CELLS

Cell Theory

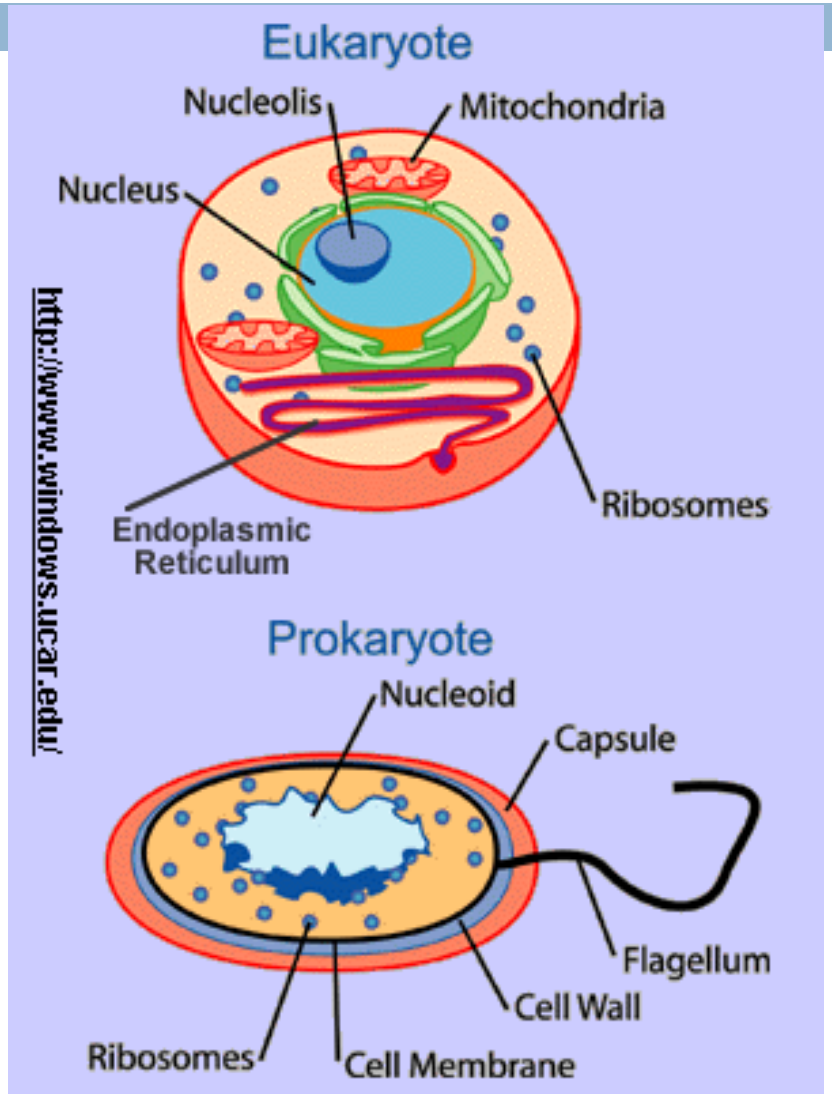
- All living things are composed of cells
- Cells are the basic units of structure and function in living things
- New cells are produced from existing cells

Prokaryotes vs. Eukaryotes

- Prokaryotes-have a cell membrane, ribosomes and cytoplasm. They do not have a nucleus.
- Most bacteria are made of prokaryotic cells.

