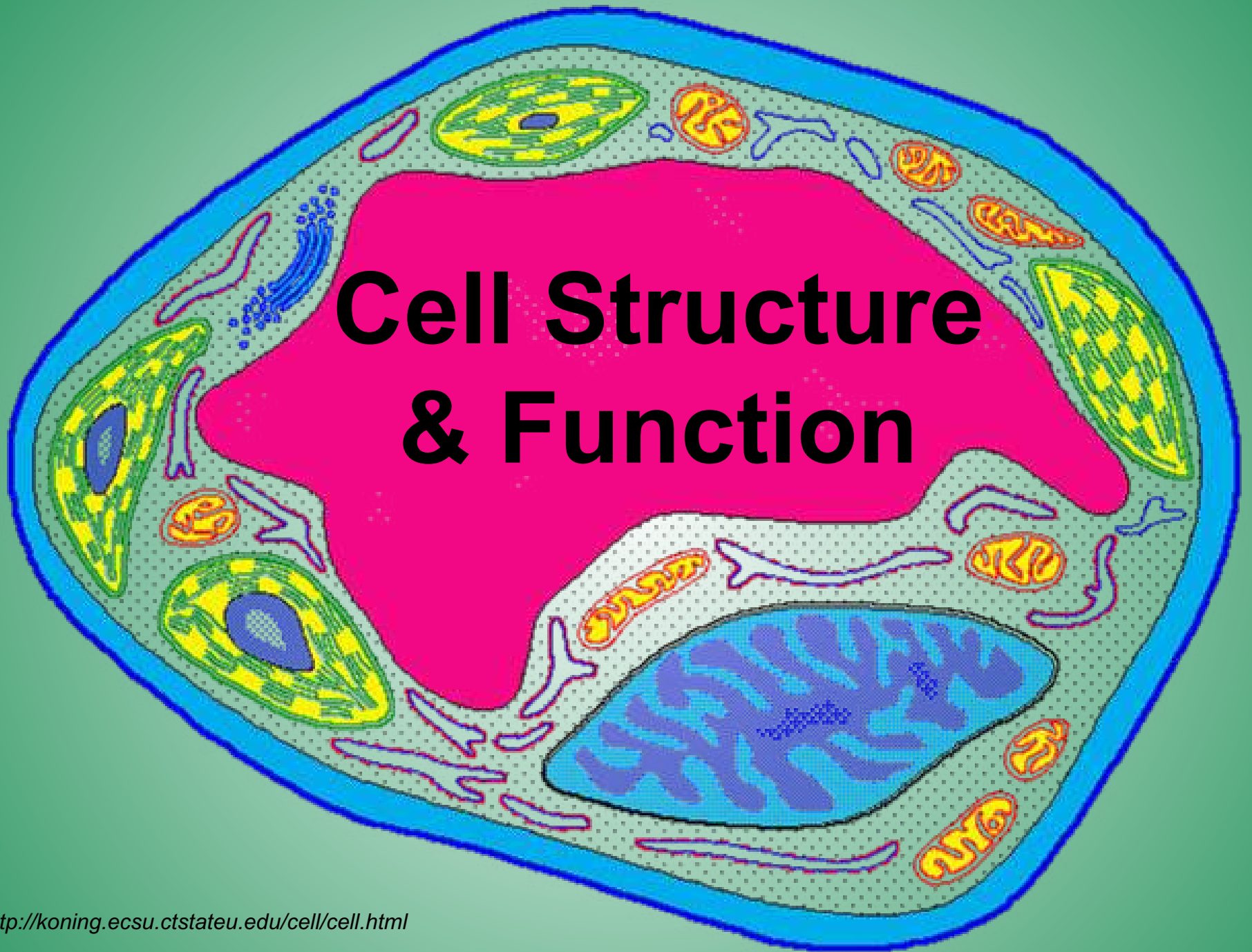


Cell Structure & Function



Cell Theory

- All living things are made up of cells.
- Cells are the smallest working units of all living things.
- All cells come from preexisting cells through cell division.

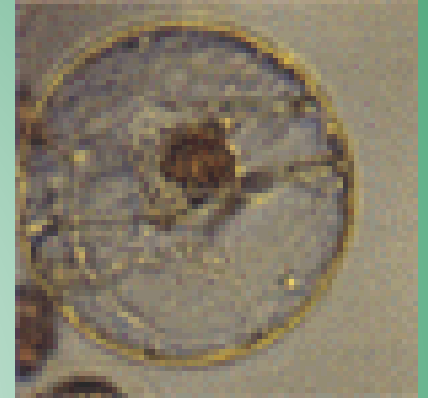
Definition of Cell

A cell is the smallest unit that is capable of performing life functions.

