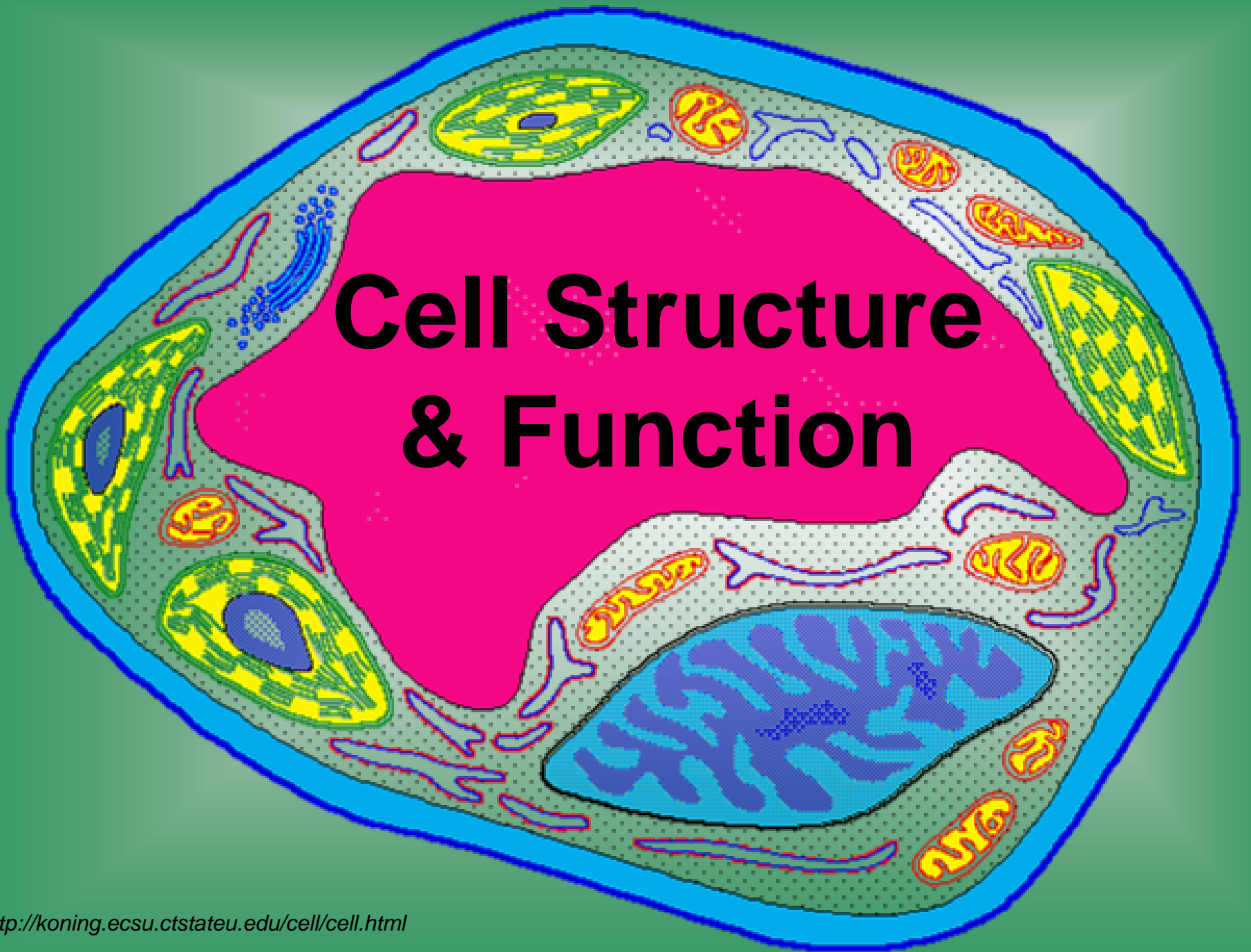


Cell Structure & Function



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.

