

Cell Organelle	Sketch & Description of Structure (incl. biomolecules)	Function	Pro-/Eukaryotic Cells (or both)	Animal/Plant cells (or both)
Cell Wall	I won't be including pictures here, but please refer to your textbook in order to be able to identify each organelle based on both its function <u>and</u> structure (including biomolecules)	- Encapsulates entire cell and surrounds cell membrane - Porous barrier - Made up mostly of cellulose (in plant cells) - Gives cells structure	Both (Plant cells & some bacterial cells) Note: made of different biomolecules depending on cell - will address this in future units - for now just remember that plants have cellulose in their cell walls)	Plant Cells
Cell/Plasma Membrane		- Separates inside of cell from external environment - Semi-permeable membrane (regulates what enters and exits cell) - Contains phospholipid, proteins, & carbs	Both	Both
Cytoplasm/ Cytosol		- supports organelles - location of cellular reactions (metabolism) - Contains all organelles & enzymes - Semi-fluid consistency	Both	Both
Cytoskeleton		- Network of fibers & microfilaments composed of proteins "Roadways" through the cytoplasm (vesicle movement) - Provides structure & shape	Both	Both

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Centrioles/ Centrosomes		• Help with cell division in animal cells • Help to form spindle fibers, which help to separate chromosomes during cell division	Eukaryotic Cells	Animal Cells
Nucleus		• Stores genetic information (DNA) • “Brain” of the cell • Coordinates cell activities (growth, metabolism, protein synthesis, cellular reproduction, etc.)	Eukaryotic Cells	Both
Nucleolus		• Helps to make ribosomes inside nucleus • Made up of a cluster of RNA & proteins	Eukaryotic Cells	Both
Ribosomes		• assembles polypeptide chains • Located on Rough ER or floating freely throughout cytoplasm	Both	Both
Vacuole		• Store water, nutrients, & waste • Plant cells → 1 large central vacuole • Animal cells → many small vacuoles	Eukaryotes	Both

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Smooth Endoplasmic Reticulum		- Enzyme rich structure that synthesizes lipids - Catalyzes key step in mobilization of glucose from glycogen stores in liver - Helps detoxify drugs, alcohol & poisons in liver	Eukaryotic Cells	Both
Rough Endoplasmic Reticulum		- Ribosomes attached to it (rough) - Makes proteins	Eukaryotic Cells	Both
Golgi Apparatus		- Receives proteins from ER, processes them, & transports them (in vesicles) to be exported out of cell "Protein processing factory"	Eukaryotic Cells	Both
Vesicle		- Transport large molecules that are too big to pass through cell membrane - Can fuse with cell membrane or another organelle in order to release contents	Eukaryotic Cells	Both
Lysosome		- Sac of hydrolytic enzymes that help to digest biomolecules & old cell parts - Can often fuse with vacuoles to do this - involved in programmed cell death (apoptosis)	Eukaryotic Cells	Both (though rare in Plant cells)
Peroxisome		Small vesicle-like organelle that contain enzymes that break down fatty acids	Eukaryotic Cells	Both (though rare in Plant cells)

Cell Part/Organelle	Sketch & Description of Structure (incl. biomolecules)	Function	Pro-/Eukaryotic Cells (or both)	Animal/Plant cells (or both)
Mitochondria		• Site of cellular respiration ◦ converts energy in glucose → ATP • “Powerhouse” of cell (site of ATP production) • Contains small quantities of mitochondrial DNA • Contains inner/outer membrane, cristae, & matrix	Eukaryotic Cells	Both
Chloroplast		• Site of photosynthesis ◦ Uses sunlight, water and CO₂ to create glucose • Contains chlorophyll (pigment that absorbs solar energy & reflect green light) • Contains inner/outer membrane, thylakoids, & stroma	Eukaryotic Cells	Plant Cells
Flagella		• Small “tail-like” appendage that helps cells with motility (swimming) • Found on sperm cells	Both (Animal cells & some bacterial cells)	Animal Cells
Cilia		• Tiny, hair-like projections that occur in large numbers on the outside of certain types of cells • Allows for cell motility	Eukaryotic Cells	Animal Cells
Capsule		• A polysaccharide cellular envelope that surrounds the cell membrane/wall of some prokaryotic cells • A protective layer	Prokaryotic Cells	