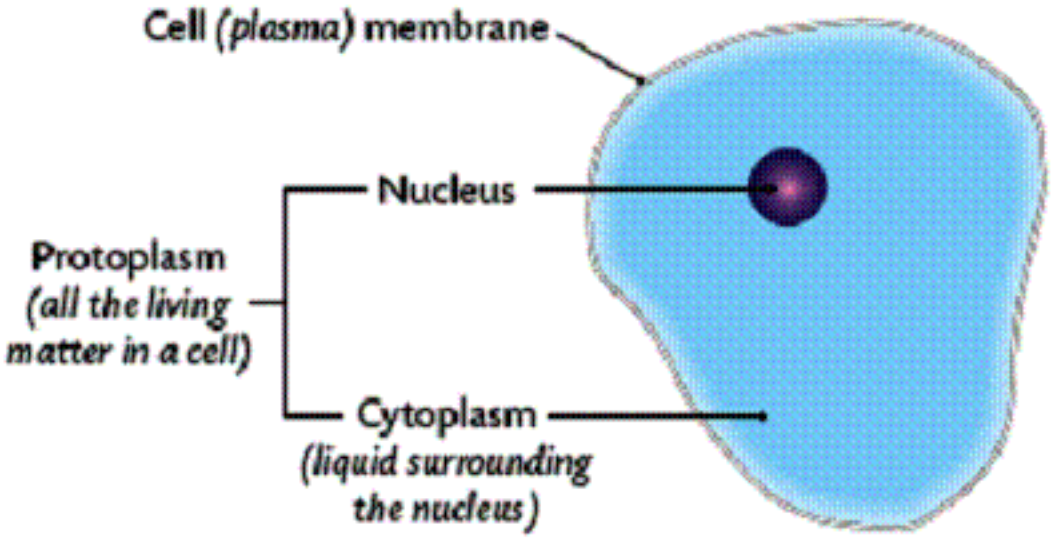
- Eukaryotes-has a nucleus, organelles, cell membrane and cytoplasm.
- Plants, animals and fungi are made of eukaryotic cells.

