TISSUE

Classifaction of plants tissue

Plants tissue

- I) Meristematic cell
  - Apical
  - lateral
  - Intercalary
- II) Pemanents Cell
  - Simple
    - Protect and supporting
    - [tissue composed of single types of cell]
    - Parenchyma
    - Collenchyma
    - Sclerenchyma
  - Complex
    - Phloem
    - Xyle

Tissues:

Group of cells that work together to perform a particular functions is called tissue.

Plants tissue: On the basis of the dividing capicity, pla tissue are of two types:-

1. Meristematic tissue
2. Permanent tissue

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- the study of tissue is called histology
- In unicellular organism (Amoeba) single cell perfome all lifebacte functions. Where in the multicellular Organism (Plants and animals) show divisions of labour as plant tissue and animal tissue.

Plants tissue	Animal tissue
• Plants are stationary or fixed means they do not move.	• Animal move round in search of food, mates and shelter. they consume more energy as compair to plants. most of tissue are living.
• they are large quantity of supportive tissue. they are dead cell.	• Organisation of animals is complex.
• Organisation of plants is simple.	

Animal tissue

- **Epithelial**
  - Squamous
  - Cuboidal
  - Columar
  - Glandular
- **Connective**
  - Blood
    - Blood plasma
    - RBC
    - WBC
    - Plateters
  - Bone
  - Cartilage
  - Aclipese
  - Aerolar
- **muscular**
  - Muscular
    - → Striched (Voluntary).
    - → Unistriated (involuntary)
    - → Cardioc (involuntary)
- **Nervous**
  - Neurons

Plants tissue

1. Meristematic tissue - It is also called dividing tissue
   - The meristematic are the tissue having the power of cell division. it is found on there region of the plants which grows.

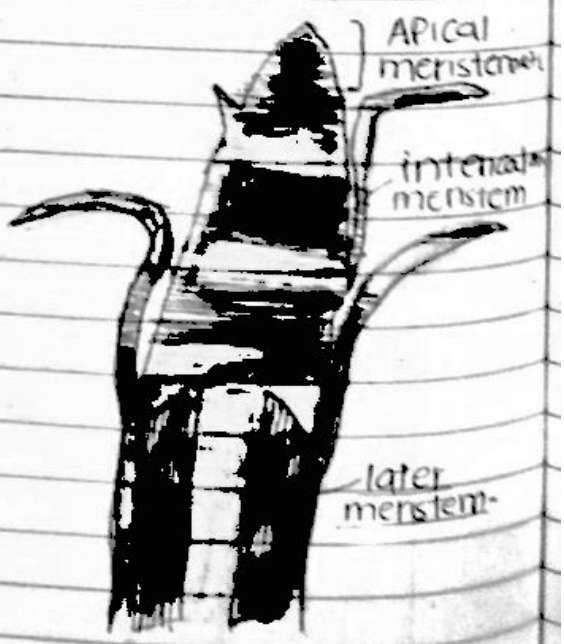
types of Meristematic tissue :-

i. Apical Meristems.
   it present at the growing tips of stem and roots and increases the lenght of the stem and root.

ii. Lateral Meristems.
   They are found beneath the bark and in vascular bundles of dicot roots and stem.
   The girth of the stem or root increased due to the lateral meristem (cambium).

iii. Intercalary meristem -
   Present at internodes or base of leaves and inscreases the length between the nods.

⇒ The cell of meristematic tissue are very active they have dense cytoplasm, thin cellulose walls and prominents nuclei.



II. Permanent tissue:

It is formed from the metistematic tissue. The cell lose the ability to divide permenent tissues. they are dividing into two categories:

a. Simple permanent -

Found beneath the epidermal layer. this tissue are made up of only one type of cells.

There are three types of Simple permanent tissue are found in the plants:

i. Parenchyma -

It is the most common simple permanent tissue.