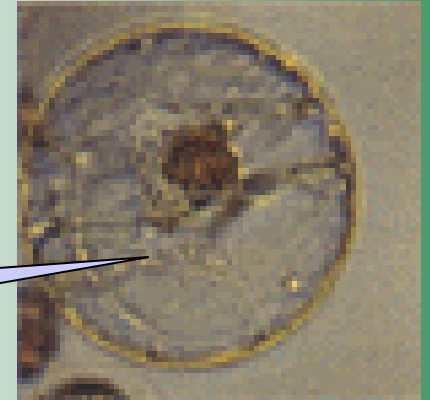
Definition of Cell

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

Examples of Cells

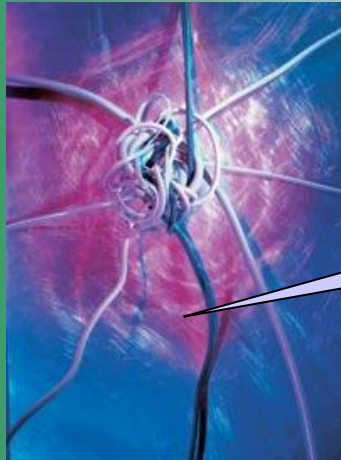
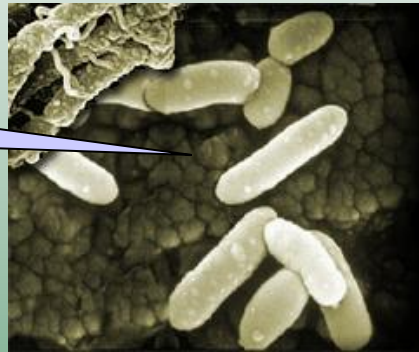


