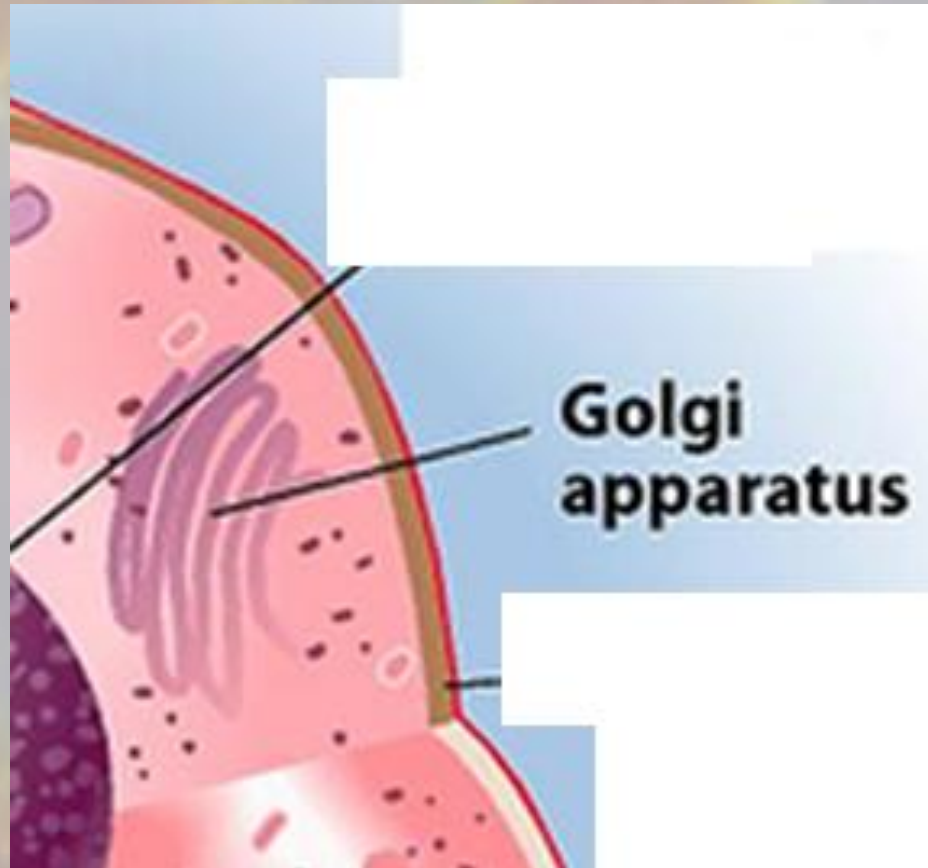
Lysosome

- Dissolves worn out or unneeded cells and cell parts.
- Digests the materials and bacteria in food vacuoles.



Golgi Apparatus

- Packages proteins for storage and secretion



Mitochondria

- “Powerhouse” burn food to obtain energy for cell activities.

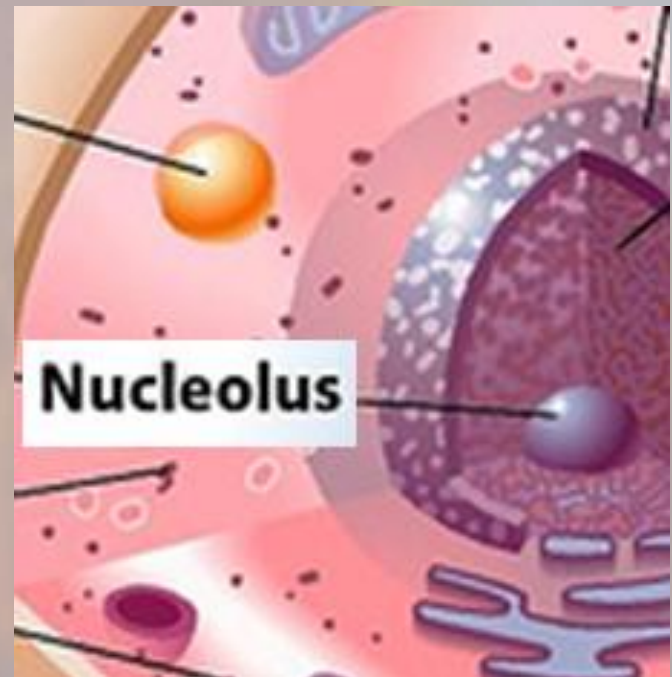


Chromatin

- Directs cell activities and passes on heredity traits of cell.

