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| Organelle | Description | Function | Diagram |
| Nucleus | * The Largest organelle (10-20μm in diameter).
* Roughly spherical.
* It is double membrane bound
 | * Contains chromatin – mixture of DNA and associated proteins.
* It controls protein synthesis (makes mRNA)
* It will always divide before the cell itself divides
 | cell_nucleus1.gif  |
| Nucleolus | * Area of dense chromatin within the nucleus
* It is a granular structure and is not membrane bound
 | * The nucleolus makes ribosomal RNA (rRNA) and assembles ribosomes
 | http://t1.gstatic.com/images?q=tbn:ANd9GcSSuOLl9Dn5k4gxNmCUZ3PFnd8GgYAoCXvpcAnKJw20VU6YKSnJhQ |
| Nuclear Envelope | * Double layered membrane
* Surrounds the nucleus separating the contents of the nucleus from the cytoplasm.
 | * Perforated with holes to allow the movement of substances between the nucleus and cytoplasm.
 | http://t3.gstatic.com/images?q=tbn:ANd9GcQh1W0pEyVTZi9HlJ8McQo2oIntq9SMN8g1htyF2fdspsBveSTV |
| Rough Endoplasmic Reticulum | * Consists of flattened sacs called cisternae
* Continuous with the outer nuclear membrane.
* Studded with Ribosomes
 | * The ribosomes make protein which is then transported within the ER’s flattened sac-like sheets called cisternae.
* Some of the proteins are secreted by the cell, others are used within the cell.
 | http://z.about.com/d/biology/1/0/L/1/rougher.jpgcell_er2.jpg |
| Smooth Endoplasmic Reticulum | * Consists of flattened sacs called cisternae
* Not studded with ribosomes
 | * Production of lipids
 | smooth er http://t1.gstatic.com/images?q=tbn:ANd9GcSSuOLl9Dn5k4gxNmCUZ3PFnd8GgYAoCXvpcAnKJw20VU6YKSnJhQ |
| Golgi apparatus | * A stack of membrane bound flattened sacs.
 | * Receives proteins packaged in vesicles from the ER.
* Modifies proteins e.g. by the addition of sugars.
* Packages modified proteins into vesicles for transportation to the cell surface membrane and secretion out of the cell.
 | http://t0.gstatic.com/images?q=tbn:ANd9GcQ636MnBILo0lhdpYY5lF0ri79qKt5pRc40cM7PXDiZNtd_8BQ2 http://t1.gstatic.com/images?q=tbn:ANd9GcQ6Lj4eliuU_f0l9tOCNOmu811XrFkaf-zugxnHTL4V7p_gebbn |
| Ribosome | * Small organelle
* Not membrane bound
* Consists of two subunits
 | * The site of protein synthesis.
* mRNA from the nucleus is read and used to assemble amino acids.
 | http://t1.gstatic.com/images?q=tbn:ANd9GcRk18tWogqooa_BMIOY-PTd62H4GDg5VhiCkAeb8ch3gm1oZhCPcell_ribosome2 |
| Lysosome | * Spherical sacs surrounded by a single layer of membrane.
* Contain powerful digestive enzymes.
 | * Protects the cell from enzymes contained within.
* Enzymes are used in the breakdown of materials e.g. cells taken up by white blood cells taken up in phagocytosis.
 | cell_lysosome1http://t2.gstatic.com/images?q=tbn:ANd9GcRCboZzAVa6IQlbeTh0tNPZSS65oSVwkrhPNU6UYaauv3l_xT2i |
| Vesicle | * Membrane bound sac
 | * Used to move substances around cells.
 |  |
| Plasma Membrane (Cell surface membrane) | * Present in all living cells
* Provides a selective barrier between the cells contents and the external environment
 | * Controls the passage of substances into and out of the cell .
* Regulates the internal environment of the cell.
 | http://t1.gstatic.com/images?q=tbn:ANd9GcRLQDf5IN2RZG9Dy1-HOem3F71dp1zZPzlwyo--KC0zYLsFuxiS4Q |
| Mitochondria | * Spherical sausage shaped organelle formed from two membranes.
* The inner membrane is highly folded to form cristae.
 | * Site of aerobic respiration
* Produce adenosine triphosphate (ATP)
 | mitochondriaemmitochondria |
| Chloroplast | * Found only in plant cells
* Two layers of membranes
* The inner layer is continuous and forms flattened membrane sacs called thylakoids.
 | * Site of photosynthesis a process in which Glucose is produced.
* Contain chlorophyll: a photosynthetic pigment.
 | chloroplasthttp://t0.gstatic.com/images?q=tbn:ANd9GcQFC30oy8M2dxaP7T6xmXkf80NZOaIfe8dGdwe9h333_SbckrJqww |
| Cellulose cell wall | * On the outside of the plant cells plasma membrane.
 | * Supports the cell
* Helps maintain sell shape
 | http://t2.gstatic.com/images?q=tbn:ANd9GcRnANoOnWKtc4FtNTmz6nz02rjF3lIl88zLLCwCLs08HzJxTLzK |
| Centrioles | * Small tubes of protein fibres.
* There is a pair of them next to the nucleus in animal cells and some protocists.
 | * Take part in cell division.
* The spindle fibres used to move chromosomes grow from this organelle.
 | centrioles |
| Vacuole | * A large membrane bound sac containing water and solutes.
* Found in plant cells
 | * Storage of water and solutes.
* Maintenance of cell turgidity.
 | http://t2.gstatic.com/images?q=tbn:ANd9GcRCM-QdSqV3FZwWNm7Ip04vzEkTnrAyAPaQQ9UOEv3Ji_rt3YnqQw |
| Flagella | * Made of protein, these extend from the cell surface.
* The Latin term *flagellum* means whip.
 | * Allow the cell to swim.
* Usually found on bacterial cells.
* Also sensitive to chemicals and temperatures outside the cell.
 | http://textbookofbacteriology.net/S.enterica.jpeg |
| Cilia | * Cilia are slender, microscopic, hair-like structures.
* They extend from the surface of nearly all mammalian cells.
 | 2 Types:* Motile cilia: they have a rhythmic waving or beating motion. These keep airways clear of mucus and dirt, for example.
* Non-Motile or Primary cilia. These do not move. Some act as sensory organs for the cell eg in the eye they are found in photoreceptor cells.
 | http://t0.gstatic.com/images?q=tbn:ANd9GcR4mCjOjo-s-DsIhPwPQ4VbAbPImcfbeiOoUemLWjmiq1q9IW6U |

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| Animal cellNucleolusNuclear envelope with poresRough endoplasmic reticulumSmooth endoplasmic reticulumMitochondrionGolgi bodyVesicleLysosomeCentrioleNucleusCell/plasma membrane |
| Plant cellNucleusNucleolusNuclear envelope with poresRough endoplasmic reticulumSmooth endoplasmic reticulumMitochondrionGolgi bodyChloroplastCell wallCentral vacuole |

Cell/plasma membrane