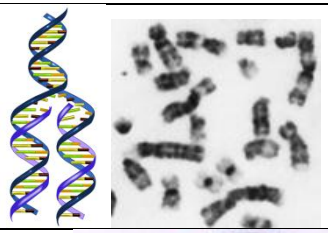
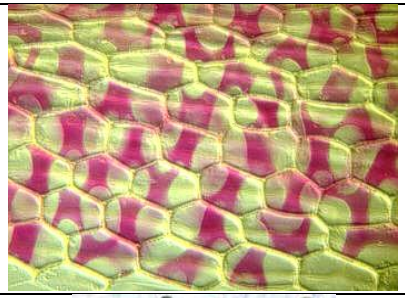
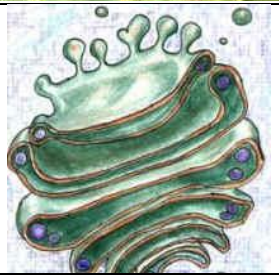
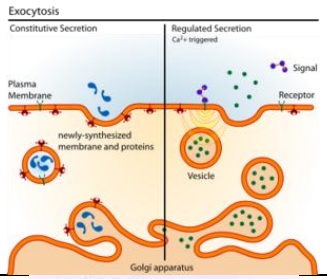
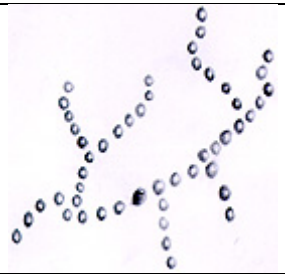
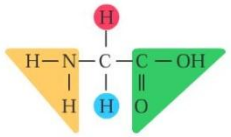
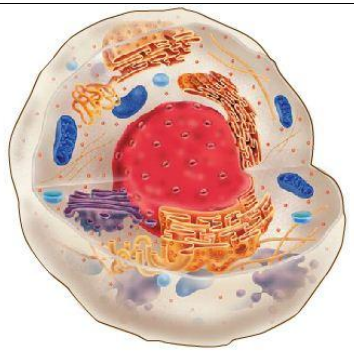
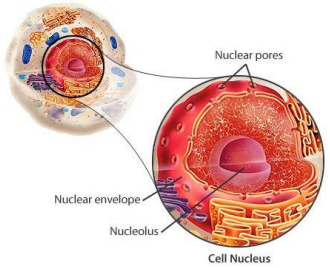
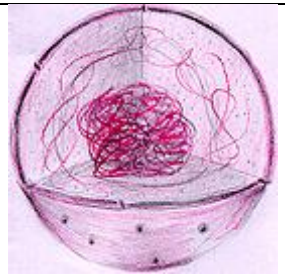
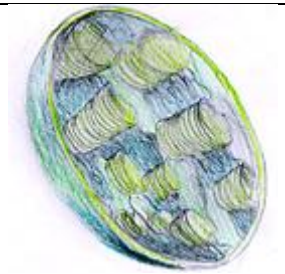
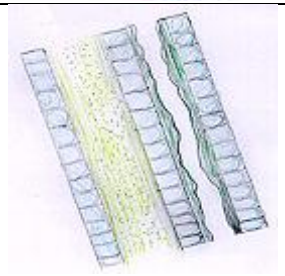
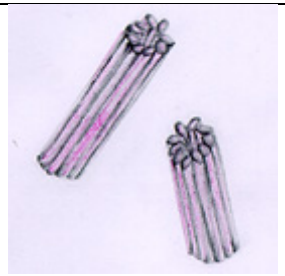
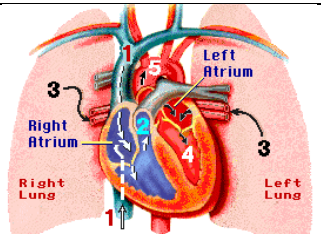
| CELL PART | Expanded Definition | Cell Structure Illustration | Function Summary | Location |
|---|---|---|---|---|
| **DNA** | is the material that contains the information that determines inherited characteristics. Are composed of a nitrogen base, a phosphate group, and a sugar. Found on Chromosomes pictured left. |  | • Carry genetic material | **ALL CELLS** |
| **Lysosome** | cell organelle that contains digestive enzymes. These enzymes can digest, or break down, proteins, carbohydrates, lipids, DNA, and RNA.<br>Work in two main ways:<br>1) by enclosing and digesting food using a vesicle of enzymes (**phagocytosis**) 2) by recycling organelles (**autophagy**) |  | • Breaks down larger food molecules<br>• Digest old cell parts | **Common in Animals**<br><br>**Uncommon in Plants** |
| **Vacuole** | a large fluid-filled vesicle located in the cytoplasm of a plant cell or of certain protists.<br>store water, enzymes, and wastes make the cell rigid and help the plant to stand upright keep toxic wastes away from the rest of the cell |  | • Store food, water, metabolic and toxic wastes<br>• Store large amounts of food or sugar in plants | **Plant cells** Large, Single Vacuole<br><br>**Animal cells** have small vacuoles |
| **Golgi Complex** | cell organelle that helps make and package materials to be transported out of the cell.<br>Lipids and proteins from the ER are delivered here, to be modified for different functions. |  | • Modify proteins made by cells<br>• Package and export proteins | All cells except prokaryotic cells |