Nucleolus

- Makes ribosomes & stores messages from the chromatin for later.

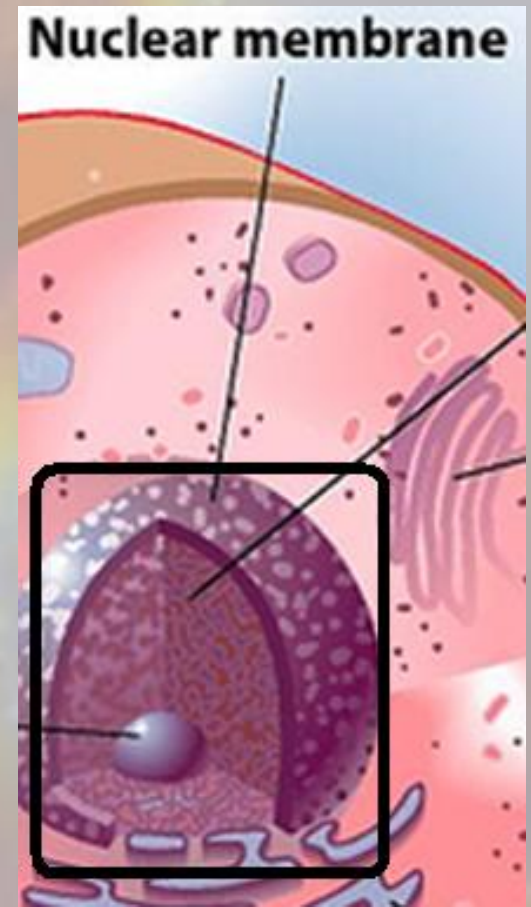


Nuclear Membrane

- Separates the nucleus from the cytoplasm.
CONTROLS what enters & leaves the nucleus.

- Ex: Egg membrane =
cell membrane

Yolk = nuclear membrane



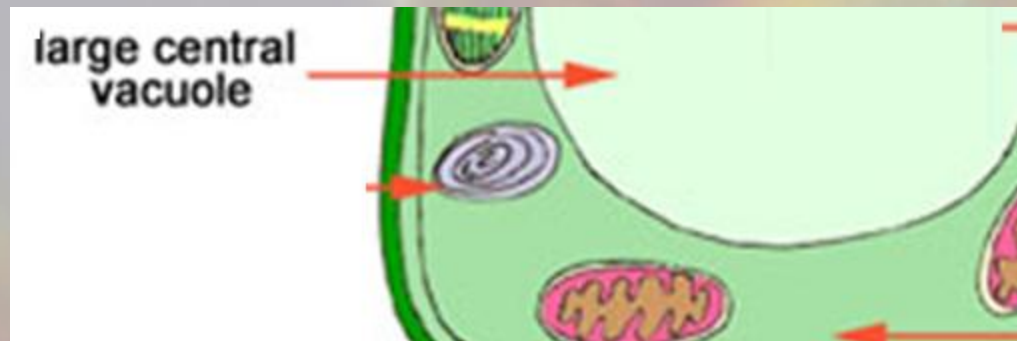
Ribosomes

- **Makes proteins in the cell “Protein Factory”**



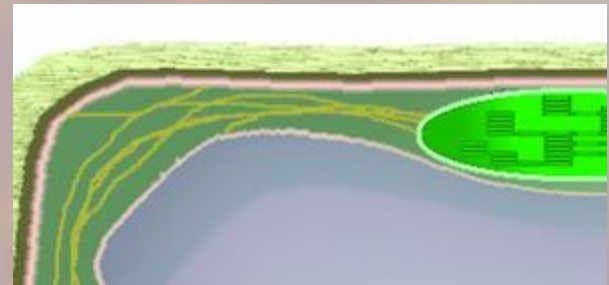
Vacuole

- Stores Food, water, and waste
- Extra large in a plant!



