Tissues

What is Tissue?

"Cluster Of Cells"

What is Tissue?

- Group of Cells having similar structure or work together to perform specific function is known as Tissue.
- Example - Xylem,Blood etc.

Basic Characteristics

- **Plants**
- Stationary
- Large Size
- Require More strength
- Require less maintenance

- **Animals**
- Moving
- Small Size
- Consume more energy
- Require more maintenance

Plant Tissues

Growing Or Merismatic Tissues

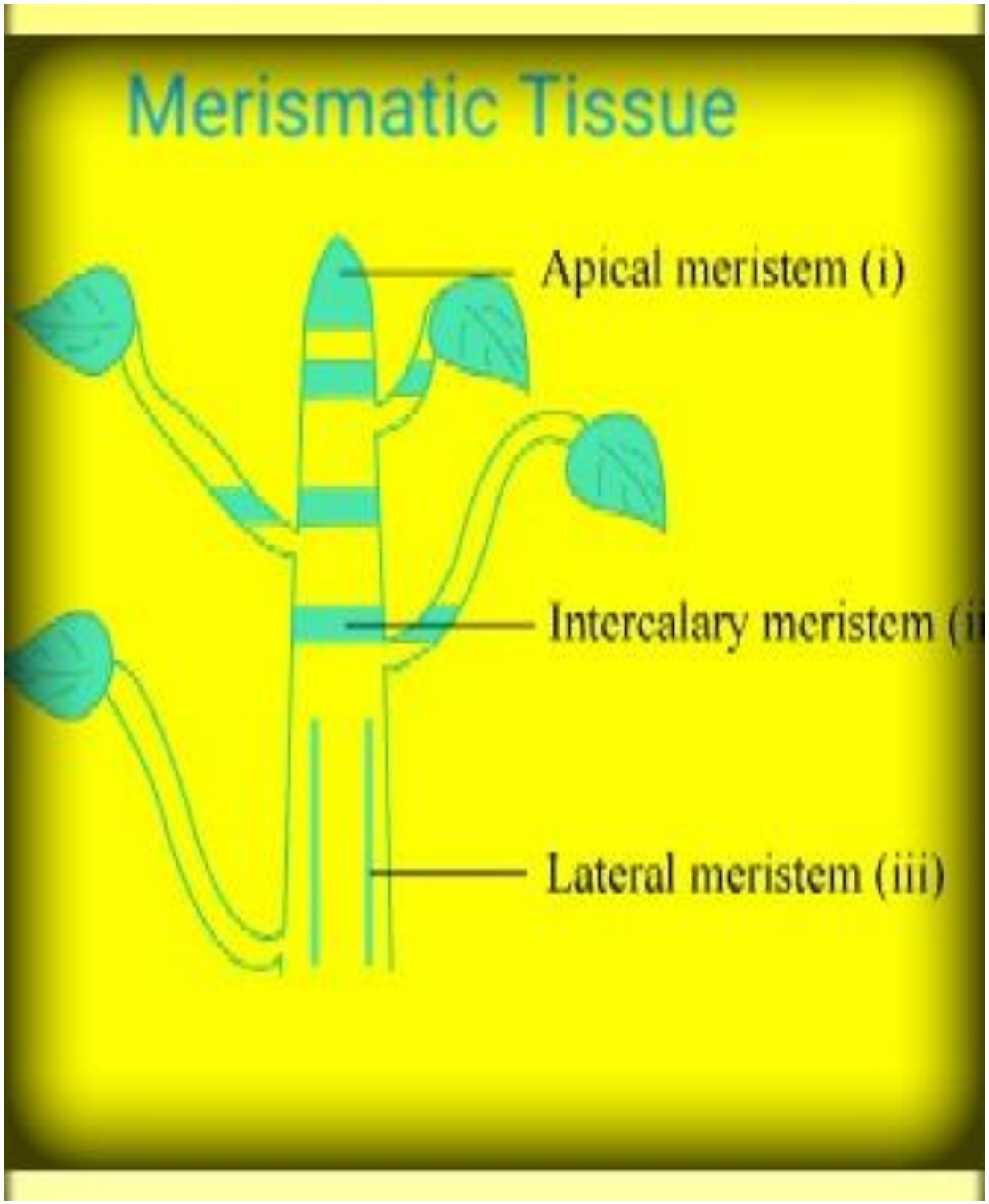
Permanent Tissues

Merismatic Tissue Types:

