***Cell Organelles***

***Complete the following table:***

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| --- | --- | --- | --- |
| **Organelle** | **Plant/Animal/Both** | **Structure** | **Function** |
| **Cell membrane**  **http://web.rollins.edu/~jsiry/memb-mod.jpg** | Both | The outer most boundary of the cell composed of proteins, a small amounts of carbohydrates, and a double layer (or bilayer) of phospholipid molecule | Holds the content of the cell in place, and regulates the movement of materials into and out of the cell. |
| **Cell wall**  http://biology.unm.edu/ccouncil/Biology_124/Images/cellwall.jpeg | Plant | Thick, rigid membrane composed mainly of cellulose | Protects and supports plant cells |
| **Cytoplasm**  http://www.learner.org/courses/essential/life/images/show1.cytoplasm.jpg | Both | Semi fluid material that forms a nutrient pool | 1. Stores and transports absorbed   nutrients found in the cells.   1. Store the waste until disposal can   be carried out |
| **Ribosome**  http://www.biologie.uni-hamburg.de/b-online/library/onlinebio/ribosome.gif | Both | Small particles found floating in the cytoplasm or attached to a membrane.  Made of RNA and protein | Used by the cell to produce Proteins. Generally, free-floating ribosomes produce proteins that are used in the cell, and membrane-attached ribosomes manufacture proteins for use outside the cell. |
| **Rough ER**  http://www.cartage.org.lb/en/themes/sciences/zoology/animalphysiology/anatomy/animalcellstructure/EndoplasmicReticulum/endoplasmic.jpg | Both | Network of membranous tubules in the cytoplasm of the cell. This ER is studded with Ribosomes | Because the rough endoplasmic reticulum contains ribosomes, many proteins are manufactured on it.  These proteins are then packages in **transport vesicles** and transported to the Golgi Body |
| **Smooth ER**  https://middletownhighschool.wikispaces.com/file/view/ser.gif/173987969/ser.gif | Both | Network of membranous tubules in the cytoplasm of the cell. This ER contains no Ribosomes | Involved in the production of fats; mainly phospholipids,  These lipids are then packages in **transport vesicles** and transported to the Golgi Body |
| **Golgi Body**  http://www.biology.iupui.edu/biocourses/N100/images/golgi.gif | Both | Series of flattened sacs usually located  near the nucleus | Stores, the chemically changes the fats and proteins produced by the endoplasmic reticulum. These molecules are then packages in **secretory vesicles** for further transport. |
| **Vesicles**  http://www.williamsclass.com/SeventhScienceWork/ImagesCells/vesicle.jpg | Both | Small protein filled sac or packet released by the  Golgi apparatus (Body) | Vesicles move towards the plasma membrane, fuse with it, and release large molecule such as enzymes and hormones from the cell.  (This process is called ***EXOCYTOSIS)*** |
| **Central Vacuole**  **http://www.cwinstead.com/cellcityproject/vacuole.gif** | Plant | A large, membrane bound space within a  plant cell filled with water solution containing dissolved sugars, minerals, and proteins | They keep the cell membrane pressed firmly against the cell wall. This pressure is called **turgor pressure**, and is responsible for the firm texture of fresh vegetables. When the plant loses water, the vacuole shrinks, and the decrease in *turgor pressure* causes structures to become limp and wilted. |
| **Chloroplast**http://1.bp.blogspot.com/_Op3p-2x2uyA/S-PTcVEuoUI/AAAAAAAAABY/Oq9VxyhAJjA/s1600/LUV_fig4_chloroplast_v(1).gif | Plant | An elongated or disc-shaped organelle containing chlorophyll. | Specialize in photosynthesis, a process in which plants combine carbon dioxide from the air with water from the roots, in the presents of light to produce sugar and releasing oxygen. |
| **Mitochondria**  http://micro.magnet.fsu.edu/cells/mitochondria/images/mitochondriafigure1.jpg | Both | Round, oval or elongated structures with a double membrane. The inner membrane in thrown into folds | Provides the cell with energy. ***Energy is not created in the mitochondria.*** Nutrient molecules (glucose) are transported to the mitochondria, and it is the breakdown of the covalent bonds that releases the energy. This energy is then stored in ATP. |
| **Nucleus**  http://www.biologie.uni-hamburg.de/b-online/library/onlinebio/nucleus_1.gif | Both | Round, sometimes oval body; surrounded by nuclear envelope | Contains the genetic information necessary for control of cell structure and function. DNA contain hereditary information. |
| **Nucleolus**  http://micro.magnet.fsu.edu/cells/nucleus/images/nucleolusfigure1.jpg | Both | Round or oval body in the nucleus consisting of  DNA and RNA | Produces ribosomal RNA (rRNA). It is believed the rRNA directs the formation of ribosomes that are important to protein synthesis. |
| **Nuclear envelope**  http://micro.magnet.fsu.edu/cells/nucleus/images/nuclearenvelopefigure1.jpg | Both | Porous double membrane surrounding the nucleus | Allows the exchange of materials between the nucleus and the cytoplasm. |
| **Nuclear pores**  http://www.sciencephoto.com/images/download_wm_image.html/C0058072-Freeze_fracture_view_of_nuclear_pores-SPL.jpg?id=670058072 | Both | Nuclear pore complexes are large channels that penetrate the nuclear envelope, thereby connecting the nuclear interior with the cytoplasm. | Nuclear pores allow the transport of water-soluble molecules across the nuclear envelope. This transport includes [RNA](http://en.wikipedia.org/wiki/RNA) and [ribosomes](http://en.wikipedia.org/wiki/Ribosomes) moving from nucleus to the cytoplasm and [proteins](http://en.wikipedia.org/wiki/Protein), [carbohydrates](http://en.wikipedia.org/wiki/Carbohydrates), and [lipids](http://en.wikipedia.org/wiki/Lipids) moving into the nucleus. |
| **Centrioles**  http://micro.magnet.fsu.edu/cells/centrioles/images/centriolesfigure1.jpg | Animal | Small cylindrical bodies composed of microtubules arranged in nine sets of triplets; found in animal cells, not in plant cells | Centriole plays a crucial role at the time of cell division. |
| **Lysosomes** | Animal | Round membrane-bound structure containing digestive enzymes | A vesicle forms by the Golgi apparatus, this organelle can contain enzymes (proteins), that are used to digest food particles brought into the cell from extracellular fluid. |