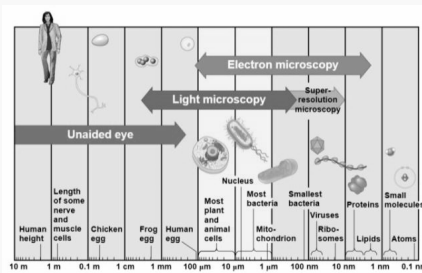


Size Range of Cells



Microscopes

Electron microscope	Focuses beam of electrons through specimen onto surface
SEM	Allows you to zoom really close to tiny organelles
TEM	Do not use much
Stereoscope	Texture, color, details
Light compound	Typical, big organelles, but not tiny

Surface Area Volume ratio

Surface area increases	Volume constant
Highest SA/V ratio	More efficient cell

SA/V Ratio Equations

SA	Height x Width
Volume	Height x Width x Length
SA/V Ratio	SA/V

Prokaryotes vs Eukaryotes

Prokaryotes:	Eukaryotes:
No nucleus	Nucleus
No membrane-bound organelles	Membrane-bound organelles
Circular DNA	Linear DNA
Binary fission	Mitosis and meiosis

Organelles

Cytoskeleton	Structural proteins extend throughout cytoplasm, maintains cell shape, anchors organelles, regulates cell/organelle motility, movement of chromosomes during cell division
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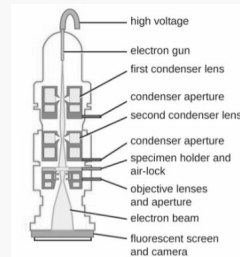
Organelles (cont)

Cilia and Flagella	Motility related extensions of cytoskeleton proteins, allow cell to move through space,
Centrosome	Animal-like cell only, organizing center, origin of microtubules, major role in animal-like cell division,
Cell membrane	Phospholipid (hydrophilic head, hydrophobic tail, always moving) bilayer, boundary of cells, transport materials in and out, communication between cell and environment
Cholesterol	Steroid lipid, temp buffer, maintains fluidity over range of temps,

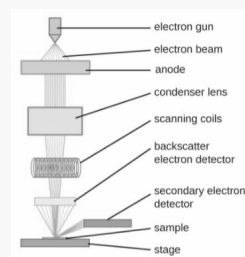
Membrane Proteins

Integral proteins	Penetrate one or both sides of bi-layer
Peripheral proteins	Associated with membrane, don't penetrate
Polarity	depends on role of protein

Transmission Electron Microscope



Scanning Electron Microscope



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