Amoeba Proteus



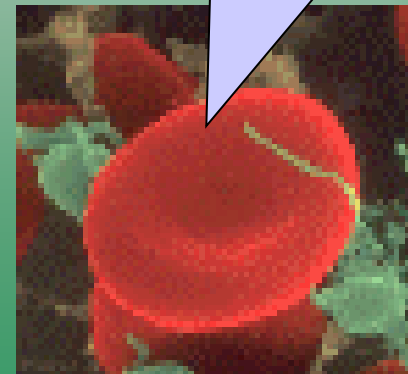
Plant Stem

Bacteria



Nerve Cell

Red Blood Cell

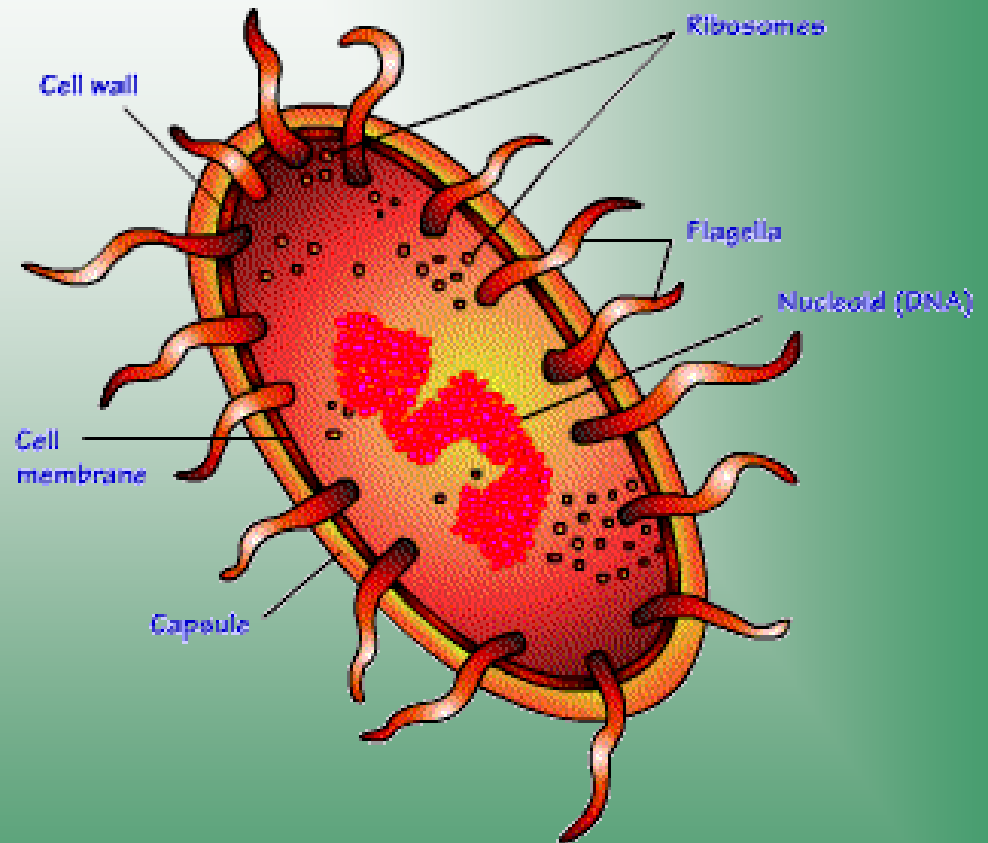


