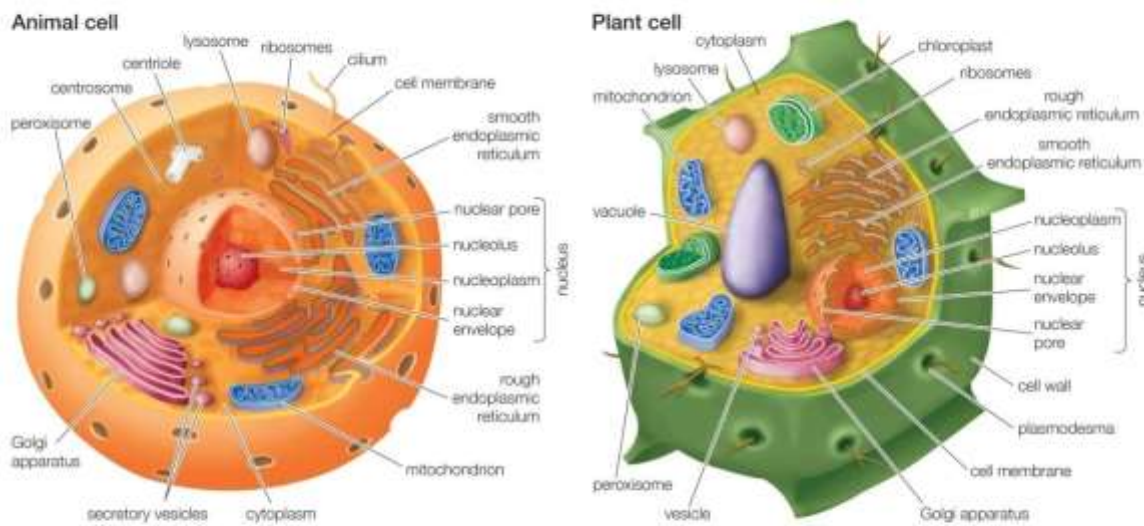


## CELL STRUCTURE

Cell has a living material called protoplasm which consists of the cytoplasm and a nucleus. Cell has different structures that are referred to as organelles. The precise structure of a cell is closely related to the work it does. Plants and animals are composed of cells.



## PRIMARY FUNCTIONS OF CELLS ORGANELLES

	ORGANELLES	PRIMARY FUNCTIONS
1.	Nucleus	Storage of hereditary information, control of cell activities
2.	Vacuoles	Storage, it contains cell sap which acts as an osmoregulation by helping to remove excess water in cell.
3.	Ribosomes	Sites of protein synthesis
4.	Endoplasmic reticulum	Distribution/transportation of proteins and other materials throughout cell.
5.	Mitochondria	Sites of chemical energy conversion for cell activities.(the power house of the cell)
6.	Chloroplasts	Contains chlorophyll making it the Sites of photosynthesis in green plants
7.	Lysosomes	Digestion, waste removal and transport of materials out of cell.and site of respiratory enzymes
8.	Centrioles	Involved in cell division and may acts as basal body from which flagella or cilia arise.
9.	Golgi apparatus	Synthesis, packaging and distribution of materials.
10.	Plasma/Cell membrane	Controls the movement in and out of the cell.

11.	Cell wall	It provides mechanical support and gives plant definite shape.
12.	Cytoplasm	Site of all metabolic processes.

### **SIMILARITIES BETWEEN PLANTS AND ANIMALS CELLS**

Both plant and animal cells have in common the following organelles;

Nucleus  
 Mitochondrion  
 Cytoplasm  
 Ribosome  
 Cell membrane  
 Lysosome  
 Chromosome  
 Endoplasmic reticulum  
 Golgi bodies  
 Nucleolus

### **DIFFERENCES BETWEEN PLANT AND ANIMAL CELLS**

The difference between plant and animal cells is summarized in the table below.

	<b>PLANT CELL</b>	<b>ANIMAL CELL</b>
1.	Cellulose cell wall present	Cellulose cell wall absent
2.	Chloroplasts present	Chloroplasts absent
3.	A large central vacuole present	Small vacuoles may be present or absent
4.	Centrioles absent	Centrioles present
5.	Cytoplasm less dense and found along the peripheral of the cell	Cytoplasm dense and granular, and fills cell completely
6.	Starch granules present	Glycogen granules present

### **CELL THEORY**

Robert Hooke, an English scientist, looked at a thin slide of cork through his crude microscope in 1665. He saw the cell walls of dead cork cells in form of boxes which he called cells after the latin word meaning “Small room”. About 150 years later, with the use of improved microscopes, scientists realized that the important part of the cell was its living contents, not the wall.

In 1839, the German zoologist, Theodor Schwann, and the botanist Mathias Schleiden contributed to the cell theory. Also, in 1855, another German biologist, Rodolf Virchow states that cells come from cells.

The cell theory states that;

All living organisms are composed of one or more cells.

The cell is the structural and functional unit of all living organism: the basic organizational unit of life.

All existing cells come from the reproduction or pre-existing cells.

A cell contains information for its structural and functional development in its nucleic acids. This information is passed down from parent to offspring cells. (RNA – Ribonucleic acid, DNA – Deoxyribonucleic acid)