- Mitochondria: create energy for the cell's use
- Endoplasmic reticulum (ER): a series of channels connect the nucleus with other organelles and the cell membrane. synthesizes Proteins and lipids
    - Rough: Protein synthesis
    - Smooth: no ribosomes, lipid synthesis
- Ribosomes: create proteins. Could be free floating or attaching to ER
- Golgi Apparatus: a series of flattened sacs.
    - Function: refine and package for transport proteins that are created in the ribosomes
- Vesicle: small sac-like vessel that stores and/or transports a substance
- Lysosome: a vessel that contains powerful enzymes that can break down worn cellular parts as well as engulfed pathogens such as bacteria.
- Cytoskeleton:
    - Microfilaments and Microtubules: create the structural framework of the interior of the cell.
    - Microfilaments: tiny rods made up of the protein filament known as actin and myosin. Help generate movement and provide mechanical support.
    - Microtubules: made up of the protein tubulin. It help determine cell shape
- Centrosome: help separate the chromosomes into the separating daughter cells during cell division (mitosis)
- Cillia and Flagella: external projections of microtubules on the cell that are responsible for cell motility
- Flagella: move an entire cell
- Cells diversity: shapes and sizes
- Cells division
    - Mitosis (replica, replace and grow - Somatic Cell)
    - Meiosis (produce new organism, such as offspring, number of chromosomes reduced by half - Germ Cell)
- Transport through the Plasma Membrane
    - Passive (diffusion, reach equilibrium in concentration)
- Factors that would influence the diffusion (Quiz)
    - Steepness of the concentration gradient
    - Temperature (higher, faster)
    - Mass of the diffusing substance (smaller, faster)
    - Surface area available (bigger, faster)
    - Diffusion distance (less, faster)
    - Active (use ATP)

Principle of form = function is the principle of complentarity

Homework:
Drawing of the Cellular structure and function of each parts
Body system Summary and PowerPoint: Cardiovascular system