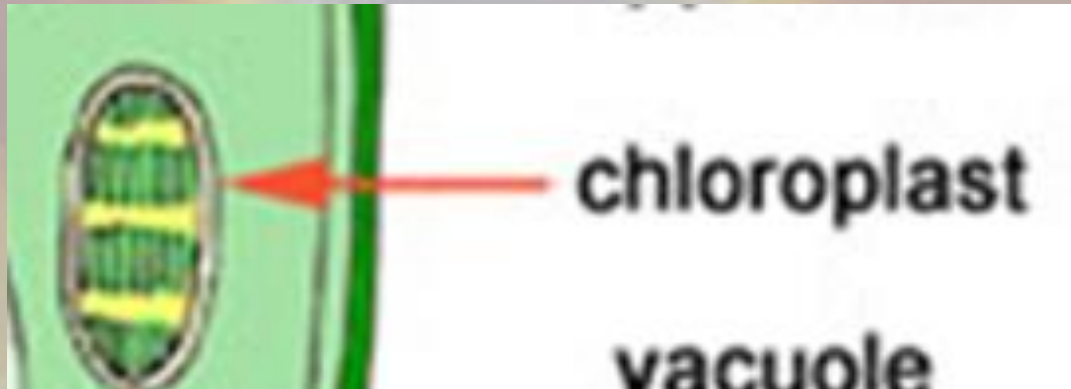
Cell Wall

- * Outer layer
- Maintians cell shape
- Protects cell from damage
- **ONLY IN PLANTS**



Chloroplasts

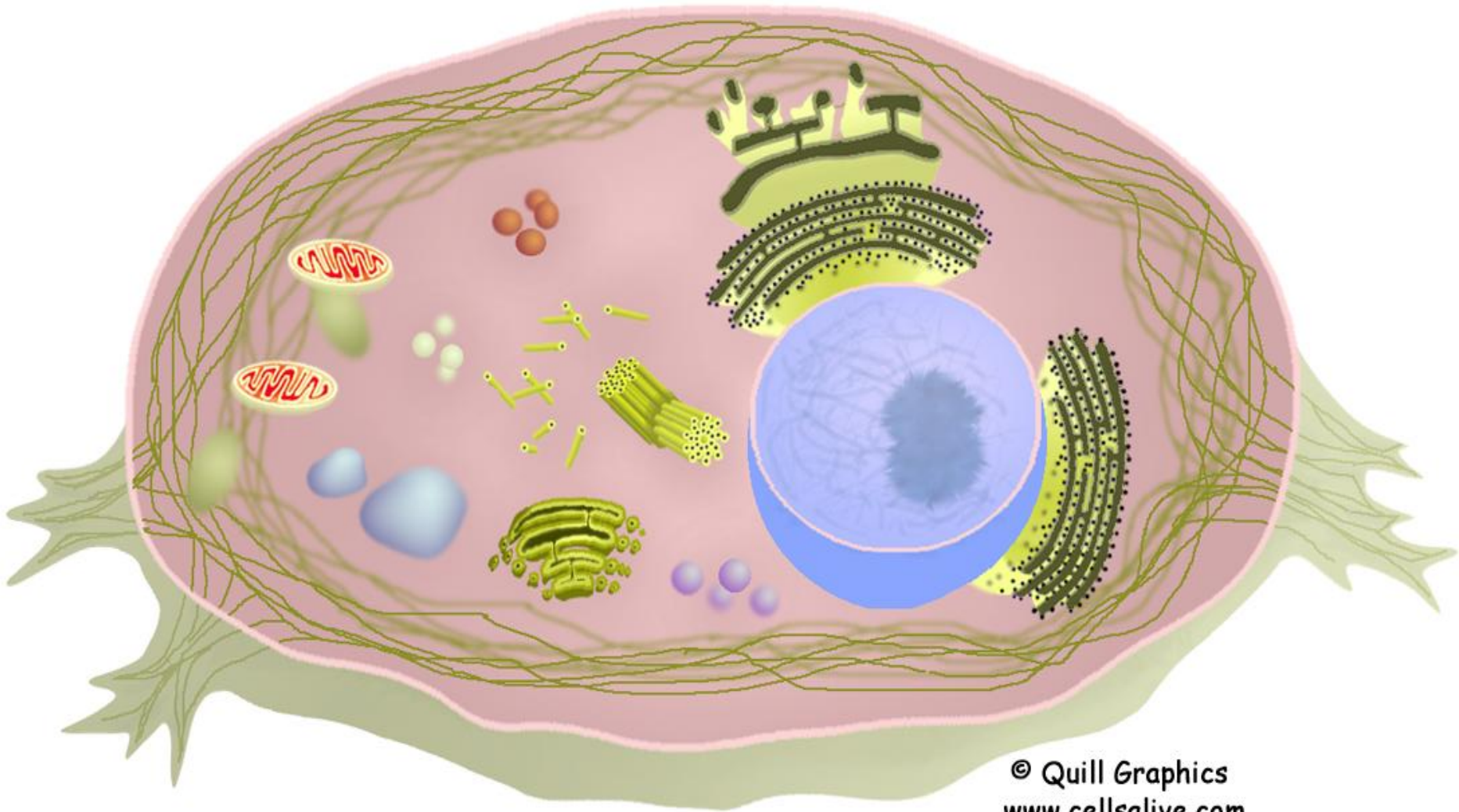
- Photosynthetic cell; converts energy of sun into sugar energy



