

Basic Concepts of Cell and its Structures

Subject: Science

THE CELL

Is the functional and structural unit of all living things, the cell is the smallest part of all living things, and performs vital functions such as: nutrition, respiration and growth, and cells can reproduce?

THE PLANTS HAVE CELLS

Plants as living things are made up of basic units called cells. The cells perform all the functions that allow plants to live.

The cells are formed by a series of structures that are:

- Cell membrane
- Cell wall
- Cytoplasm
- Nucleus
- Chromosomes
- Plastids
- Mitochondria
- Vacuole
- Golgi apparatus
- Ribosomes
- Smooth and Rough Endoplasmic reticulum

CELL MEMBRANE

Is the protective cover of the cell, which allows entry and exit of substances.

CELL WALL

It gives protection and support to the cell

CYTOPLASM

It is a gel-like substance inside the cell, where we will find the organelles, which carry out the vital processes of the cell

NUCLEUS

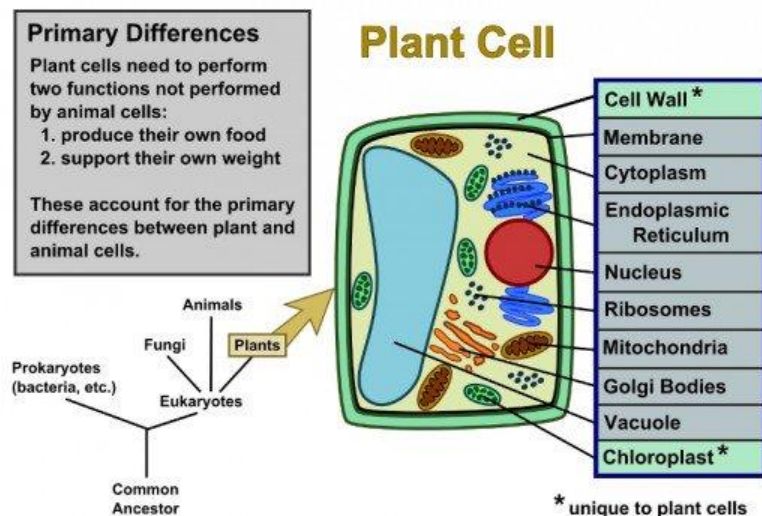
Controls all the activities of all cells, It is like the brain of the cell. They can have different shapes and be located in different parts.

CHROMOSOMES

Have the information of all the characteristics of plants

PLASTIDS

They are involved in the process of photosynthesis and determine the color of fruits and flowers. There are three types of plastids, chloroplasts, chromoplasts and leucoplasts.



CHLOROPLASTS: It gives the green color to plants and it is responsible for manufacturing the plant food

CHROMOPLASTS: Are the responsible for the yellow, orange and red color of the plants

LEUCOPLASTS: They are only found in the cells of adult plants that are not exposed to light

MITOCHONDRIA

They are organelles that act like a digestive system that takes in nutrients, breaks them down, and creates energy for the cell.

VACUOLE

There are bags where the cells retain water and other waste materials

GOLGI APPARATUS

Is the responsible of preparing the materials inside the cell to be sent outside?

RIBOSOMES

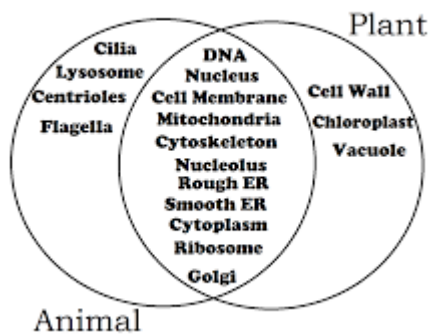
They are responsible for producing the cell proteins

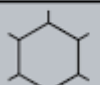
ENDOPLASMIC RETICULUM

Its main function is to intervene in the synthesis of proteins and intracellular transport

ROUGH: Intervenes in the synthesis of proteins and intracellular transport and has ribosomes attached to his membrane