Key Points about Cell Organelles



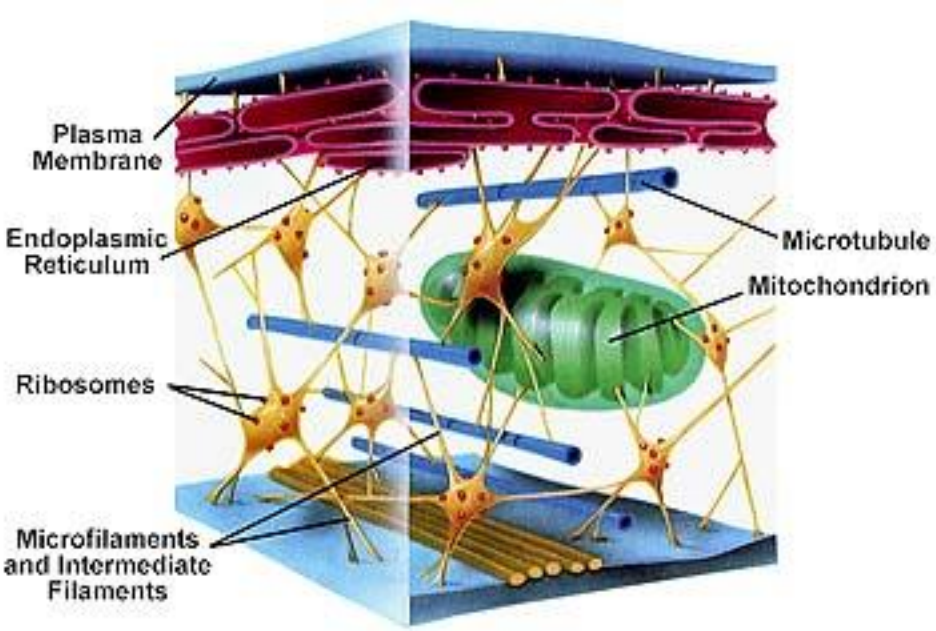
Cytoplasm

- Material inside the cell membrane that holds the organelles



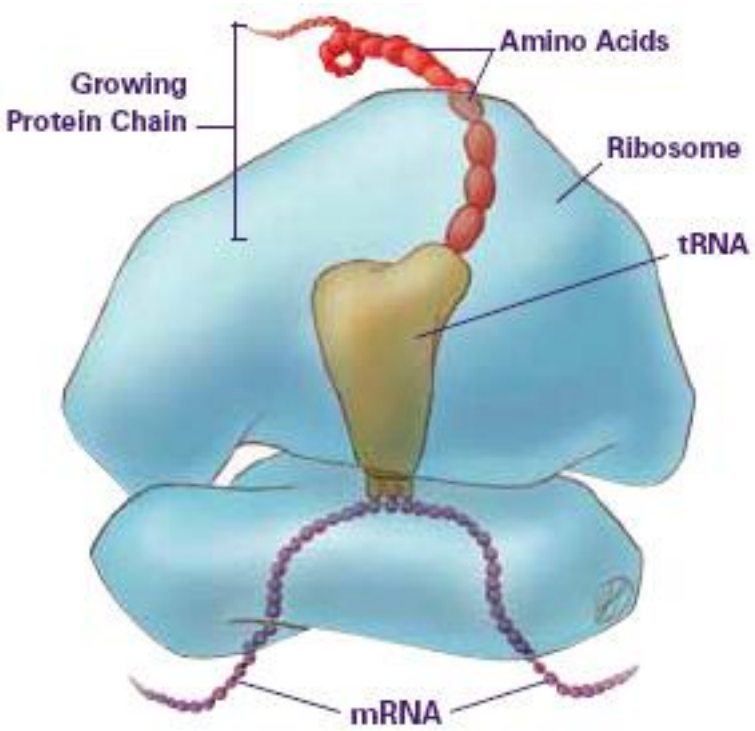
Cytoskeleton

- Provides structure and shape to cell
- Aids in cell movement
- Made of microtubules and microfilaments