Two Types of Cells

- Prokaryotic
- Eukaryotic

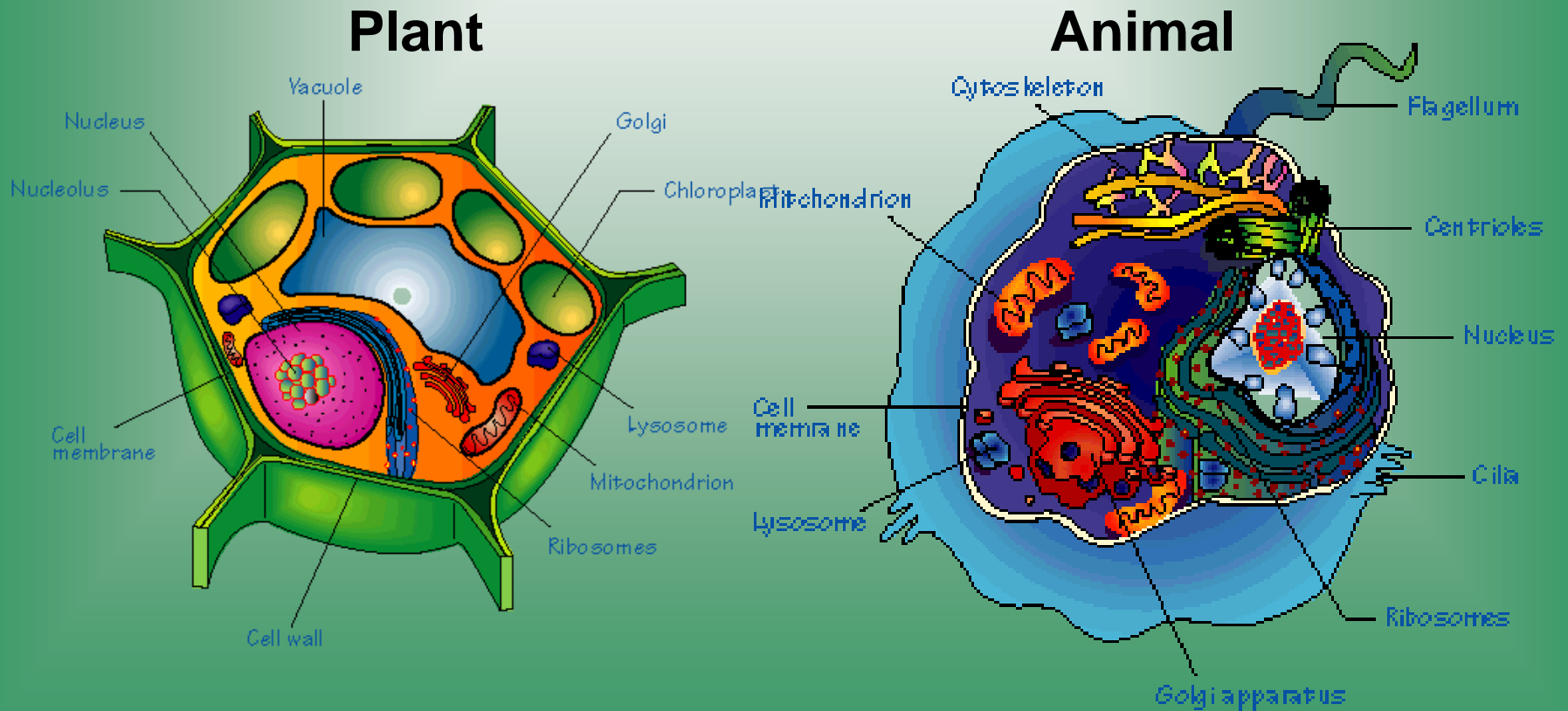
Prokaryotic

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