Examples of Cells



Amoeba Proteus



Plant Stem

Bacteria



Red Blood Cell



Nerve Cell

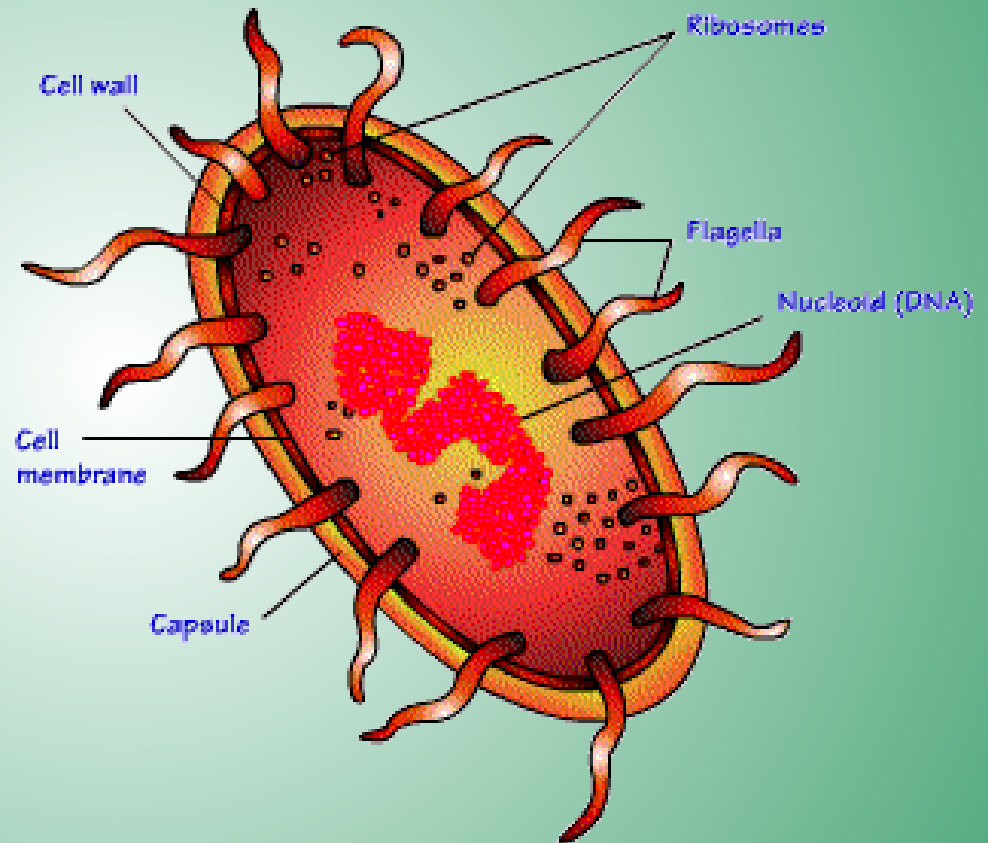


Two Types of Cells

- Prokaryotic
- Eukaryotic

Prokaryotic

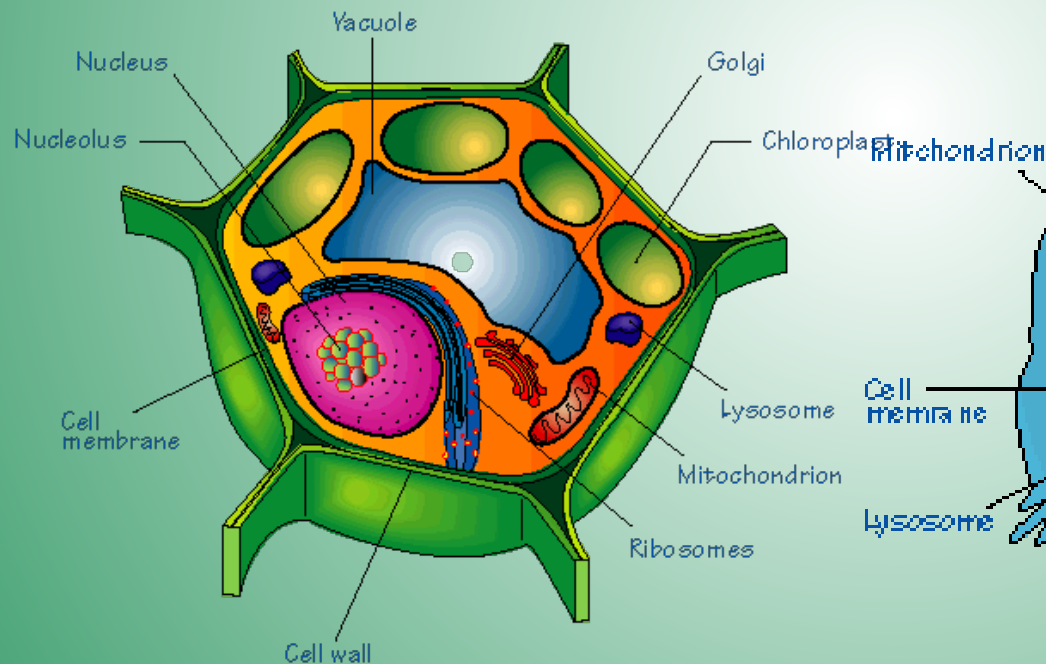
- Do not have structures surrounded by membranes
- Few internal structures
- One-celled organisms, Bacteria