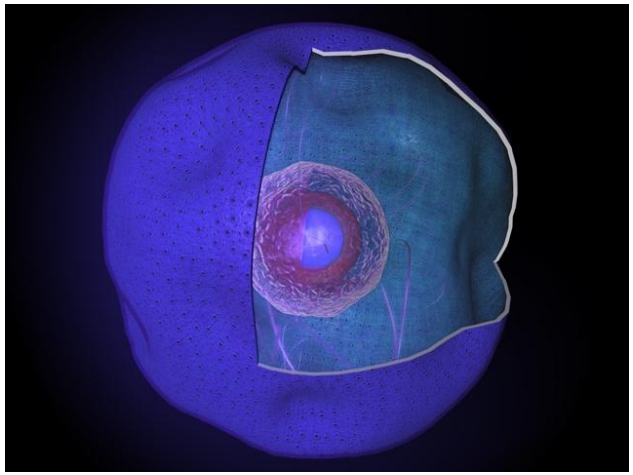
Ribosome

- Assemble and make proteins



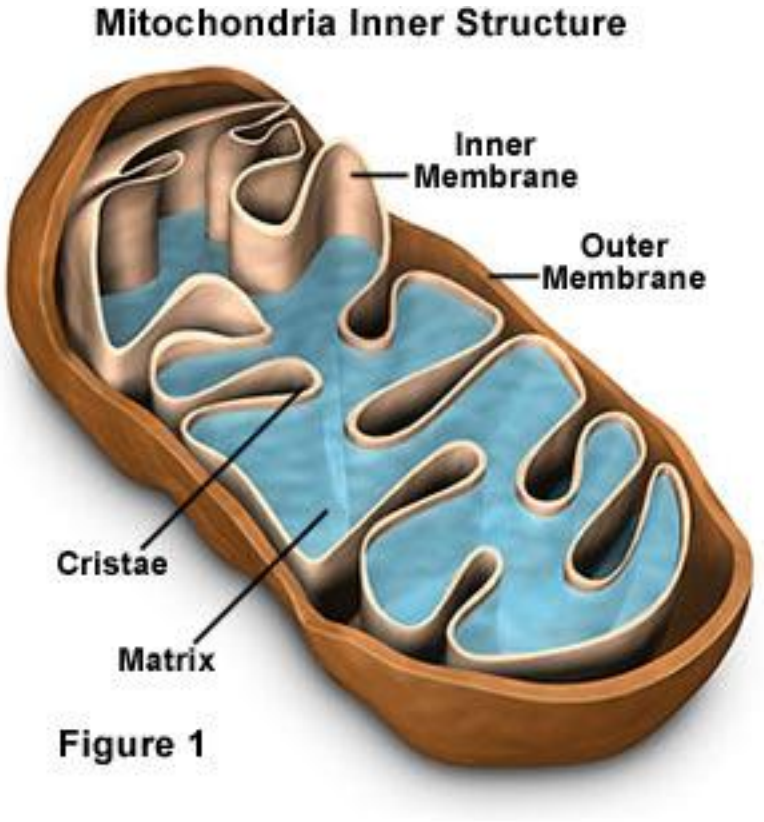
Nucleus

- Controls most cell processes and contains DNA
- Contains a nucleolus (where ribosomes are assembled)
- Surrounded by a nuclear envelope (allows materials to move in and out of the nucleus)