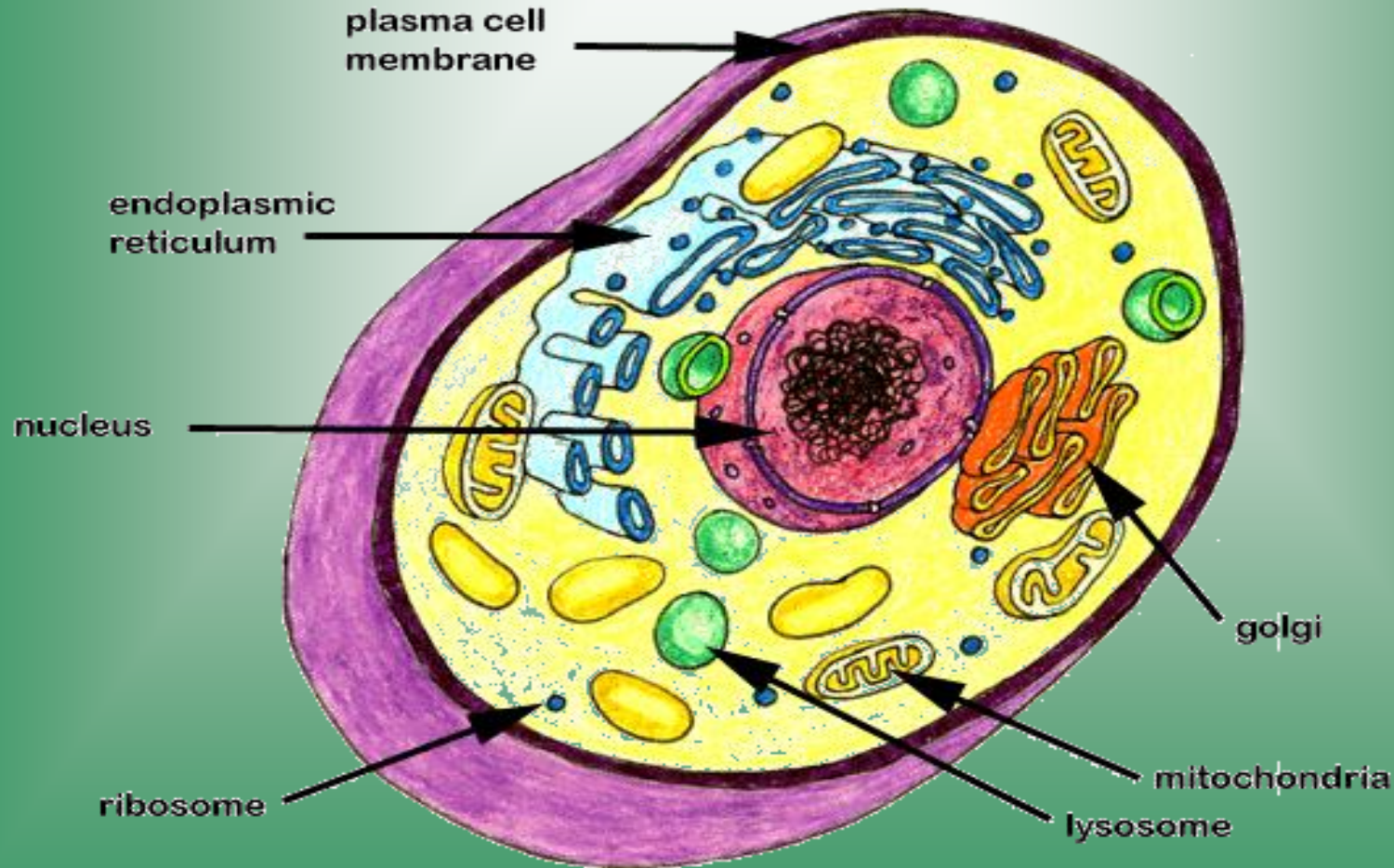


Eukaryotic

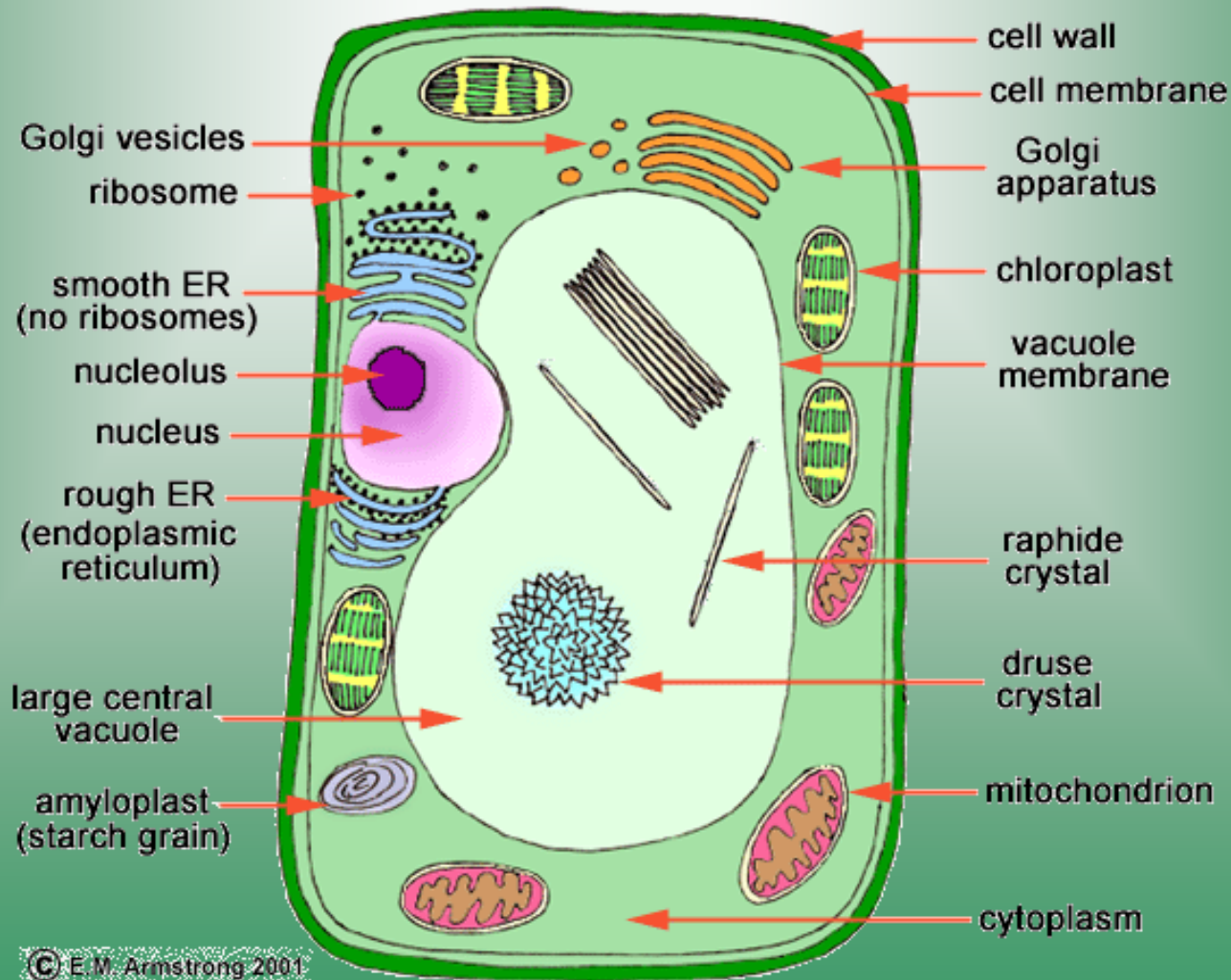
- Contain organelles surrounded by membranes
- Most living organisms