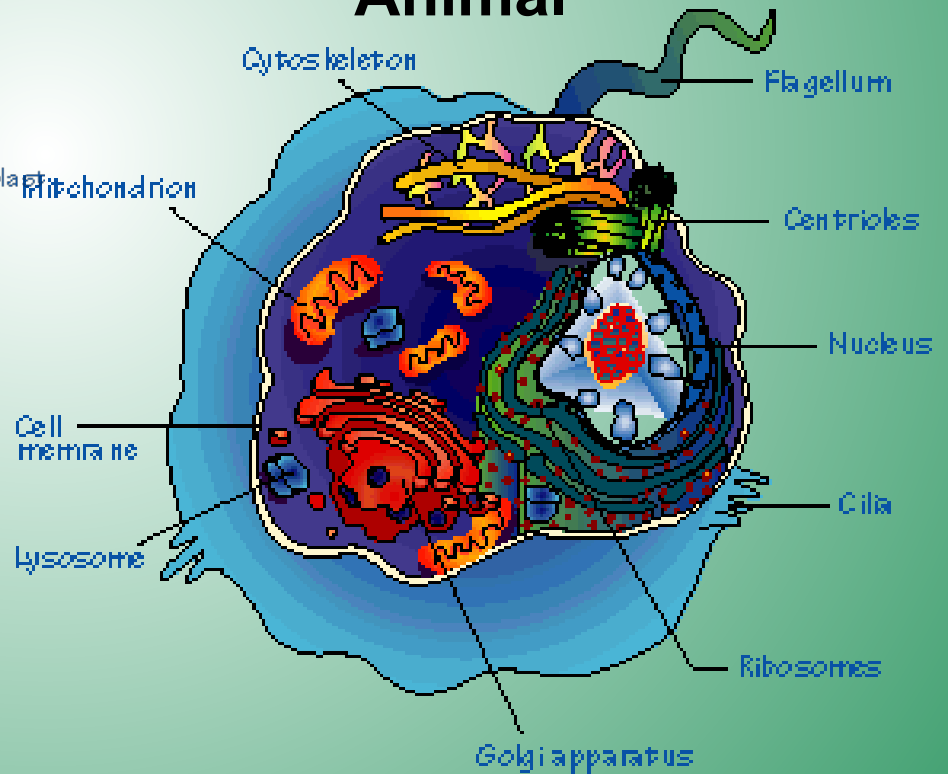
Eukaryotic

- Contain organelles surrounded by membranes
- Most living organisms

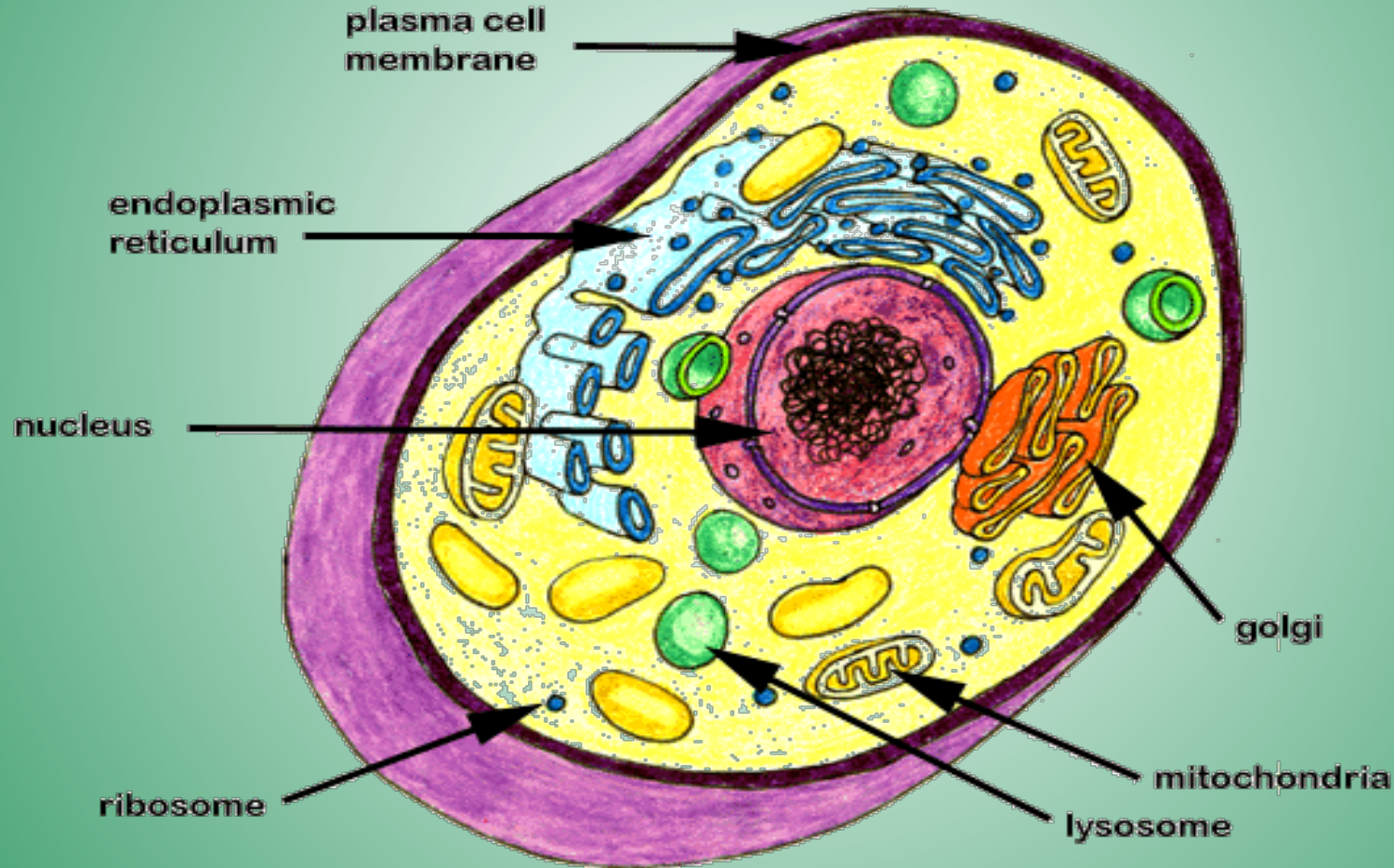
Plant



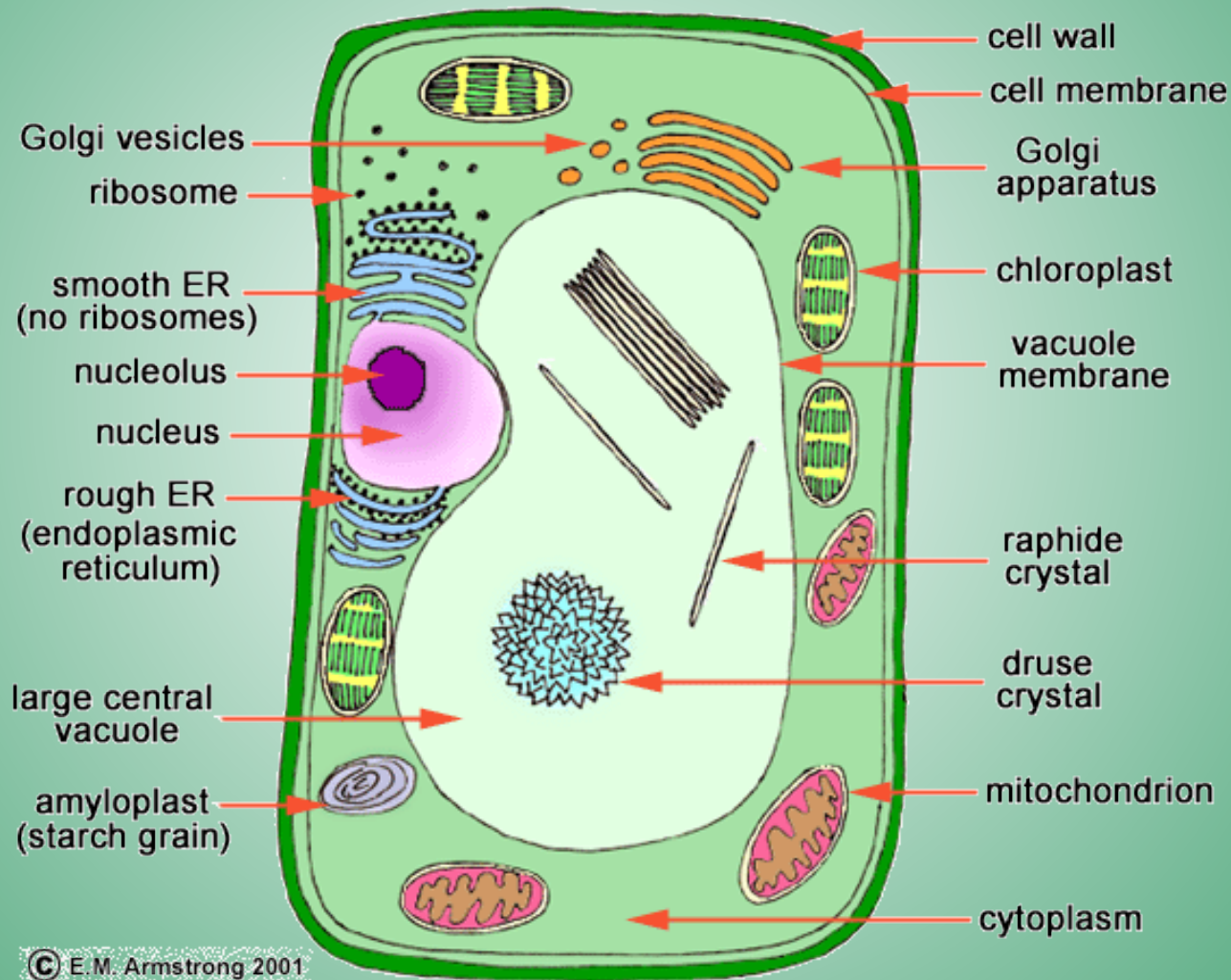
Animal



“Typical” Animal Cell