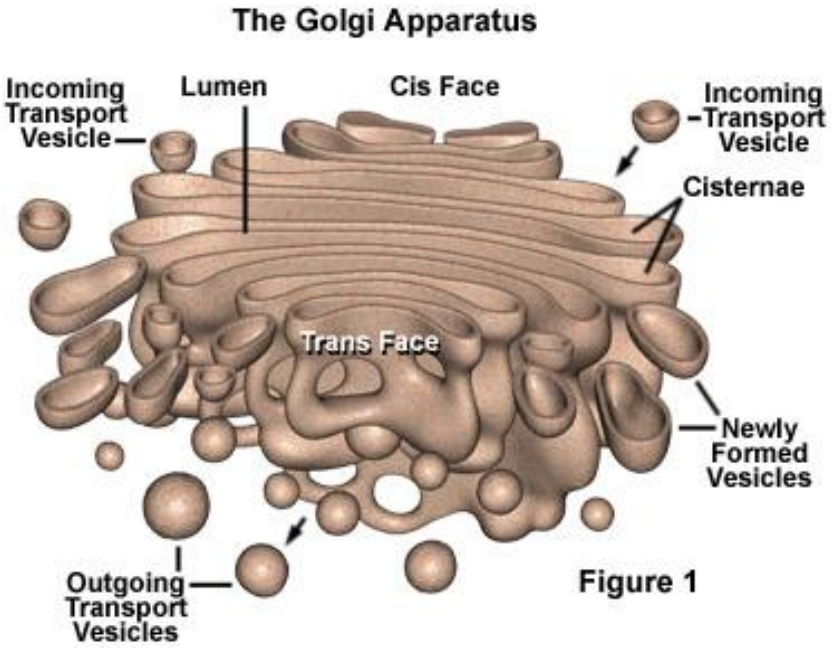
Mitochondria

- Release energy from stored food molecules
- Makes ATP



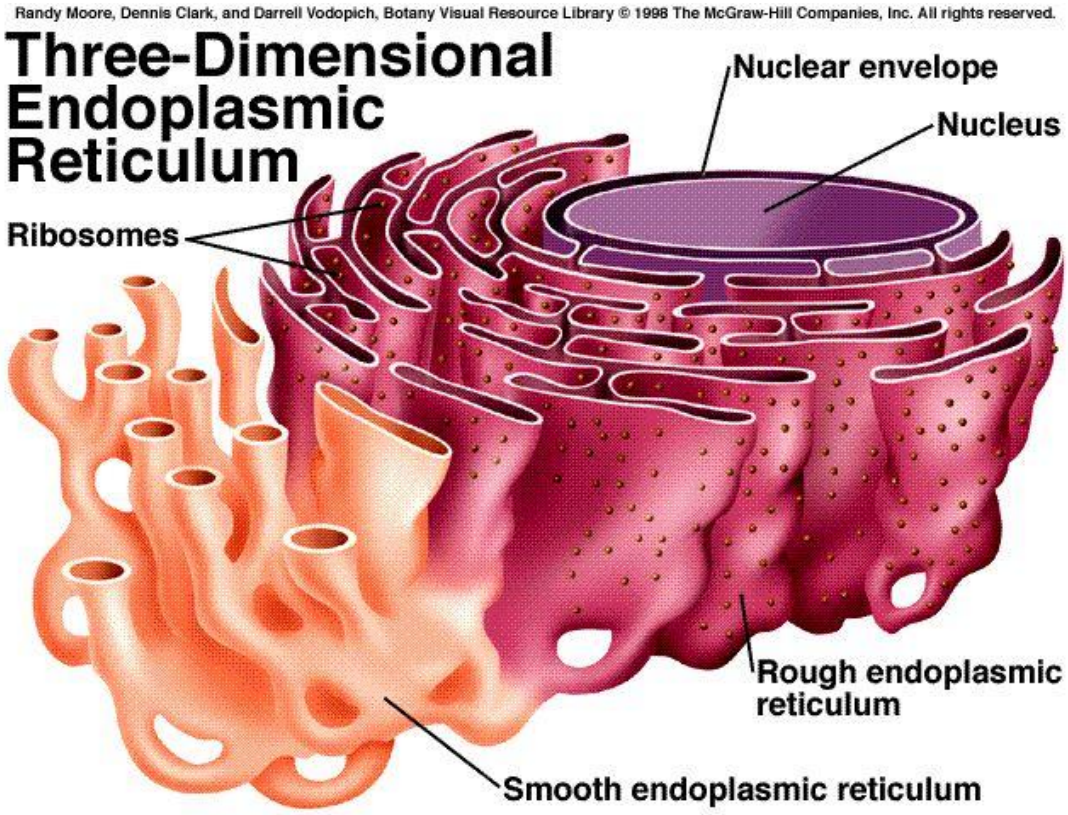
Golgi Apparatus

- Modify proteins by attaching carbohydrates and lipids to them



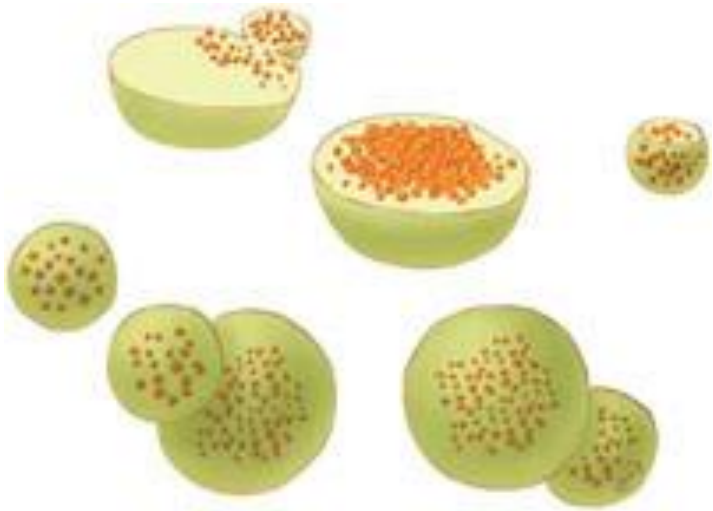
Endoplasmic Reticulum

- Assembles and modifies proteins
- Rough (contains ribosomes) and Smooth ER



Lysosome

- Small organelles filled with enzymes
- Break down lipids, proteins and carbs from food into particles