#Apical Meristem

#Intercalary Meristem

#Lateral Meristem



Permanent Tissues:

Simple Permanent Tissues

Complex Permanent Tissues

Difference b/w Simple & Complex Permanent Tissues

- **Simple Tissues**
- Made up of single type of cells.
- Have Similar structure and perform similar functions.
- Ex- Parenchyma
- Collenchyma
- Sclerenchyma

- **Complex Tissues**
- Made up of more than one type of cells.
- Different type of cells have definite structure and Perform different functions.
- Ex- Xylem
- Phloem

Simple Permanent Tissues

Parenchyma

- Location- leaves,fruits,flowers.
- Type of cells- Live
- Structure- Thin cell wall, Cells are loosely packed.
- Function- Stores nutrients & water.
- Cell wall is made up of Cellulose.

Collenchyma

- Location- Leaves, Stem
- Type of cells- Live
- Structure- Irregularly Thick cell wall, Cells are closely packed.
- Function- Provide flexibility & Mechanical strength.
- Cell wall is made up of Pectin and hemi-cellulose.

Sclerenchyma

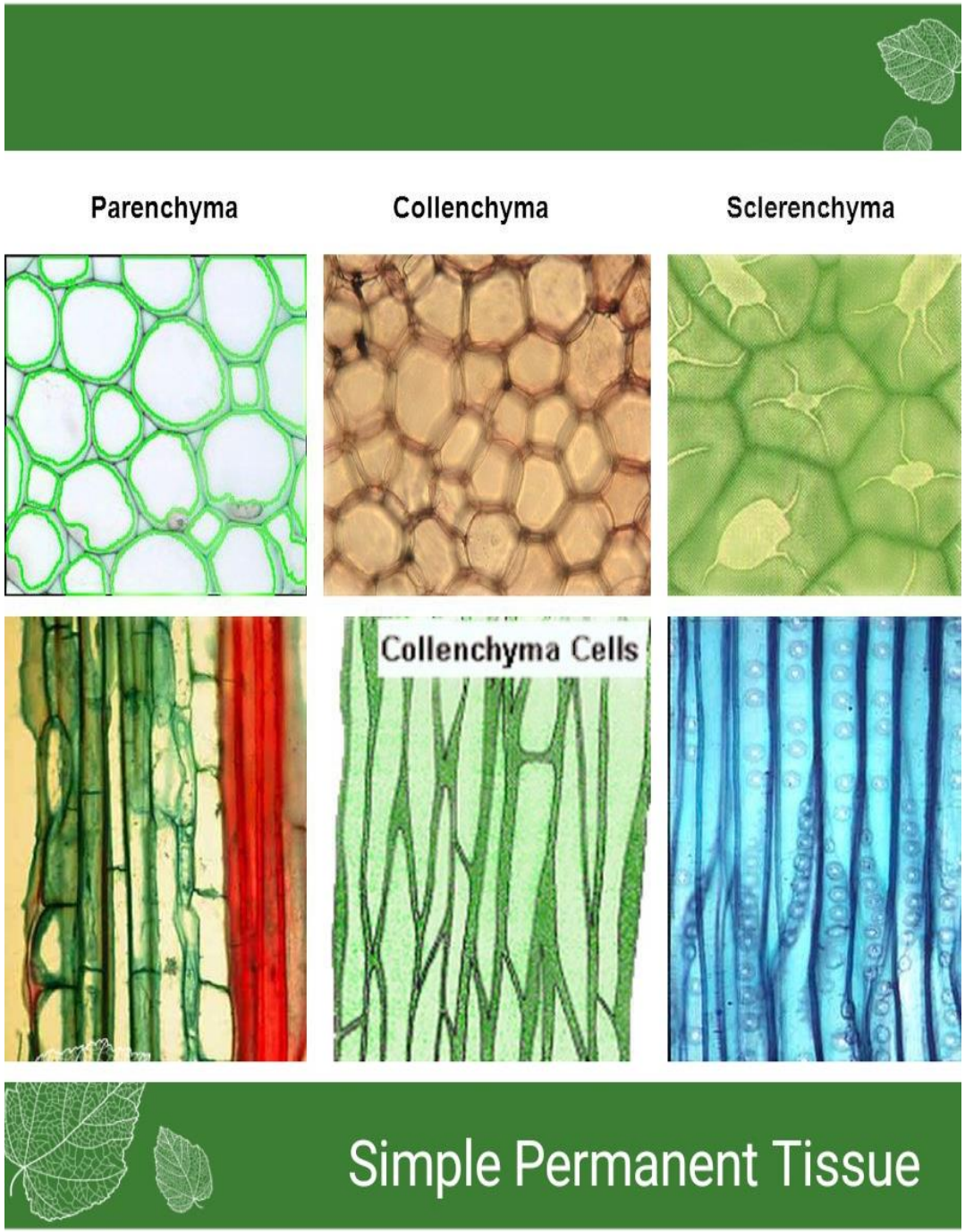
Location- Stems, Vascular Bundles, Veins of leaves, covering of seeds & nuts.