- They have unspecialised cell with thin cell wall.
- They are living cell.
- They are loosely arranged thus intercellular spaces are found in this tissue.
- This tissue have capicity to store food. Paranchyma also contains chlorophyll in some cases and perform photosynthesis and then it is called chlorenchyma.

it given Mechanical support to the plants.

ii. collenchyma:

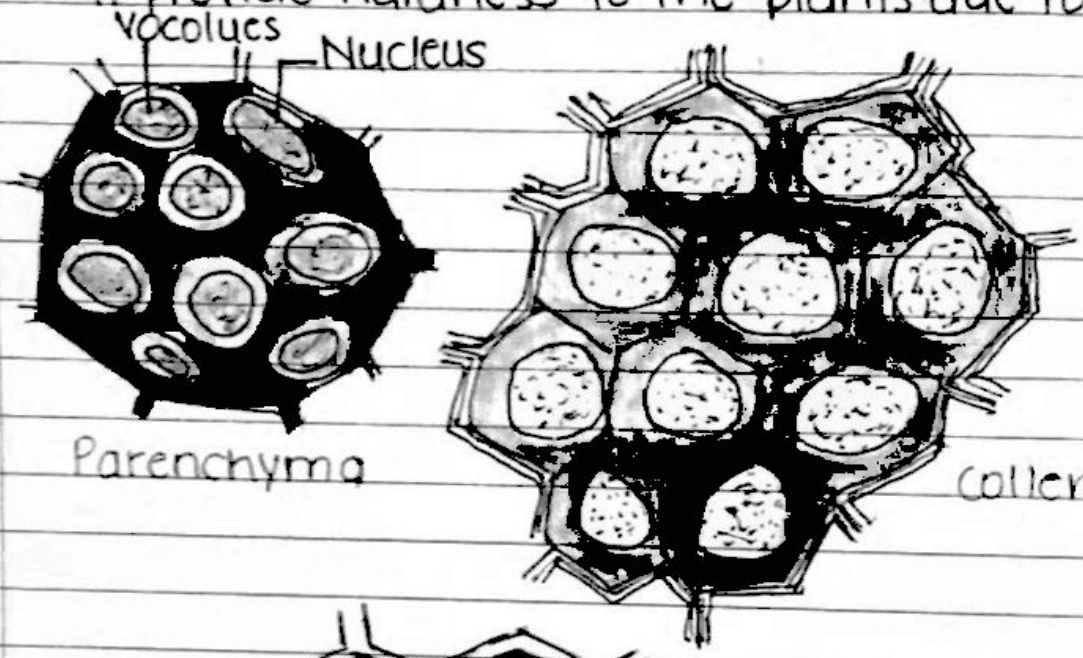
- The cell of this tissue are living elongated and irregular thickned at the corner.
- it provide mechanical support and elasticity and flexiblity to the plants.

It is very little intercellular space.

- The cell of collenchyma are located below the epidermis.

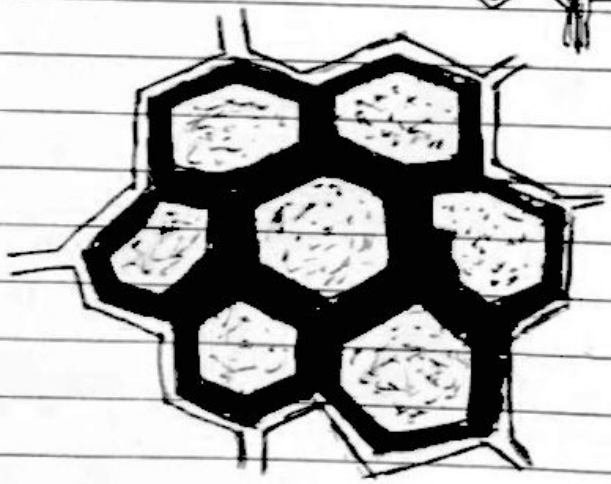
III. Sclerenchyma -

- Sclerenchyma is found in mature plants or tree
- This tissue makes the plants hard and stiff for example - husk of coconut.
- Specialized mature and dead cell.
- No intercellular space are found.
- it provide hardness to the plants due to lignin.



Parenchyma

Collenchyma



Sclerenchyma

Protective tissue → Protective tissue include Epidermis and cork.

I. Epidermis -

- The entire surface of a plants has an outer suface covering epidermis. It protect all the plants part.
- The epidermis has a minute openings in the leaves these openings are called the stomata.
- Each stomata is sourrounding or enclosed by two kidney-shaped cell called the guard cell. transpiration also occur through stomata.

Functions:

→ it is protective tissue of the plants body.
→ it protect the plants against the mechanical injury.

II. Cork (or Phellem).

- This is the outer ~~protitive~~ protective tissue which replaces the epidermal cells in older roots and stems
- cork cell are dead and lack intercellular space
- Functions

→ it prevent loss of water by evaporation.
→ it protect the plants against the mechanical injury. temprature extrems etc.

b Complex permanent tissue

it made up of more than one types of cell. These tissues constitute vascular bundles.