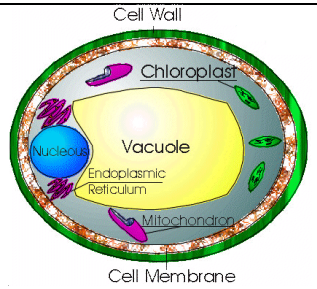
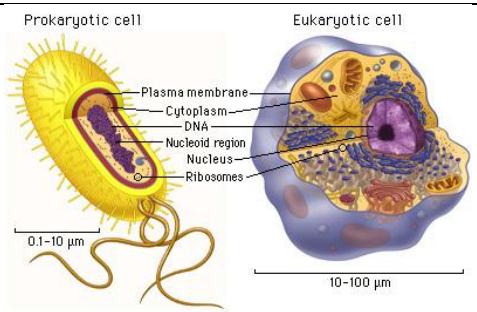
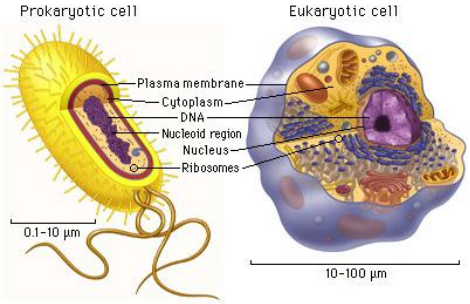
| | | | | |
|---|---|---|---|---|
| **Vesicles** | Organelles that are pinched off pieces Golgi apparatus's membrane that that form a small compartment. These small compartment transport its contents to other parts of the cell or outside of the cell. |  | • Transport cellular materials | All cells except prokaryotic cells |
| **Mitochondria** | the cell organelle that is surrounded by two membranes and that is the site of cellular respiration, which produces ATP. |  | • Breaks down sugar (glucose) molecules to release energy<br>• Site of aerobic cellular respiration | All cells except prokaryotic cells |
| **Ribosome** | is a small organelle where proteins are made (assembled) from amino acids. |  | • Synthesize proteins<br>• | All cells |
| **Amino Acid** | is an organic molecule that contains a carboxyl group and an amino group. They combine to form proteins, which are the principal components of all cells. |  | | All cells |

