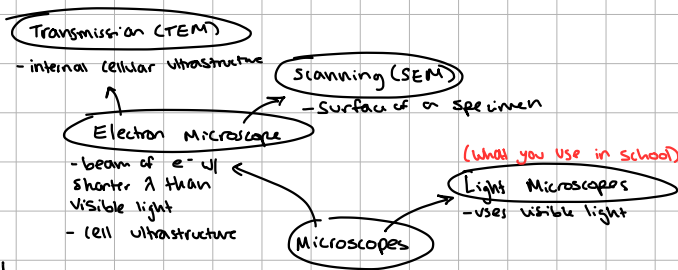


Chapter 4: A Tour of the Cell



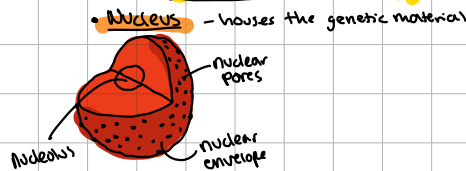
Prokaryotic	Eukaryotic
- Bacteria & Archaea - Genetic material housed in a nucleoid region (No Nucleus) - No membrane bound organelles - Do have ribosomes - Circular chromosomes	- Fungi, Plantae, Animalia, Protists - Nucleus w/ nuclear envelope to house the genetic material - Cytoplasm w/ cytosol - membrane-bound organelles - linear chromosomes

THE CYTOSKELETON

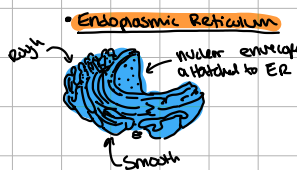
- Structural support, movement, regulation

- **Microtubules**
 - found in the cytoplasm
 - tubulin protein
 - hollow tubes
- **Intermediate Filaments**
 - fibrous proteins wrapped into cables
 - intermediate diameter
 - keratin subunits
- **Microfilaments**
 - solid rods
 - thinnest diameter
 - muscle contractions
 - actin protein

THE ORGANELLES



- **Ribosomes**
 - site for protein synthesis
 - made in the nucleolus
 - can be bound to the ER or free



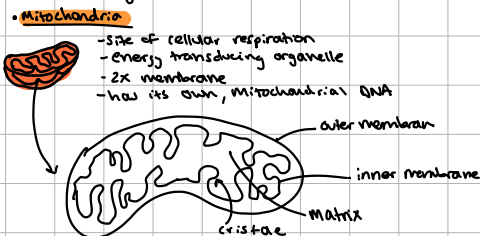
- **Smooth**
 - lacks ribosomes
 - synthesis of lipids, phospholipids, $\neq$ steroids
 - carbohydrate metabolism
 - detoxifies body toxins
- **Rough**
 - studded w/ ribosomes
 - makes secretory proteins & the membrane

- **Golgi Apparatus**
 - "stack of flattened pancakes"
 - where the transport vesicles travel to after leaving the ER
 - can modify the growing polypeptide (you'll learn about this later)

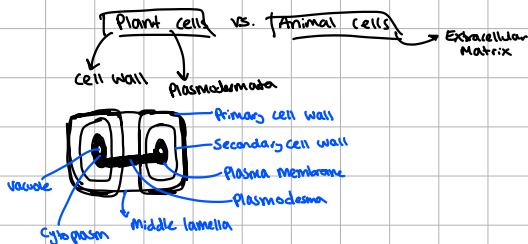
- **Lysosomes**
 - hold hydrolytic enzymes that can break down old cells, macromolecules
 - recycling center

- **Vacuole**
 - Food vacuole = formed by phagocytosis; intracellular digestion
 - contractile vacuole = pumps excess water out of cell
 - central vacuole in plants = storage (mainly of water)

- **Peroxisomes**
 - contain enzymes involved in metabolic pathways



- **Chloroplasts**
 - chlorophyll used to capture different wavelengths of light in photosynthesis
 - energy transducing organelle
 - has its own DNA
- inner membrane space
- stroma
- thylakoid space



- Cell Junctions
- Plants = **plasmodesmata**
 - cell-cell communication
 - Animals = **tight junctions**
 - holds together cells
 - desmosomes**
 - rivet cells together into sheets
 - gap junctions**
 - "communicating junctions"
 - material transport between cytoplasm of adjacent cells