Type of cells - Dead.

Structure- Uniformly thick cell walls, No Inter-cellular space between cells.

Function- Provide hardness & stiffness to plants.

Cell is made up of lignin.



Complex Permanent Tissues

Xylem Tissues

- It is a Water conducting tissues.
- **Main Components:**
- Tracheids
- Vessels
- Xylem Parenchyma
- Xylem Fibres

Phloem Tissues

- It is a Food conducting tissues.
- **Main Components:**
- Seive Tubes
- Companion cells
- Phloem Parenchyma
- Phloem fibres

Xylem Tissue

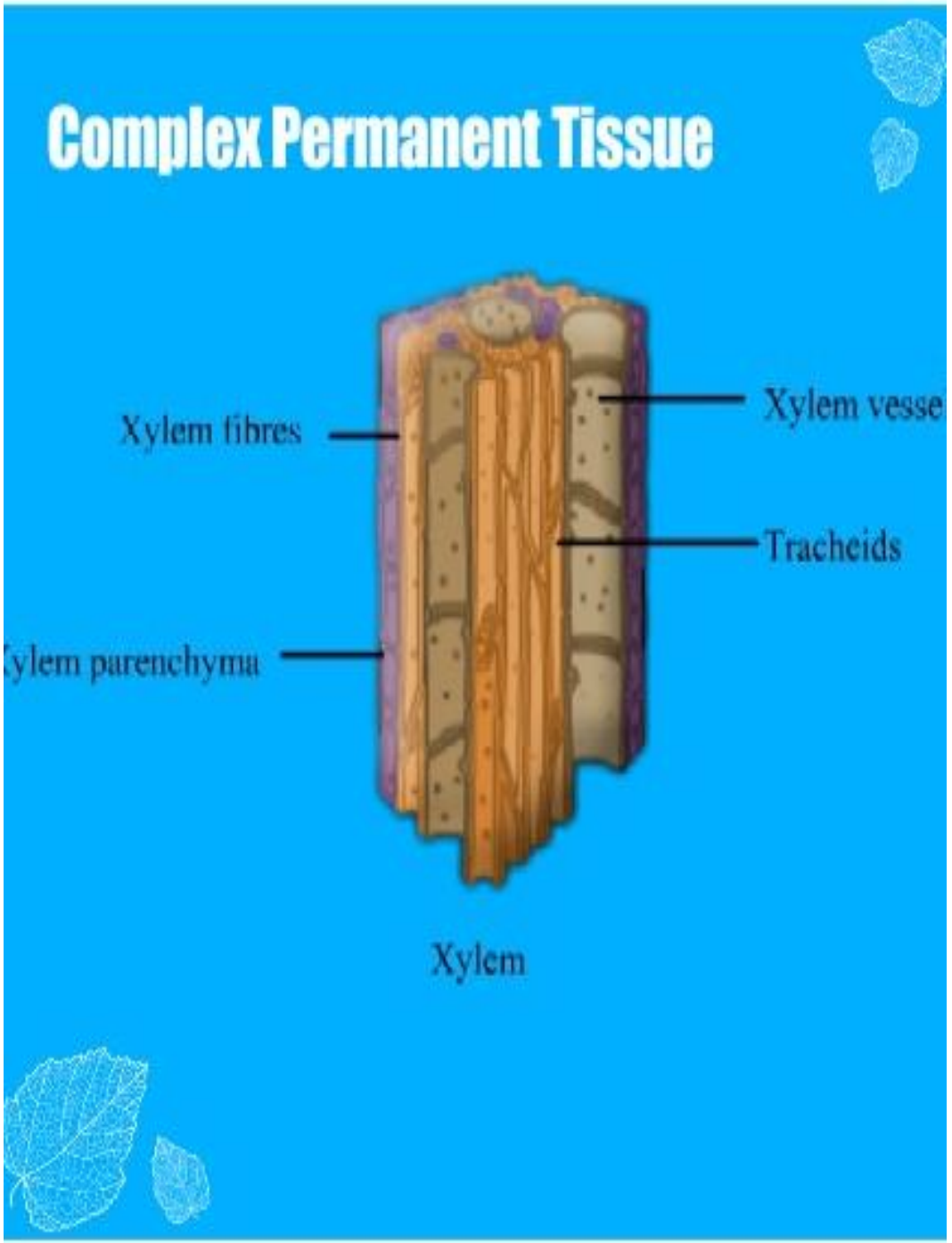
#Cell walls are thick.