“Typical” Plant Cell

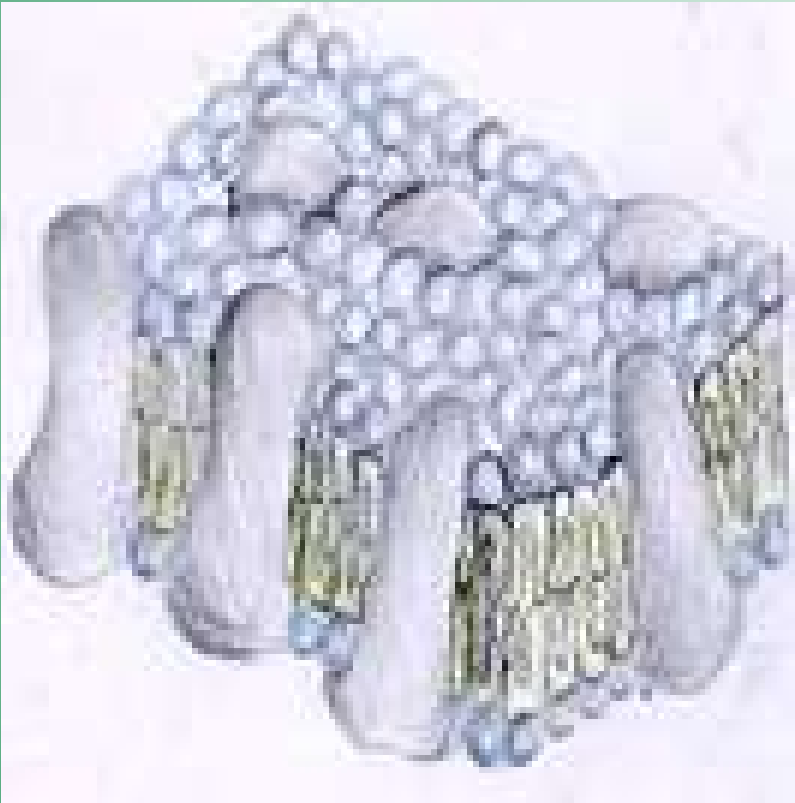


Cell Parts

Organelles

Surrounding the Cell

Cell Membrane



- Outer membrane of cell that controls movement in and out of the cell
- Double layer

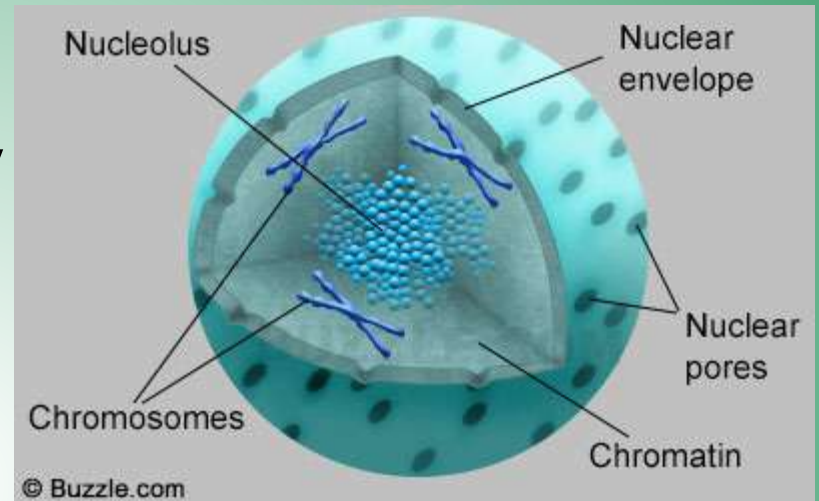
Inside the Cell