SMOOTH: Does not have ribosomes. Is also involved in cellular transport and lipid synthesis



	Cell Wall	Shape	Chloroplast
Animal Cell	 Absent	 Irregular	 Absent
Plant Cell	 Present	 Fixed	 Present

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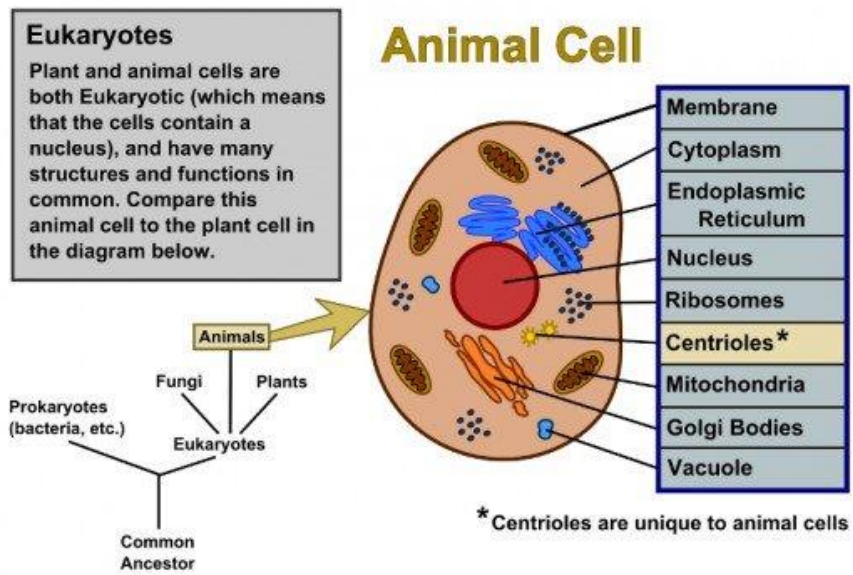
Difference between the Plant cell and the Animal Cell

THE ANIMALS HAVE CELLS

The animals are composed by cells highly organized. The animal cells have characteristics that differentiate them from plants cells.

STRUCTURES OF THE ANIMAL CELL

- Cell membrane
- Cytoplasm
- Nucleus
- Nucleolus
- Mitochondria
- Vacuole
- Lysosomes
- Ribosome
- Golgi apparatus
- Smooth and Rough Endoplasmic Reticulum



LYSOSOMES

Lysosomes are involved in cellular digestion (are the stomach of the cell).

S.No	Plant Cell	Animal Cell
Cell: size and shape	Plant cell have fixed and rectangular shape	The animal cell is irregular and round in shape
Cell wall	A cell wall is present	A cell wall is absent
Plasma membrane	Present	Present
Endoplasmic reticulum	Are present	Are present
Nucleus	Are present and lies on one side of the cell	Are present and lies in center of the cell
Lysosomes	Are present but are very rare	Are present
Centrosomes	Are absent	Are present
Golgi apparatus	Are present	Are present
Cytoplasm	Are present	Are present
Ribosome	Present	Present

Plastids	Are present with chloroplast in them.	Plastids are absent
Essential nutrients	The plant cell can synthesize amino acids, vitamins and coenzymes which are required by them	The animal cell cannot synthesize amino acids, vitamins, and coenzymes which are required by them
Vacuoles	Usually large and few central vacuoles	Usually small and numerous central vacuoles
Cilia	Are absent	Most of the animal cells consist of cilia in them
Mitochondria	Are present and are fewer.	Are present and are numerous.
Ribosomes	Are present	Are present

ACTIVITY

STRUCTURE	FUNCTION	ANIMAL	PLANT
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Nucleus

Mitochondria

Lysosomes

Cell Wall

Ribosomes

Chloroplasts

ACTIVITY

In the eighth of cardboard, made a diagram of the animal cell and its organelles.

Links for Video References:

<https://tinyurl.com/ydbn9xr8> / <https://tinyurl.com/yb6axcgo>