Types of parmament tissue :-

- Xylem :
- it conduct water and minerals from the root to the different parts of plants.
- Composed of four differents type of cells :- ~~Sieve tubes, companion cells, phloem,~~ tracheids, vessels, xylem parenchyma and xylem fibre.

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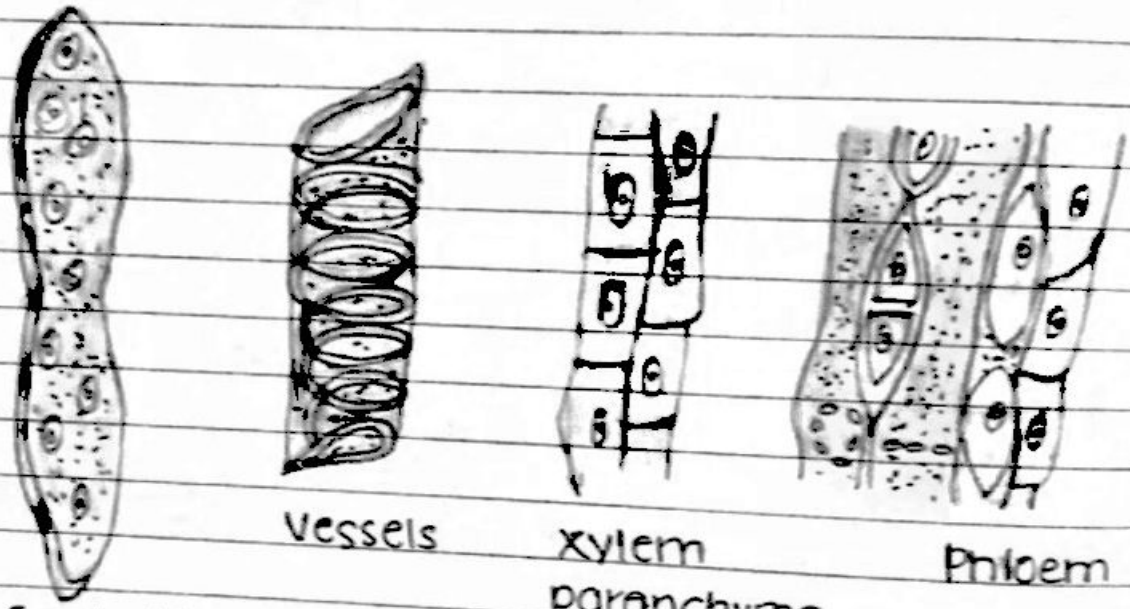
◦ Phloem

- Conducts food materials from the leaves to the different parts of the plants.
- Composed of four different types of cell- Sieve tubes, companion cell, phloem parenchyma and phloem fibres. Except for phloem fibres, all other phloem cell are living.



Xylem consists of four types of cells

→ Tracheids:
Elongated angular dead cells involved in conduction of water.

→ Vessles:
These are cylindrical tube like structure placed one above the other end which form chanel for conduction of water.

→ Xylem parenchyma:
thick cells used for storage of foods (strach)

→ Xylem scelerenchyma: Non-living fibres with thick walls and narrow cavities provide mechanical support

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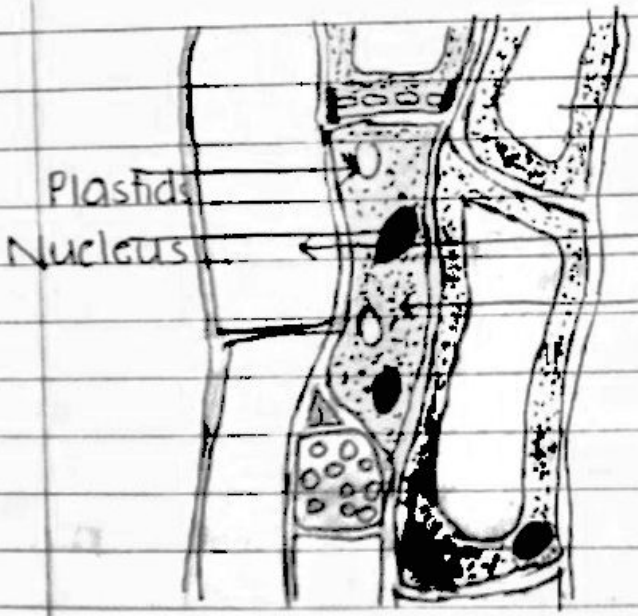
Phloem consists of four types of cells