Review

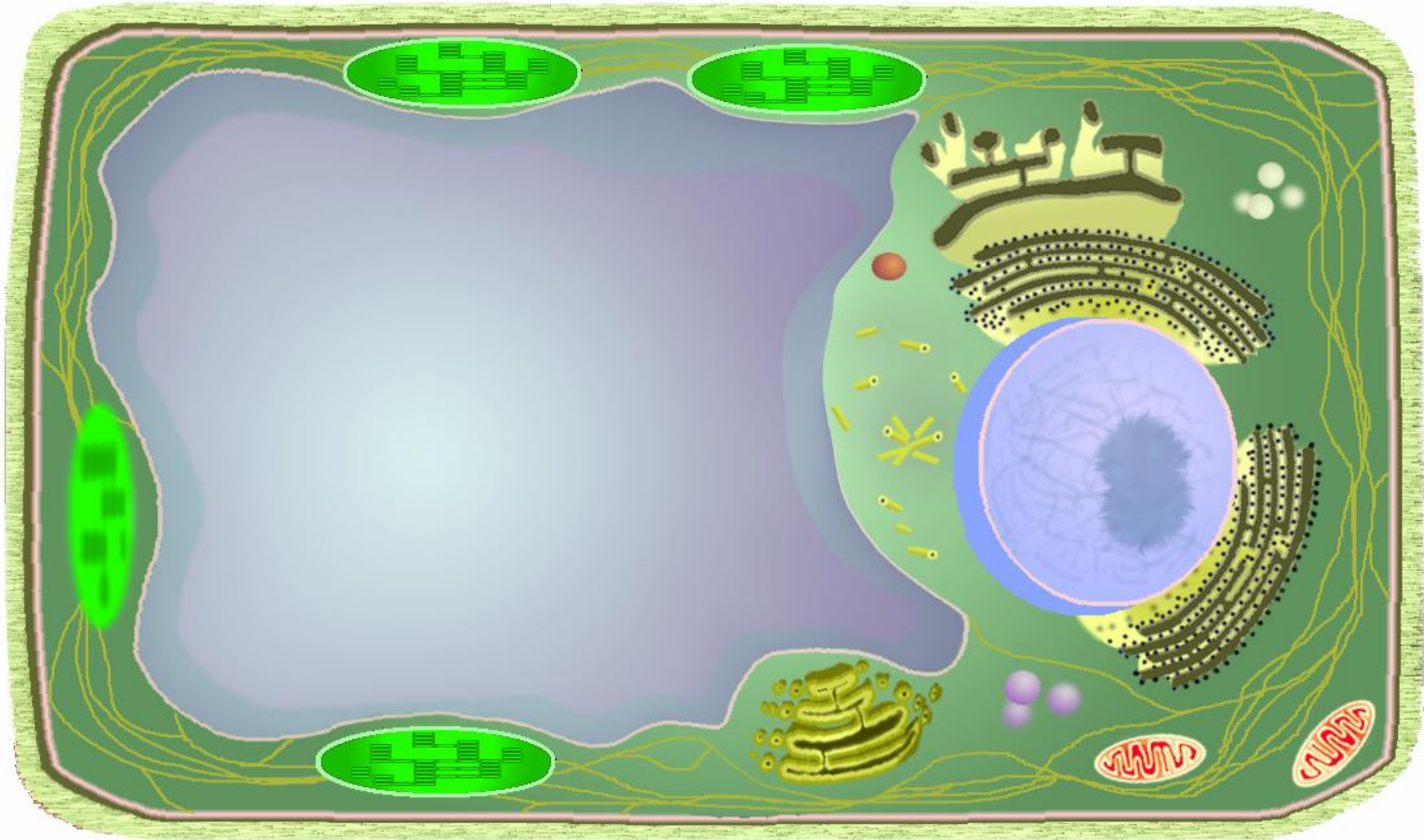
- To **link** to an Internet site on parts of the cell click here!