| | | | | |
|---|---|---|---|---|
| **Cytoplasm** | is the region of the cell within the membrane that includes the fluid, the cytoskeleton, and all of the organelles except the nucleus. Contains **membrane-covered organelles** include the mitochondria, the endoplasmic reticulum and, the Golgi apparatus.<br><br>**Cytosol,** which is the soluble portion of the cytoplasm, includes molecules and small particles, such as ribosomes, but not the organelles covered with membranes. |  | • Supports and protects cell organelles | All Cells |
| **Endoplasmic Reticulum** | is a system of membranous tubules and sacs in eukaryotic cells that functions as a path along which molecules move from one part of the cell to another. **Can be Smooth or Rough** |  | • Carries material through the cell<br>• Aids in making proteins | All cells except prokaryotic cells |
| **Nucleus** | largest and most visible organelle in a eukaryotic cell. stores the DNA that contains information that tells the cell how to make all of the proteins that control cell function. It is covered by a double membrane, called the *nuclear envelope*, through which materials can pass. |  | • Controls cell activities<br>• Contains the hereditary material of the cell | All cells except prokaryotic cells |

| | | | | |
|---|---|---|---|---|
| **Nucleolus** | Contains RNA for protein manufacture. |  | • Makes ribosomes | All cells except prokaryotic cells |
| **Cytoskeleton** | - Composed of microtubules<br>- Supports cell and provides shape<br>- Aids movement of materials in and out of cells |  | • Strengthen cell and maintain the shape<br>• Moves organelles within the cell | All Cells |
| **Chloroplast** | Contain green chlorophyll where photosynthesis takes place |  | • Uses energy from the sun to make food (glucose) for the plant<br>• Process called photosynthesis<br>• Release oxygen | Plant and Algae Cells<br>NOT Animal Cells |
| **Cell Wall** | Most commonly found in plant cells<br>- Controls turgity<br>-Made of Cellulose<br>- Primary cell wall: extremely elastic<br>- Secondary cell wall: forms around primary cell wall after growth is complete |  | • Supports (grow tall)<br>• Protection<br>• Allows Water, Oxygen, and Carbon Dioxide to diffuse in and out of the cell | Plant, Fungi, and Bacterial Cells NOT Animal Cells |

| | | | | |
|---|---|---|---|---|
| **Centriole** | Involved in cellular division- Paired structures near the nucleus |  | Separate chomosome pairs during mitosis | Animal Cells |
| **Cell (Plasma) Membrane** | forms a barrier between the inside of the cell and the outside, so that the chemical environments on the two sides can be different. |  | • Support<br>• Protection<br>• Controls movement of materials in/out of cell<br>• Barrier between cell and its environment | All Cells |
| **OTHER IMPORTANT CELL RELATED VOCABULARY** | | | | |
| **Tissue** | Any of the distinct types of material of which animals or plants are made, **consisting of specialized cells and their products.** |  | | |
| **Organ** | A relatively independent part of the body that carries out one or more special functions, **consisting of specialized tissue.** |  | | |

| | | | | |
|---|---|---|---|---|
| **Organ System** | A group of organs that work together to perform a complex function |  | | |
| **Organism** | **A living thing.**<br>• Plant<br>• Animal<br>• Fungi<br>• Protists<br>• Bacteria |  | | |
| **Structure** | The arrangement of and relations between the parts or elements of something complex. | | | |
| **Function** | What a structure does.<br>How a structure works.<br>The job a structure performs.<br>The way a structure operates. | the structure of a given cellular component has *a lot* to do with its function. In fact, one mantra of biology encapsulates this idea perfectly: **"*Structure* dictates *function*"** (you should probably memorize this phrase now). | | |

| | | | | |
|---|---|---|---|---|
| **Organelle** | Tiny structures within cells that have specialized structures and perfom |  | | |
| **Prokaryote** | Single cellular organisms that lack a membrane-bound nucleus are called prokaryotes (Pro- means the **before** nuclei). |  | | |
| **Eukaryote** | A single-celled or multicellular organism whose **cells** contain a distinct membrane-bound nucleus. (Eu- means TRUE) |  | | |