Cytoplasm

- Gel-like mixture
- Surrounded by cell membrane
- Contains hereditary material

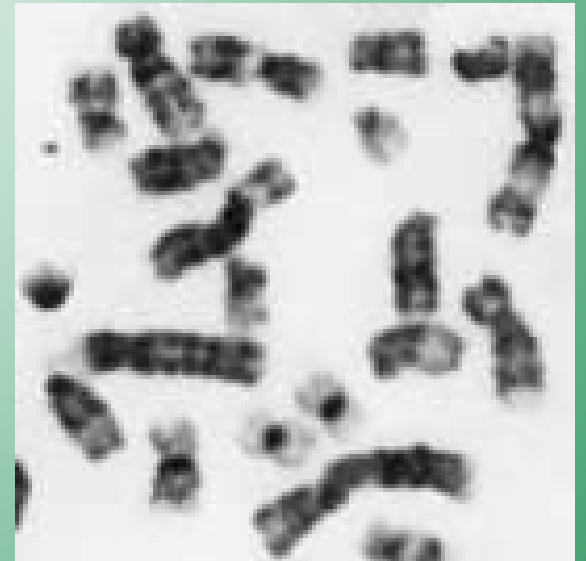
Nucleus

- Directs cell activities
- Separated from cytoplasm by nuclear membrane
- Contains genetic material (DNA)