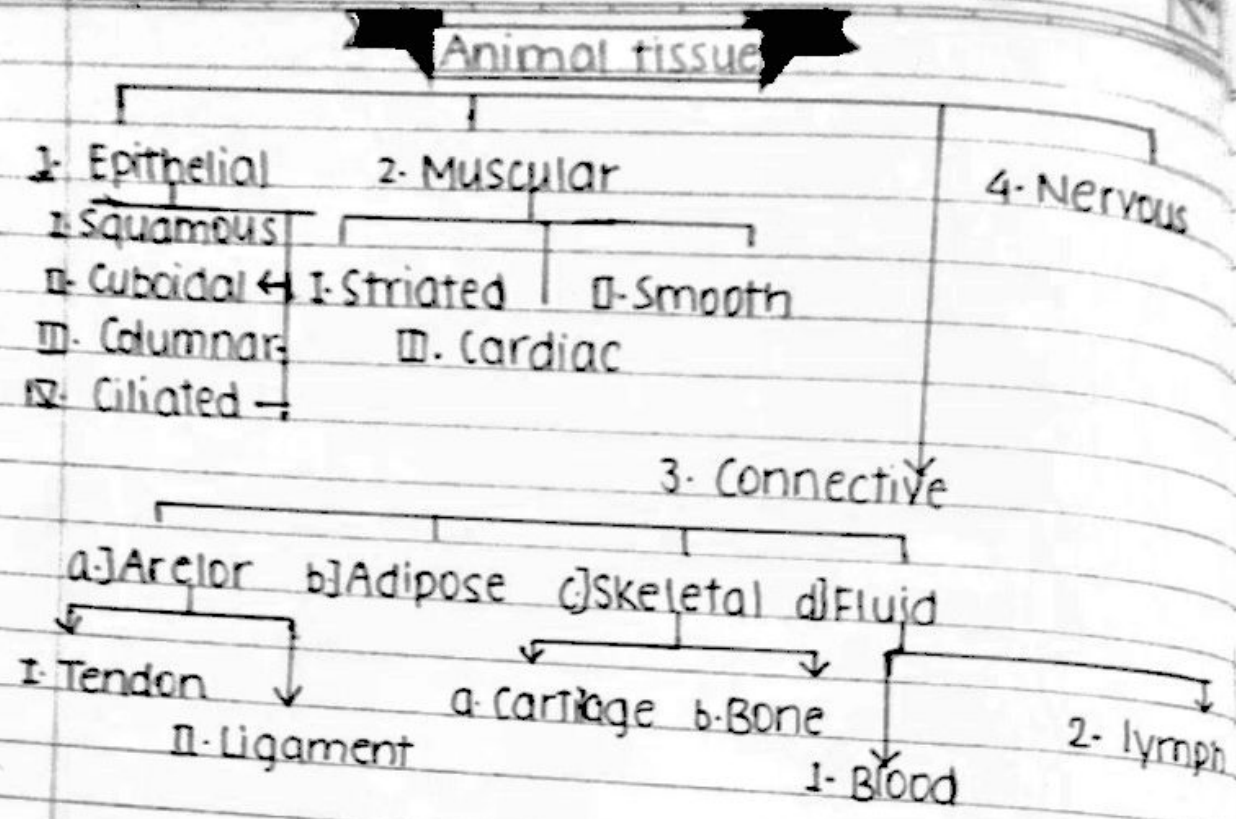
→ sieve tubes
they transport organic compounds (sugar) made during photosynthsis. placed end to end.
They

→ companion cells
it regulates the activity of sugar in sieve tubes.

→ Phloem Fibres
it provides mechanical support to sieve tubes.

→ Phloem parechyma
It store foods.





On the basis of the functions animals tissues are divided into four types:-

I. Epithelial tissue
II. Muscular tissue
III. Connective tissue
IV. Nervous tissue

1. Epithelial tissue

They covering of the protective tissue in the animal body are called epithelial tissue.

The cells of the body surface (i.e. epidermis) form the outer layer of the skin. these cells protects the underlying cells from drying, injury and chemical effects. they also protect the body from viral or becterial infections.

- Epthelieal tissue are tightly packed and form a continuous sheet. They have no intercellular space.

The various types of epithelial tissue are :-

I. Squamous epithelial tissue :-
Single layer of extremly thin and flat cells are called simple squamous
- Skin protect the body is also made of squamous epithelium cells are arranged in many layers to prevent wear and tear.

