

Cell Type and Form

Organization of Life

atoms → molecules → organelles → cells → tissues → organs → organ systems → organism

Cell Types

Eukaryotic cells are larger and more complex than prokaryotic cells.

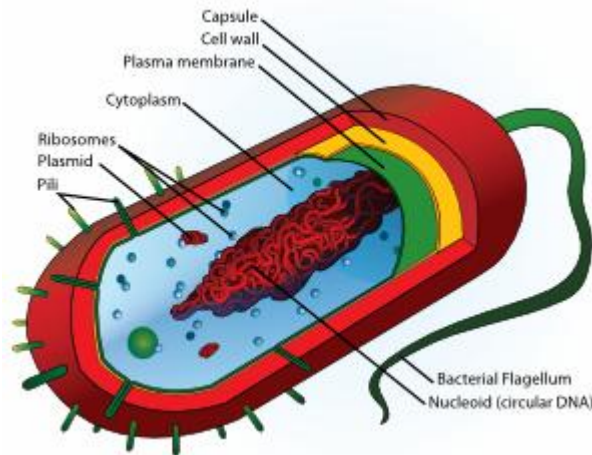
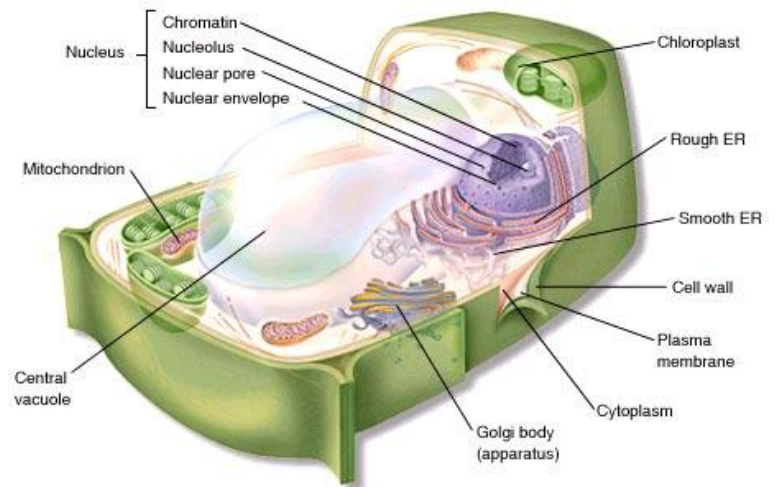
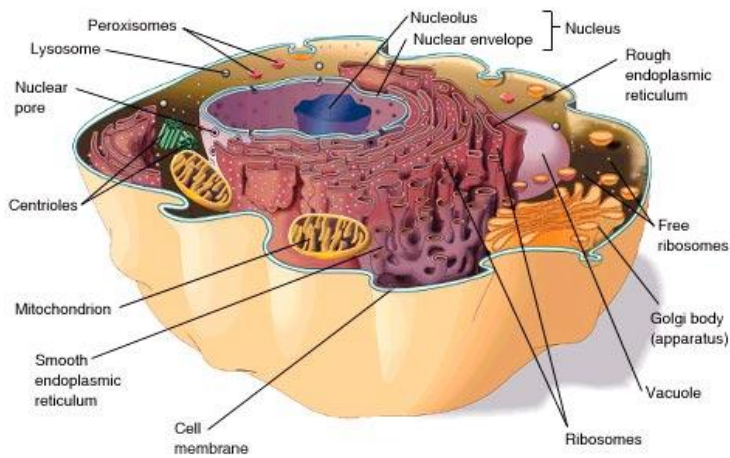
Eukaryotic Cells - Cell that **possesses** a nucleus and the other membranous organelles characteristic of complex cells; plants, animals, and fungi

Prokaryotic Cells - Cell **lacking** a nucleus and the membranous organelles found in complex cells; archaea and bacteria

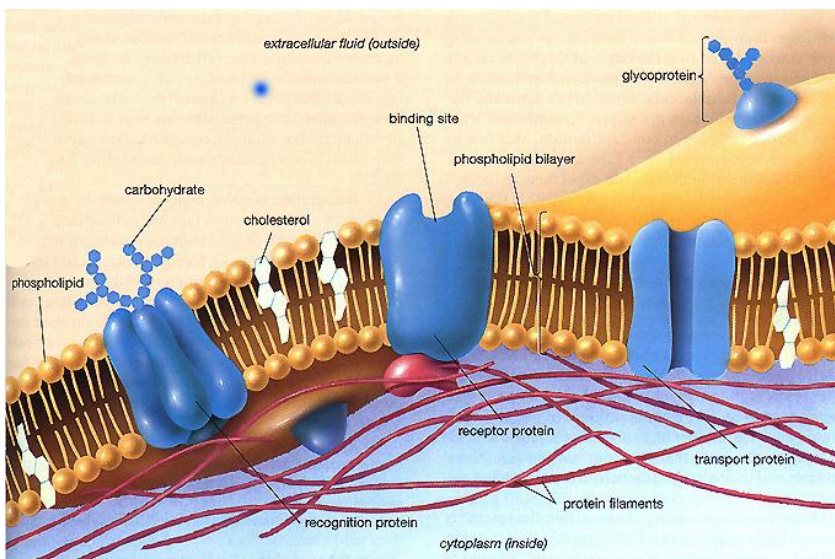
Form and Function

Organelle	Function	Cell Type
Cell Wall	Protective barrier outside the plasma membrane of plant and certain other cells.	P,B
Chloroplasts	Membranous organelle that contains chlorophyll and is the site of photosynthesis.	P
Endoplasmic Reticulum	Membranous system of tubules, vesicles, and sacs in cells, sometimes having attached ribosome. Rough ER has ribosome; smooth ER does not	P,A
Golgi apparatus	Stacked set of membranes that modifies, transports, and packages materials for export	P,A
Lysosome	Digest worn out organelles	P,A
Mitochondria	Membranous organelle in which aerobic cellular respiration produces the energy carrier ATP.	P,A
Nucleus	The distinctive organelle of a eukaryotic cell, consisting of a membranous envelope in which the chromosomes reside	P,A
Plasma Membrane	Membrane surrounding the cytoplasm that consists of a phospholipid bilayer with embedded proteins; functions to regulate the entrance and exit of molecules from cell.	P,A,B
Ribosome	Minute particle that is attached to endoplasmic reticulum or occurs loose in the cytoplasm and is the site of protein synthesis.	P,A,B
Vacuole	Membranous cavities usually filled with fluid.	P,A
Cytoplasm	Gelatinous substance that holds organelles and provides area for chemical reactions	P,A,B
Centrioles	Aids in cell division	A

Differentiation- the process where cells specialize to become a unique cell type



Fluid mosaic model



Carbohydrate- used in cell recognition and communication

Cholesterol- maintains flexible nature of the membrane

Phospholipid- hydrophilic head and hydrophobic tail that arrange to form the bilayer

Transport (carrier) protein- used to move material into and out of the cell