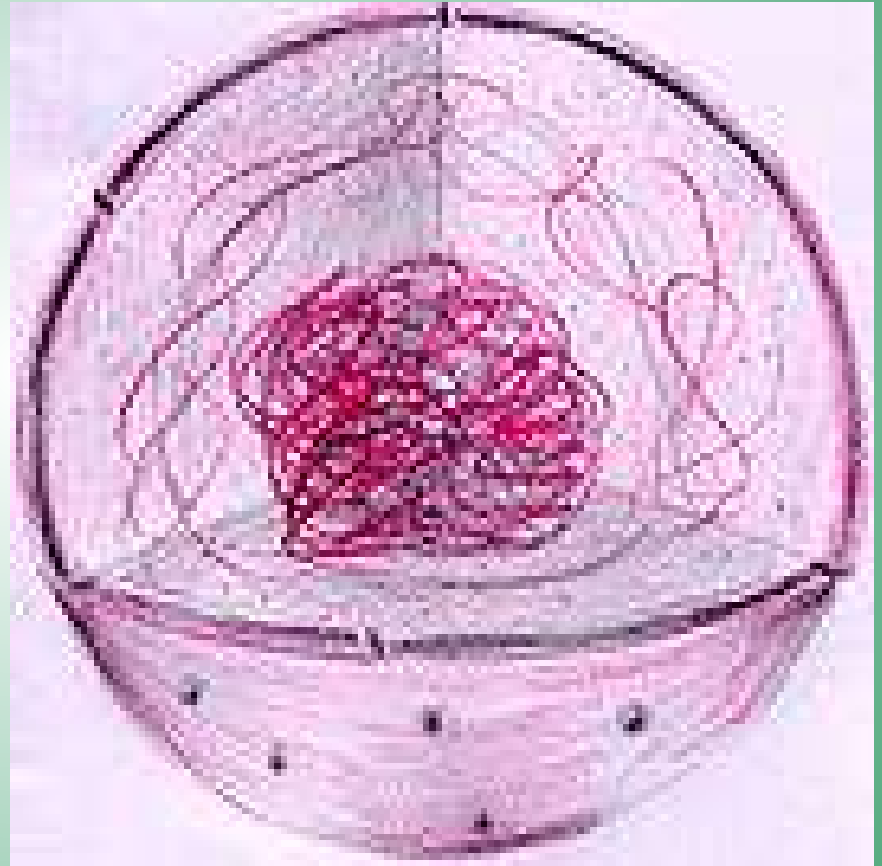
Chromosomes

- In nucleus
- Made of DNA
- Contain instructions for traits & characteristics



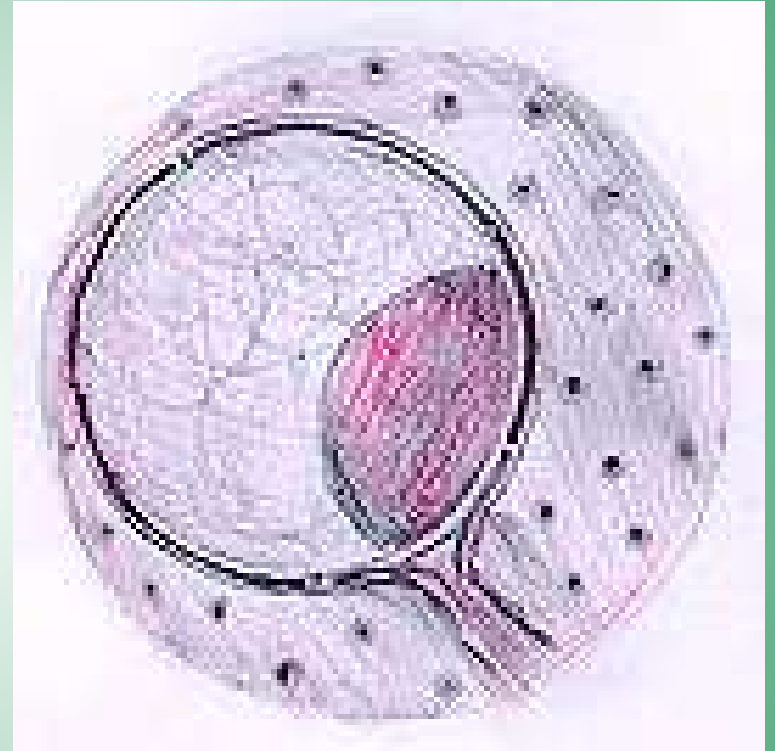
Nucleolus

- Inside nucleus
- Contains RNA to build proteins

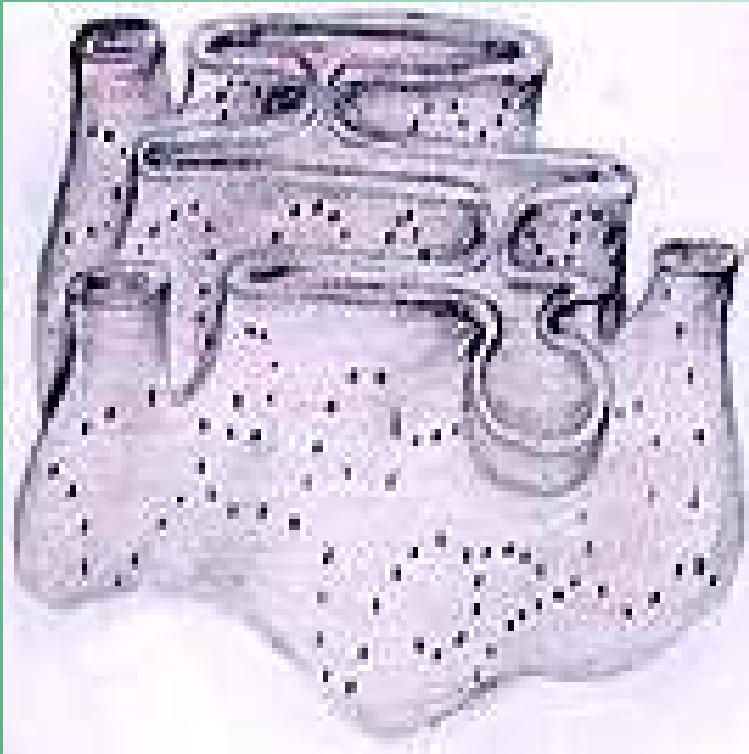


Nuclear Membrane

- Surrounds nucleus
- Made of two layers
- Openings allow material to enter and leave nucleus



Endoplasmic Reticulum



- Moves materials around in cell