#Mostly cells are dead.

#Tracheids & vessels are tubular structure - Transports water & Minerals.

#Xylem Parenchyma stores food & sideways conduction of water.

#Fibres are for support.



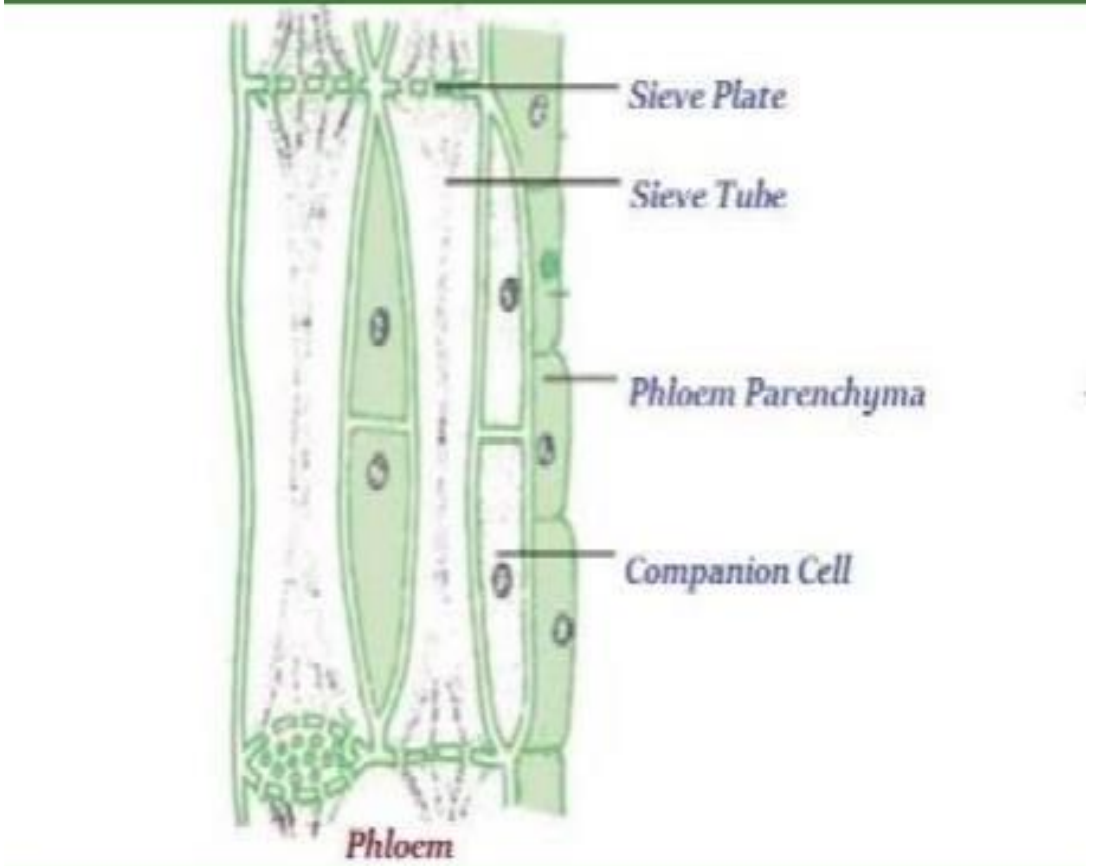
Phloem Tissue

#Seive Tubes are conducting channel.

Mostly cells are live except phloem fibres.

#Phloem only conducts, do not provide mechanical strength.

#Conducts in two direction unlike Xylem which conducts in only one direction.



Complex Permanent Tissue