Vacuole

- Stores water
- Larger in plant cells; provides support

Plant Vacuole

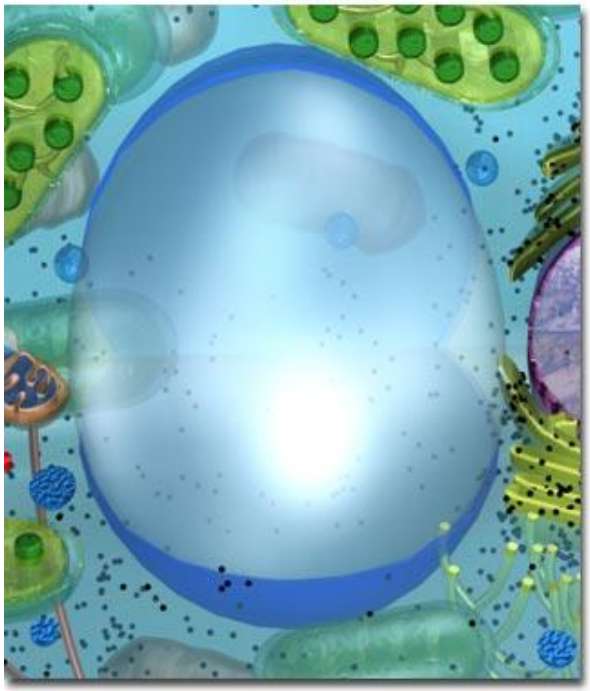
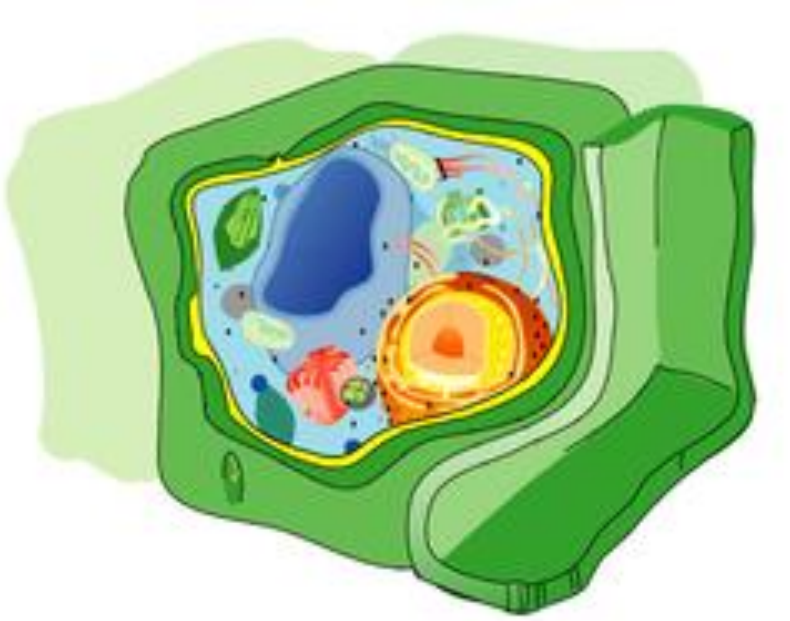


Figure 1

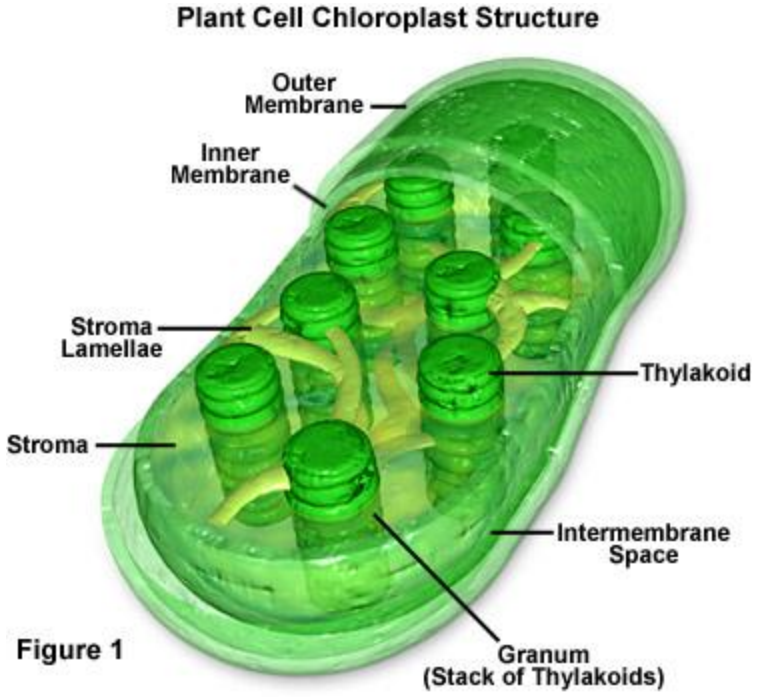
Cell Wall

- Provides support and structure for the cell
- Made of cellulose (tough carbohydrate fiber)
- Found in plant, algae, fungi and nearly all prokaryotes



