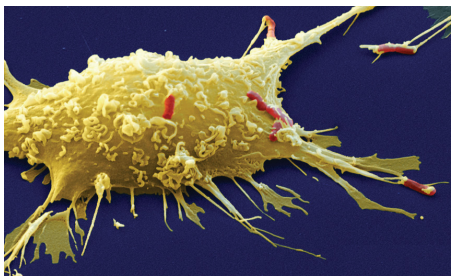
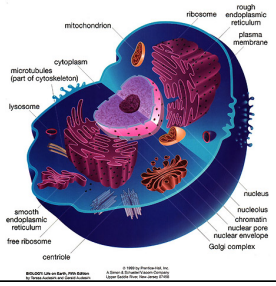
3.2 Cell Organelles

KEY CONCEPT **Cells share many similarities.**



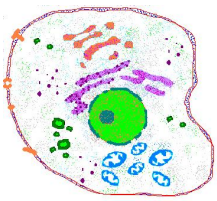
3.2 Cell Organelles

- **Organelles**
  - Parts/tiny structures within/inside the cell
  - All have functions they perform/things that they are in charge of doing.



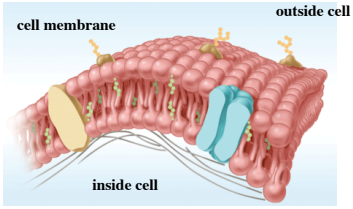
3.2 Cell Organelles

- **Membrane**
  - Material that surrounds the cell and holds it together
  - Allows things to leave and enter the cell



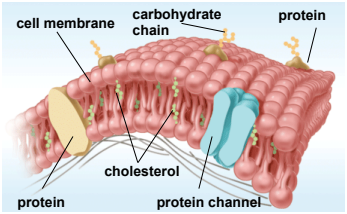
3.2 Cell Organelles

- **Cell membranes are composed of two phospholipid layers.**
  - The cell membrane has two major functions.
    - forms a boundary between inside and outside of the cell
    - controls passage of materials



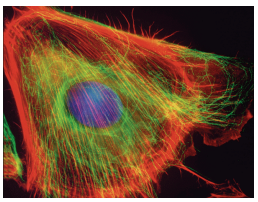
3.2 Cell Organelles

- **Cell membranes are composed of two phospholipid layers.**
  - there are other molecules embedded in the membrane



3.2 Cell Organelles

- **Cells have an internal structure.**

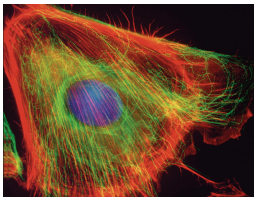


3.2 Cell Organelles

- **Cytoplasm**
  - the liquid within the cell
  - *cyclosis*-movement of the cytoplasm

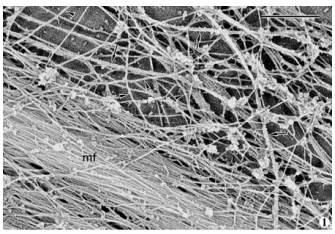
3.2 Cell Organelles

- **Cytoskeleton**
  - Supports and shapes cells
  - Helps position and transport organelles
  - Provides strength
  - Assists in cell division
  - Aids in cell movement



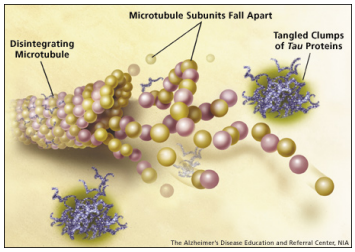
3.2 Cell Organelles

- **Microfilament**
  - Found under membrane
  - Provides strength to cell



3.2 Cell Organelles

- **Microtubules**
  - Small, thin protein fibers that give the cell shape
  - Forms framework and move materials through cell

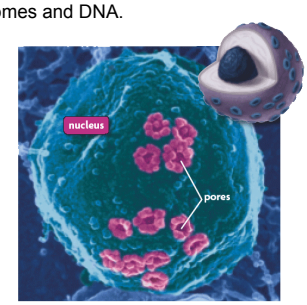


3.2 Cell Organelles

- **Several organelles are involved in making and processing proteins.**

3.2 Cell Organelles

- **Nucleus**
  - stores genetic information.
  - Contains chromosomes and DNA.
  - Central part of cell.
  - Control center.



3.2 Cell Organelles

- **Chromatin**
  - The uncoiled DNA.

