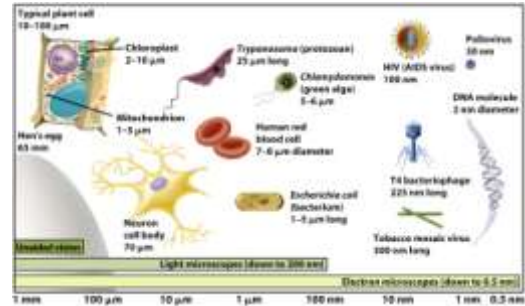
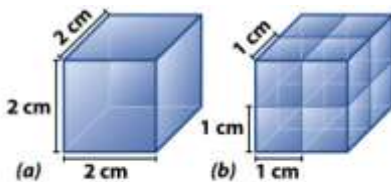


Cell Parts and Organelles

Cell Size



Cells Have Large Surface Area-to-Volume Ratio



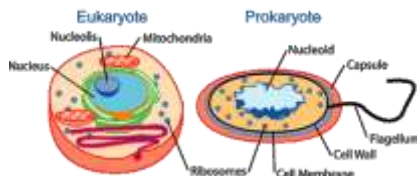
Number of cells	1	8
Total surface area	24 cm ²	48 cm ²
Total volume	8 cm ³	8 cm ³
Surface area/volume	24/8 = 3:1	48/8 = 6:1

Characteristics of ALL Cells

- A protective membrane (cell membrane, plasma membrane)
- Cytoplasm (cell parts and fluid called cytoplasm)
- Organelles (structures for cell function)
- DNA
- Proteins

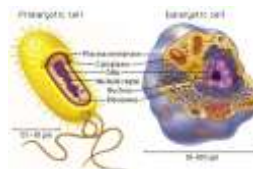
Types of Cells

- Prokaryotes and Eukaryotes



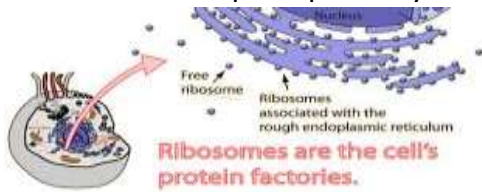
What each cell has:

- Prokaryote
 - DNA
 - Plasma Membrane
 - Ribosomes
 - Cell Wall
 - Cytoplasm
 - Cilia/flagella
- Eukaryote
 - Nucleus w/ DNA
 - Plasma membrane
 - Ribosomes
 - Cell wall (plant)
 - Cytoplasm
 - Mitochondria
 - Large vacuole (plant)
 - Chloroplast (plant)
 - Cilia/flagella (animal)



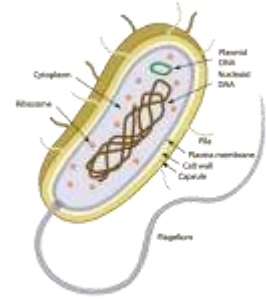
Ribosomes

- In Prokaryotes and Eukaryotes
- Made of RNA and proteins (rRNA)
- Sites of protein synthesis
 - **Proteins are the main product produced by the cell**



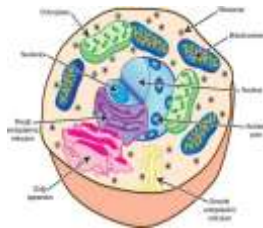
Prokaryotes

- First cells
- Simple and small
- Bacteria only
- No nucleus
- Have ribosomes!

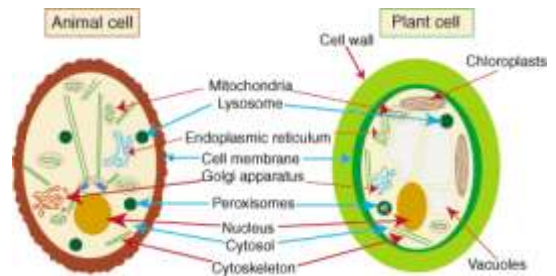


Eukaryotes

- Nucleus contains DNA
- Everything but bacteria
 - Plants, animals, fungus, protists
- Membrane-bound organelles
 - Specific activities
 - Advantages
 - Efficiency
 - More than one job at a time



Eukaryotes Represent



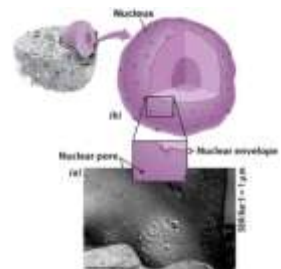
Cytoplasm

- Fluid containing organelles
- Components of cytoplasm
 - Fluid = cytosol
 - Organelles (not nucleus)
 - storage substances



Nucleus

- Control center of cell
- Double membrane
- Contains
 - DNA (in the form of chromosomes)
 - Nucleolus (makes ribosomes)



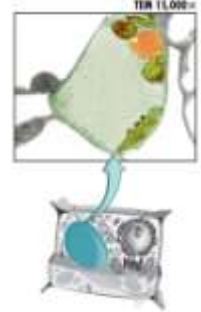
DNA

- Nucleic Acid
- Instructions to produce amino acids which link together to make proteins!
- Chromosomes
 - DNA
 - Proteins
 - Form for cell division
- Chromatin
 - Uncondensed DNA



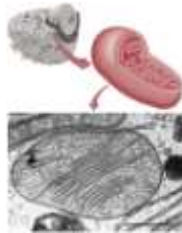
Vacuoles

- Storage
- Bigger in plants than animals
 - Central vacuole
 - Provide turgid pressure
 - If plant is without water, the central vacuole will shrink and cause the plant to wilt
- Contents
 - Water
 - Food
 - wastes



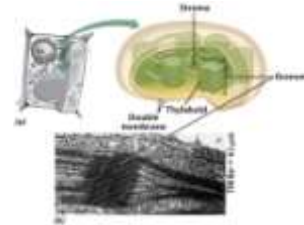
Mitochondria

- Have their own DNA
- Bound by double membrane
- Breakdown food molecules
 - Powerhouse
 - Cellular respiration
 - Glucose
 - Releases cellular energy
 - ATP



Plants Only: Chloroplasts

- Site of photosynthesis
 - Solar energy to food (glucose)
 - Filled with chlorophyll (makes it green)



Cell Walls

- Found in plants, fungi, & many protists
 - Plants – mostly cellulose
 - Fungi – contain chitin
- Surrounds cell membrane
- Structure and support
- Also found in prokaryotes (made of peptidoglycan)