- Smooth type: lacks ribosomes
- Rough type (pictured): ribosomes embedded in surface

Mitochondria

- Produces energy through chemical reactions – breaking down fats & carbohydrates
- Controls level of water and other materials in cell
- Recycles and decomposes proteins, fats, and carbohydrates



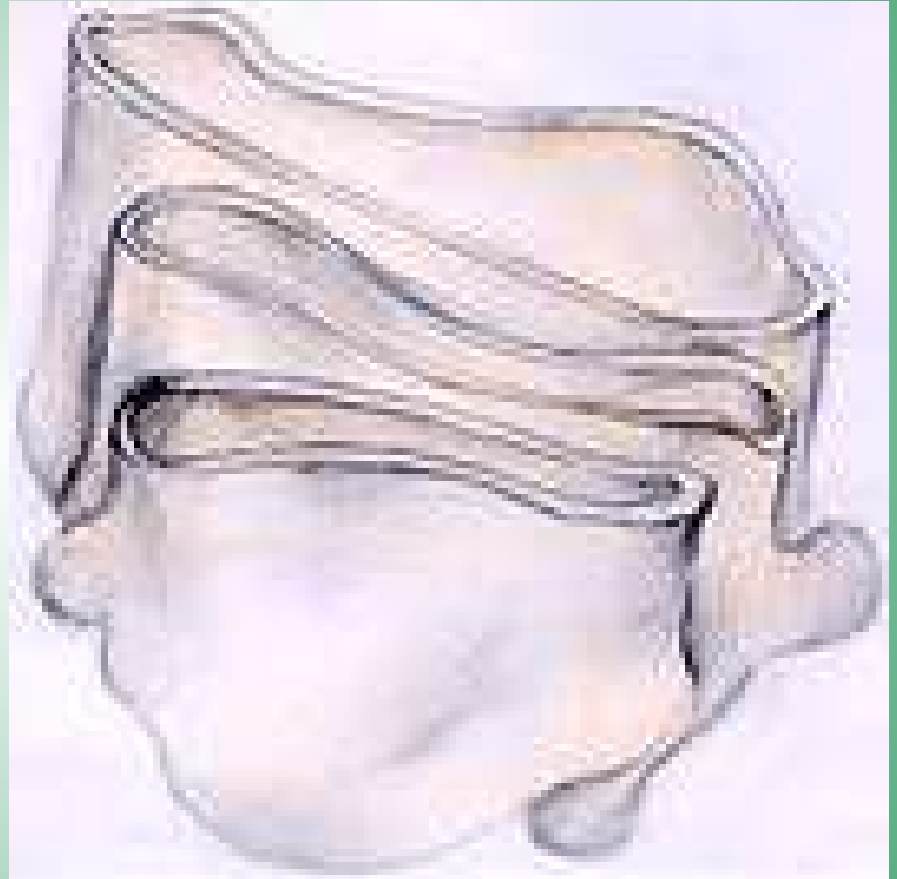
Ribosomes

- Each cell contains thousands
- Make proteins
- Found on ER & floating throughout the cell