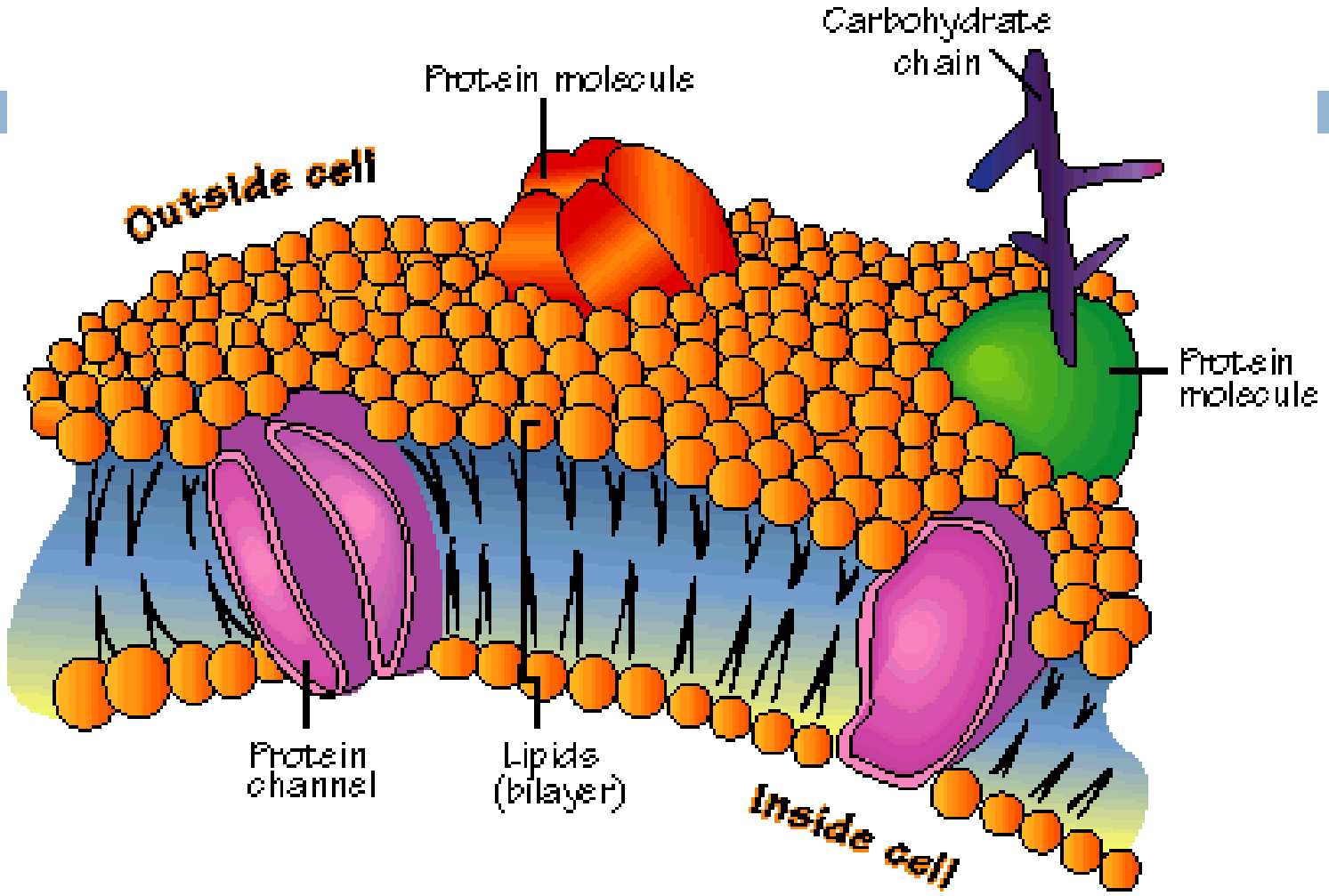
Chloroplast

- Use energy from the sunlight to make glucose
- Contains chlorophyll
- Found in plant cells



Cell Membrane

- Regulates what enters and leaves the cell
- Provides protection and support
- Found in most types of cells
- Made of a lipid bilayer


Carbohydrate chain
Protein molecule
Outside cell
Protein molecule
Protein channel
Lipids (bilayer)
Inside cell

Cell Membrance (cont)

- Membranes can be permeable, selectively permeable or impermeable
- Permeable-anything can pass through
- Selectively permeable (semi-permeable)-certain things can pass (most cell membranes ore selectively permeable)
- Impermeable-nothing can pass