“Typical” Animal Cell



“Typical” Plant Cell



Cell Parts

Organelles

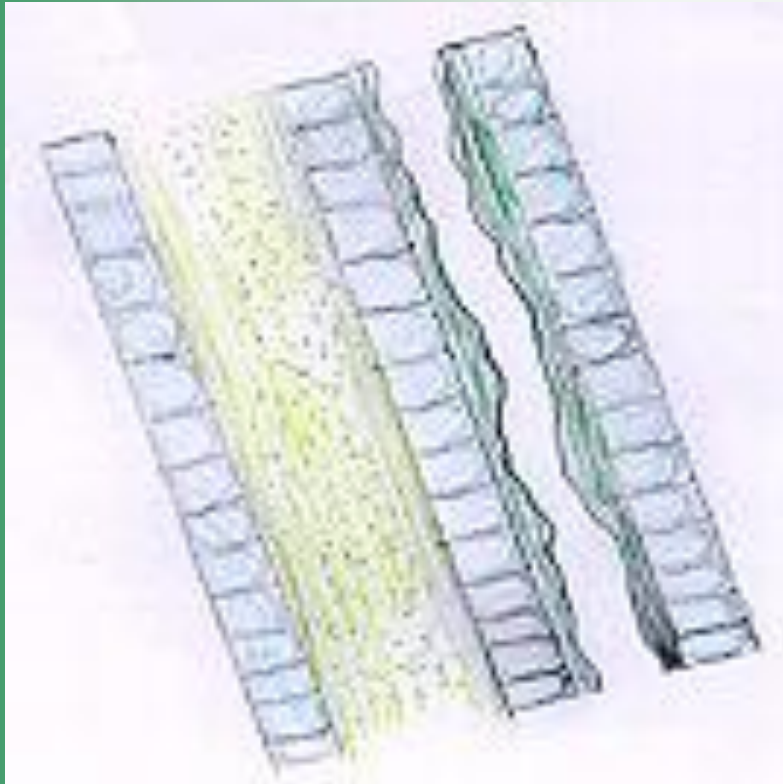
Surrounding the Cell

Cell Membrane



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

Cell Wall



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

Inside the Cell

Nucleus

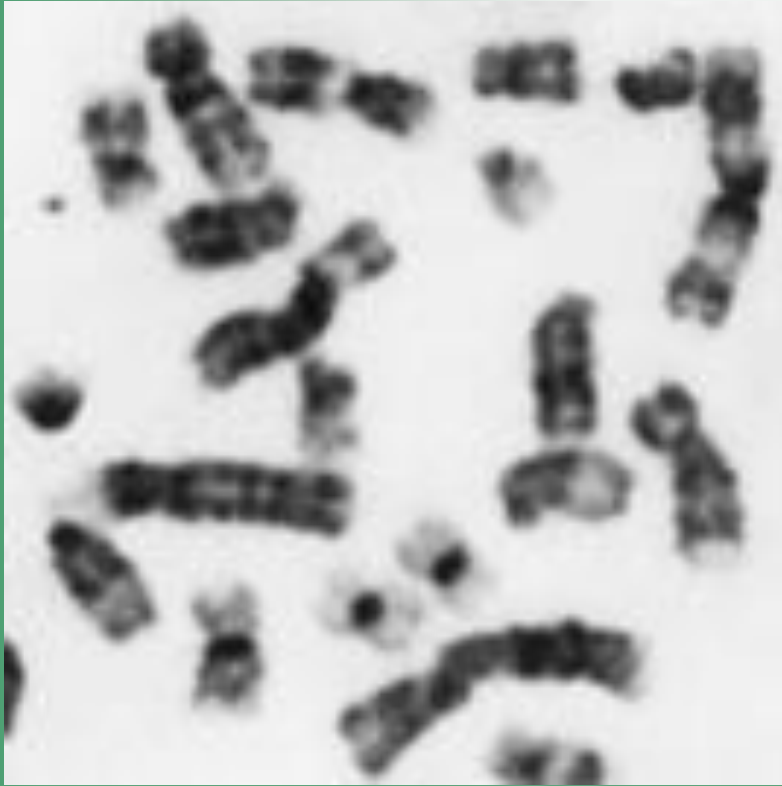
- Directs cell activities
- Separated from cytoplasm by nuclear membrane
- Contains genetic material - DNA

