

A Level Cell Structure Key Words

| Key Word | Definition |
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| Prokaryotic cells | Single-celled organism, smaller and simpler than eukaryotic cells. E.g. bacteria |
| Eukaryotic cells | Make up multi-cellular organisms e.g. animals and plants are made of eukaryotic cells |
| Organelles | Part of the cell (sub-cellular structure) e.g. nucleus, mitochondria, ribosomes etc. |
| Cell ultrastructure | All of the organelles plus their internal structures. You can see this through an electron microscope |
| Plasma membrane | Cell surface membrane - regulates the movement of substances into and out of the cell, and allows the cell to respond to chemicals (e.g. hormones) as it has receptors within it |
| Cell wall | Rigid structure surrounding the plant cell; made of cellulose for plants. Needed for support |
| Plasmodesmata | Channels within the cell wall, for exchanging substances between adjacent cells |
| Nucleus | It is surrounded by a <u>double membrane</u> nuclear envelope with pores within it (to allow mRNA out and ribosomes that are made in the nucleolus out). It contains chromatin (DNA and proteins) and a nucleolus |
| Nucleolus | Makes the ribosomes |
| Chromatin | DNA and proteins – the chromatin forms chromosomes during cell division |
| Lysosome | Contains digestive enzymes which can be used to break down worn out organelles or invading microbes. It's important that the enzymes are kept separate from the other cell organelles by the lysosome membrane because if not they could break down the organelles when this is not needed |
| Ribosome | They either float freely or are attached to the RER. They are where proteins are made. |
| Rough endoplasmic reticulum (RER) | System of fluid-filled sacs covered with ribosomes. They fold the proteins and do the initial processing of the proteins (e.g. adding a sugar) |
| Smooth endoplasmic reticulum (SER) | System of fluid-filled sacs. This is where lipids are made and processing of the lipids starts |

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| Vesicle | Fluid-filled sac, it transports substances into and out of the cell (via the plasma membrane). They can be formed from the RER, SER or the golgi apparatus |
| Golgi apparatus | System of fluid-filled sacs. They further process the proteins and lipids and they also make the lysosomes |
| Mitochondria | <u>Double-membraned</u> organelle. They contain folds (cristae) as well as the matrix where enzymes needed for respiration are |
| Chloroplasts | <u>Double membraned</u> organelles. They contain thylakoid membranes stacked on top of each other (grana) linked by lamellae. Photosynthesis happens in the thylakoid membranes as well as the liquid surrounding this (the stroma) |
| Centriole | Made of microtubules (tiny protein cylinders). Involved in the separation of chromosomes during cell division |
| Cilia | Small, hair-like structures. They are made of 9 pairs of microtubules around the outer edge and one pair in the middle, these allow for movement of the cilia |
| Flagellum | Same microtubule structure as cilia but they are longer e.g sperm tail. Again they are for movement |
| Plasmid | Ring of DNA found in bacterial cells |
| Cytoskeleton | The network of protein threads running through the cytoplasm (microfilaments and microtubules) |
| Microfilaments | Very thin protein strands (whereas microtubules are tiny protein cylinders) |