Location in human body.
it is present in lining of the mouth, oesophagus lung alveoli etc

II. Cuboidal epithelial-
it consists of cube-like cells that provide mechanical support.

location in human body.
linning of the kidney tubules and ducts of the the silavary glands.

III. Columnar epithelium
Consist of elongated or column-like cells to facilitate movements across the epithelium barriers.

Location in human body
Inner lining of instestine and gut.

IV. Ciliated epithelium
Cell may be cubical or columnar.
it have a free boarder which bread thread-like cytoplasmic outgrowths, called cillia. Such cell form the ciliated epithelium.

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Connective tissue

they are specialised to connect verious body organs.

The verious types of epit connective tissue are:

- Loose conective tissue → it include areolar and adipose connective tissue.

Areolar tissue :- It provided support to the internal organs and help in repair of tissue.
- Found in the skin and muscles, around the blood vessles, nerve e.t.c

Adipose tissue → Acts as the storage sites of fats, found between the below skin.
- it acts as an insulator for the body

- Dense Regular connective tissue :-

It is a fibrous connective tissue. it is characterised by the ordered and densely packed collection of fibers are cells.

There main components are:
- Ligaments

It is a connective tissue that connets a bone to bone. It is very elastic.
- Tendons

A connective tissue that connects a bone to a muscles. It has limeted flexibity.

- **Skeletal tissue**

it is a hard connective tissue that forms supportive framework of the body. It is of two types:

a) Cartilage:- The cartilage is a specialised connective tissue which is compact and less vascular. It has widely space out cells.

Functions: It provides support and flexiblity to the body parts. it smoothness surface at joints.

b) Bone:- Bone is very strong e and non-flexible tissue. like cartilege, bone is a specialar-sed connective tissue.
it is porous, highly vascular, mineralised hand and rigid.

Functions :- it provide shape to the body.
Protects vital body organs such as brain, lungs etc.

- **Fluid connective tissue**

Fluid connective tissue links the differents parts of the body and maintains the continuity in the body. it include blood and lymph.

a) blood ▼ blood is the fluid connective tissue. Inthis tissue cells move in a fluid or liquid matrix or a medium called blood plasma.
it contains the cell called blood carpuscels or blood ~~cells~~ cells.

These blood corpuscles or blood cells. These are :-

1. Red blood corpuscles (RBCs) or erythrocytes.
2. White blood cells (WBCs) or leucocytes.
3. Platelets

b] lymph:-

lymph is a colourless fluid that is filtered out of the blood capillaries. since In lymp White blood cells are found in abundance.

functions → lymph transport the nutrients (oxyen, gulcose) that may have been ~~flate~~ filtered out of the blood.

- it brings CO_2 and nitrogenous wastes from tissue fluid to blood.

- Muscular tissue

Muscular tissue consists of elongated cells also called muscles fibres.

→ This tissue is responsible for movement in our body.

→ Muscles cells contain special proteins called contractive ~~cells~~ proteins. Which help in contraction and relaxations in muscles.

Types of muscular cells are-

a) Striated muscles

They are also called voluntary muscles because these are under the control of one's will.

→ Muscles presents in our limbs move when we want them to, and stop when we decide, such muscles are called voluntary muscles

→ These muscles are also called skeletal muscles as they are mostly attached to bones, and help in body movements.

→ They are Multinucleated and unbranched.

b) Unstraited and unvoluntry muscles (smooth Muscles.)

→ They are unvoluntry muscles also called smooth muscles.

→ Unvolounty muscles are located in canel, urinary bladder, blood vescles and ducts of glands.

→ They are not enclosed by membrane but many fibres are joined together in bundles.

→ They are uninucleated and unbranched.

c) Cardiac muscles

→ Cardiac musceles are the muscles of heart.

→ They are straighted but involountary in action.

→ The cell of cardiac muscles tissue are cylindrical brranch and uninucleted.

→ Cardiac musseles are extensive present in heart. They control the rhythmic breating of heart.

o Nervour Tissue

it is a highly specialised tissue present in the brain, spinal cord and nerves due to which animals are able to perceive and respond the to the stimuli. Their functional unit called nerve cell or neurons

Neurons

The fundamental unit of nervous system is the nerve cell.

it is responsible for the both collecting and delivering messages in our body.

There are two parts of neurons :-

- Dendrite → it recives information from the axon of an adjecent neuron and conducts its towards the cell body.

- Axon → it conducts messages away from the cell body.