Nuclear Membrane

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



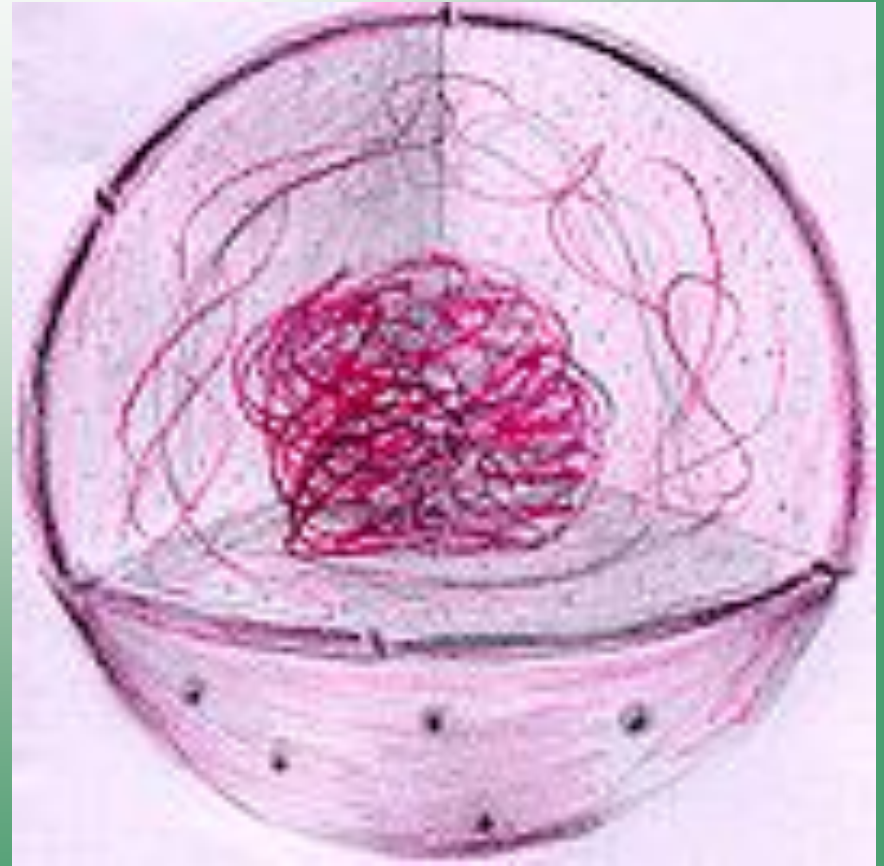
Chromosomes



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

Nucleolus

- Inside nucleus
- Contains RNA to build proteins



Cytoplasm

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

Endoplasmic Reticulum

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



Ribosomes

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



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



Golgi Bodies

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



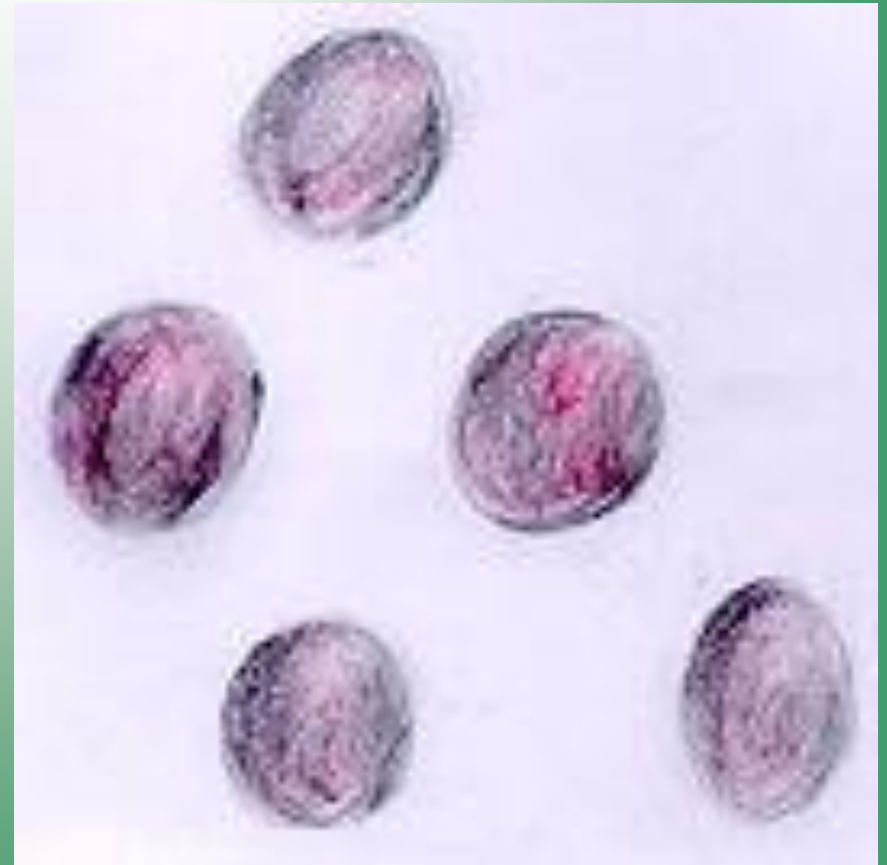
Lysosome

- Digestive 'plant' for proteins, fats, and carbohydrates
- Transports undigested material to cell membrane for removal
- Cell breaks down if lysosome explodes



Vacuoles

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



Chloroplast

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

