- **Eukaryotic Cells** are organisms that nave DNA enclosed inside of a nucleus. Eukaryotes could be single or multicellular, and usually have membranes. Eukaryotic cells are much larger than prokaryotic cells. Eukaryotes have lysosomes, endoplasmic reticulum, Golgi apparatus and a cytoskeleton, and prokaryotes do not.
- **Chloroplast** captures energy from sunlight and creates sugars from it.
- **Cell Wall** is only found in plant cells and provides strength and support for the plant.
- **Endoplasmic Reticulum** is a set of tubes and flattened sacs that prepare items for transport around and out of the cell.
- **Lysosome** "clean" the cell by taking the debris.
- **Cytoskeleton** organizes the inside of the cell, supports the movement inside of the cell, gives shape to cells without walls, and allows movement in some cells.
- **Golgi** (apparatus) directs proteins and lipids to their final destinations.
- **Endosymbiosis** is how eukaryotes derrived from prokaryotes. The arrangement of the mitochondria and chloroplasts has the exact same membrane folded into the shape of the eukaryotic cell membrane. They both also have different DNA than the DNA in the cell's nucleus. They both also have the ribosomes of prokaryotes and not eukaryotes.

Viruses

Viruses have DNA, reproduce, and evolve. They are much smaller and simpler than a cell and typically have DNA or RNA wrapped in proteins. Some have a lipid layer which acts as the plasma membrane. They also lack the structures that allow homeostasis, reproduction, and metabolism in cells. They release their genetic material into the cytoplasm and take over the host cell's metabolism.

Artificial Life

Scientists have created the first synthetic self-sustaining cell. They isolated bacteria cells and removed the original DNA. They created new DNA through a long process of putting nucleic acids in the correct sequence. They added it to the old bacteria cell, and "booted it up". It then began to reproduce. Some scientists do not view this as having created a new life form because it was put together by computers-it wasn't naturally occurring. The creators might have gotten the sequence from other pre-existing sequences and they used a pre-existing cell for the container. Some people are concerned about this because this could create viruses and epidemics and uncontrollable problems that weren't anticipated. But, on the flipside, it could help produce vaccines and other helpful concoctions.