Golgi Bodies (apparatus)

- Protein 'packaging plant'
- Move materials within the cell
- Move materials out of the cell



Vacuoles

- Membrane-bound sacs for storage, digestion, and waste removal
- Contains water solution
- Help plants maintain shape



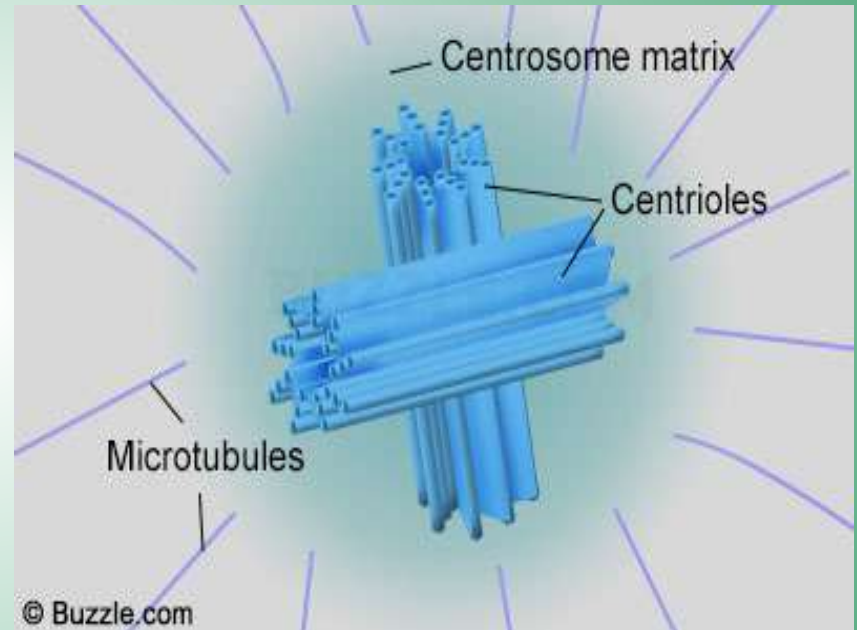
Lysosome

- Place for proteins, fats, and carbohydrates to be digested.
- “Recycling center!”
- Transports undigested material to cell membrane for removal.
- Cell breaks down if lysosome explodes

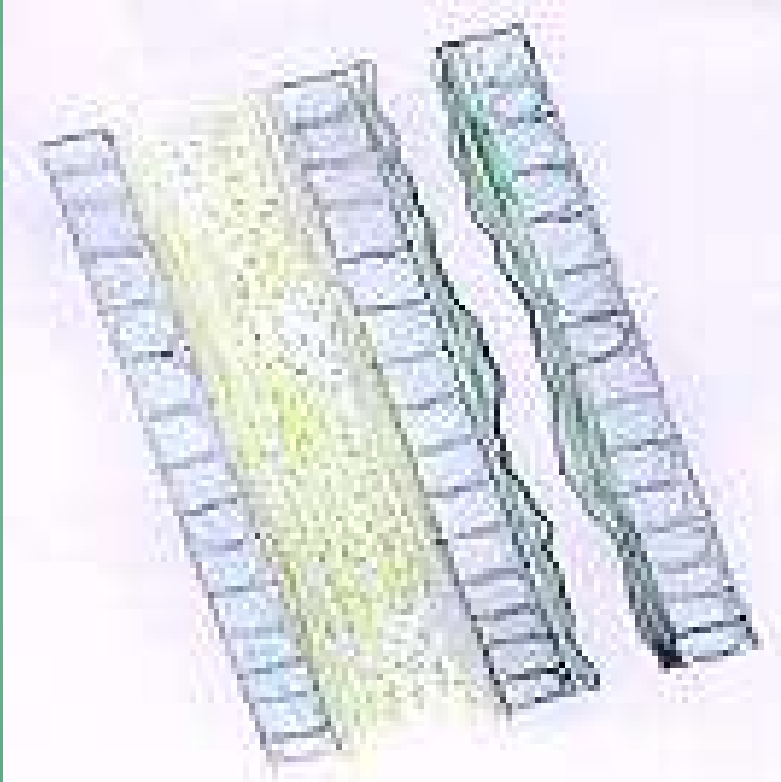


Centrioles

- Located near the nucleus
- Help with mitosis (cell division)



Cell Wall



- Most commonly found in plant cells & bacteria
- Supports & protects cells

Chloroplast

- Usually found in plant cells
- Contains green chlorophyll
- Where photosynthesis takes place

