

# Cells

- There are two types of cell, prokaryotic (bacteria) and eukaryotic (animal, plant, fungi and protocista (unicellular organisms)).
- Prokaryotes have no nucleolus – the DNA is in the cytoplasm, and it can form small circular strands of DNA called plasmids.
- Eukaryotic cells all have their DNA enclosed in a nucleus.
- Note that viruses are not cells, by DNA with a protein coating.
- Prokaryotic cells all have small ribosomes, whereas eukaryotic all have larger ribosomes.
- All eukaryotic cells have a nucleus, mitochondria, Golgi body, vesicles and endoplasmic reticulum. Prokaryotic have none of these organelles.
- Prokaryotic cells have cell walls, but only plant cells and fungi have walls in the eukaryotic class.
- Any eukaryotic cell with a flagella have a 9 + 2 microtubule arrangement, but prokaryotic do not have a 9 + 2 arrangement.
- A bacterial cell contains cytoplasm, nucleus and ribosomes. Its external structure is made up of a cytoplasmic membrane, a cell wall and a capsule, which is surrounded by pilli, which is a type of a small hair, which coats the outer body.
- A plant cell contains cytoplasm, a vacuole, mitochondria, Golgi, smooth and rough endoplasmic reticulum, a nucleus, ribosomes and a peroxisome. Its body is made of a plasma membrane and a cell wall. This wall keeps it rigid.
- An animal cell contains Cytoplasm, Centriols, Peroxisome, Lysosome's, Microfilaments, Mitochondria, Rough and Smooth Endoplasmic Reticulum, a Nucleus, Chromatin, Ribosome's, Microtubules and a Golgi apparatus. Its made of a Plasma Membrane with Cilia, small hairs, surrounding the entire cell.
- The Cytoplasm is what suspends all the other organelles in the cell
- Lysosomes are made by the smooth ER, and are used to destroy and recycle old organelles and microorganisms that the cell no longer needs. Mitochondria are used to produce energy (in the form of ATP) in the cell.
- The rough endoplasmic reticulum is used to produce proteins, using ribosomes that cover their surface. The proteins are normally in the form of mostly tRNA. The nucleus controls the whole cell, and is the largest organelle.