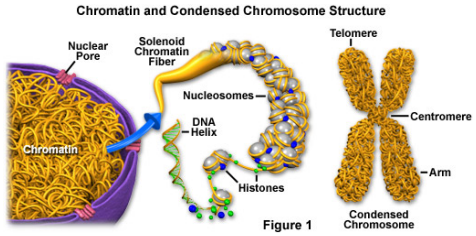
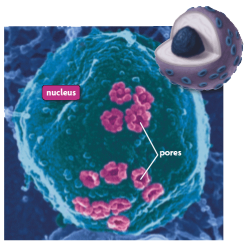


Figure 1

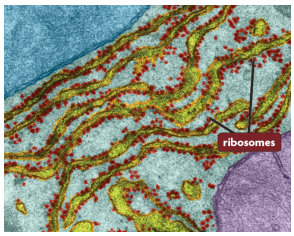
3.2 Cell Organelles

- **Nucleolus**
  - Makes ribosomes (which are protein factories)
  - Found in the center of the nucleus



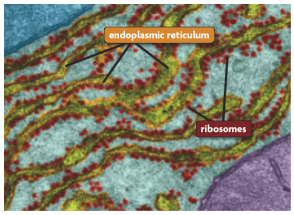
3.2 Cell Organelles

- **Ribosomes**
  - Site of protein synthesis
  - Links amino acids together



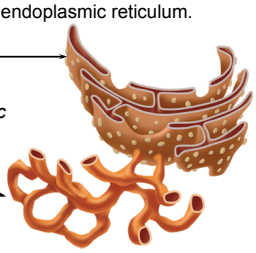
3.2 Cell Organelles

- **Endoplasmic Reticulum (ER)**
  - Connected to nuclear membrane
  - Canal system for substances to move within the cell



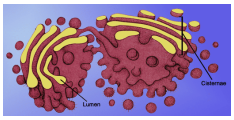
3.2 Cell Organelles

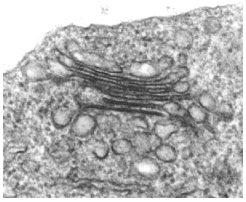
- There are two types of endoplasmic reticulum.
  - *rough endoplasmic reticulum*
    With ribosomes
  - *smooth endoplasmic reticulum*
    -without ribosomes



3.2 Cell Organelles

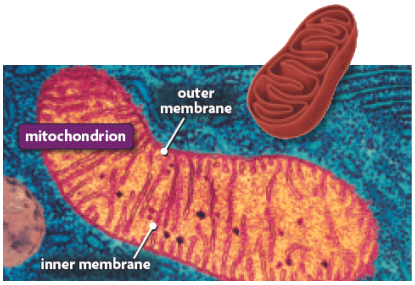
- **Golgi Apparatus**
  - connected to the ER
    - Sacs that are stacked like pancakes
    - Packages things that are produced in the cell and releases them to be carried out to other parts of the body





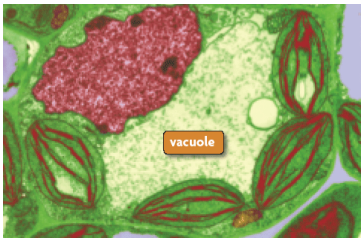
3.2 Cell Organelles

- **Mitochondria**
  - the cell's power house that makes ATP (energy)
  - sausage shape



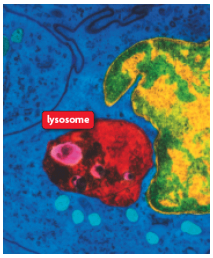
3.2 Cell Organelles

- **Vacuoles**
  - fluid-filled sacs that hold materials.
  - Removes wastes
  - More noticeable in plants



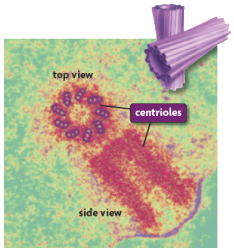
3.2 Cell Organelles

- **Lysosomes**
  - contain enzymes (type of protein) to digest material.
  - Produced by the Golgi Apparatus



3.2 Cell Organelles

- **Centrioles**
  - tubes found in the centrosomes.
  - Starlike structure
  - Involved in cell division
  - Not found in plants

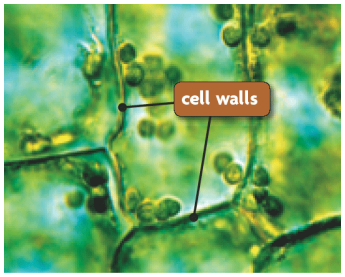


3.2 Cell Organelles

- **Plant cells have cell walls, chloroplasts and plastids.**

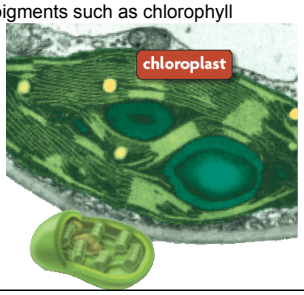
3.2 Cell Organelles

- **Cell Wall**
  - provides rigid support.
  - Outermost covering of plant cell.



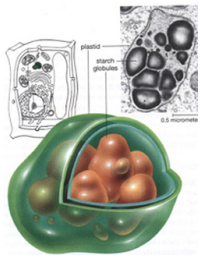
3.2 Cell Organelles

- **Chloroplasts**
  - convert solar energy to chemical energy.
  - Involved in photosynthesis
  - Contain pigments such as chlorophyll



3.2 Cell Organelles

- **Plastids**
  - found in plants only
  - Main function is to store oil/starch



3.2 Cell Organelles

- **Tissue**
  - When cells are alike and function together
    - Ex: bark and skin