Animal Cell



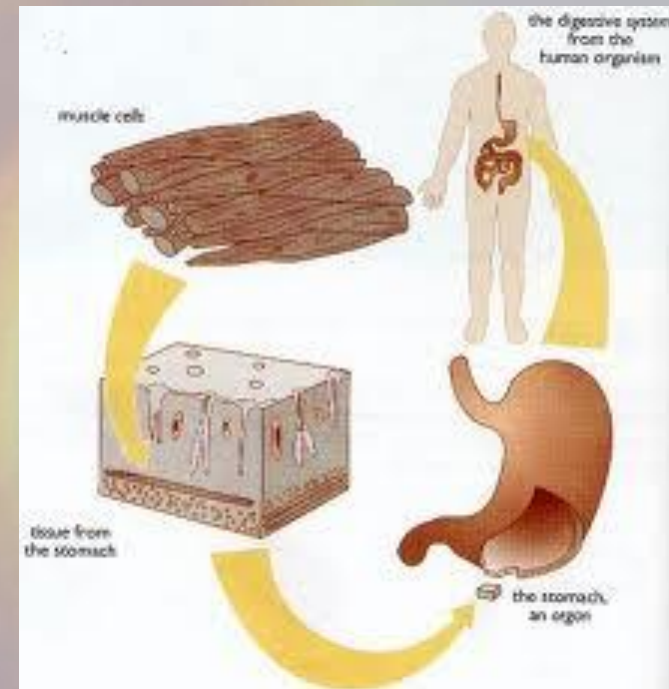
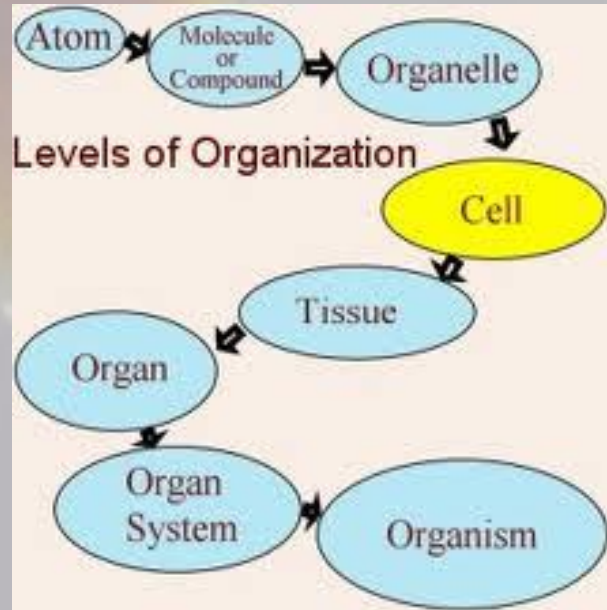
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Plant Cell



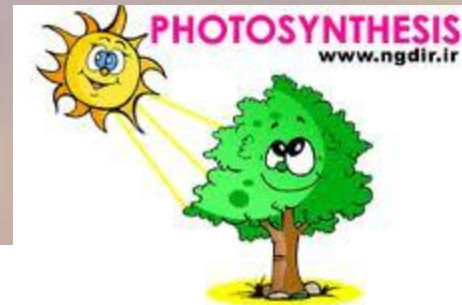
Levels of Cellular Organization

- Cell
- Tissues
- Organ
- Organ System
- Organism

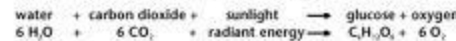


Processes of Living Things

- 1- Produce Offspring
- 2- Respond/ React=
MOVE!!!!
- 3- Turn food into
ENERGY!!
- 4- Secrete waste
- 5- Death



In the process of photosynthesis, plants convert radiant energy from the sun into chemical energy in the form of glucose - or sugar.



Cell Organelles

- Cells have organelles
- **Organelles** are **membrane-bound** structures within a eukaryotic cell that have specific functions

Animals vs. Plant cells

Animals

- Centrioles
- Vacuoles
- Lysosomes



Plants

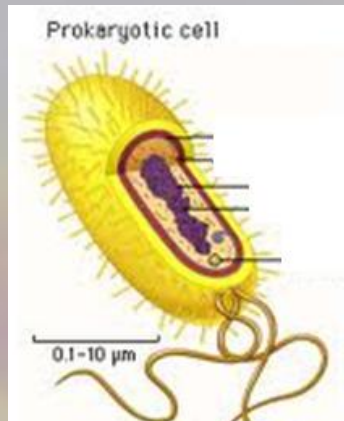
- Cell Wall
- Plastids
- Vacuoles



Prokaryotic Cells vs. Eukaryotic Cells

Prokaryotic

- Bacteria & Algae
- No Internal Organs
- No organized Nucleus
- No internal organells
- Metabolize in cytoplasm
- Naked DNA
- Smaller Ribosomes



Eukaryotic

- Membrane bound structure
- Organelles
- Organized Nucleus
- Membrane systems- ER
Gogi etc
- Packaged DNA
- Many ribosomes

