

102 Bot

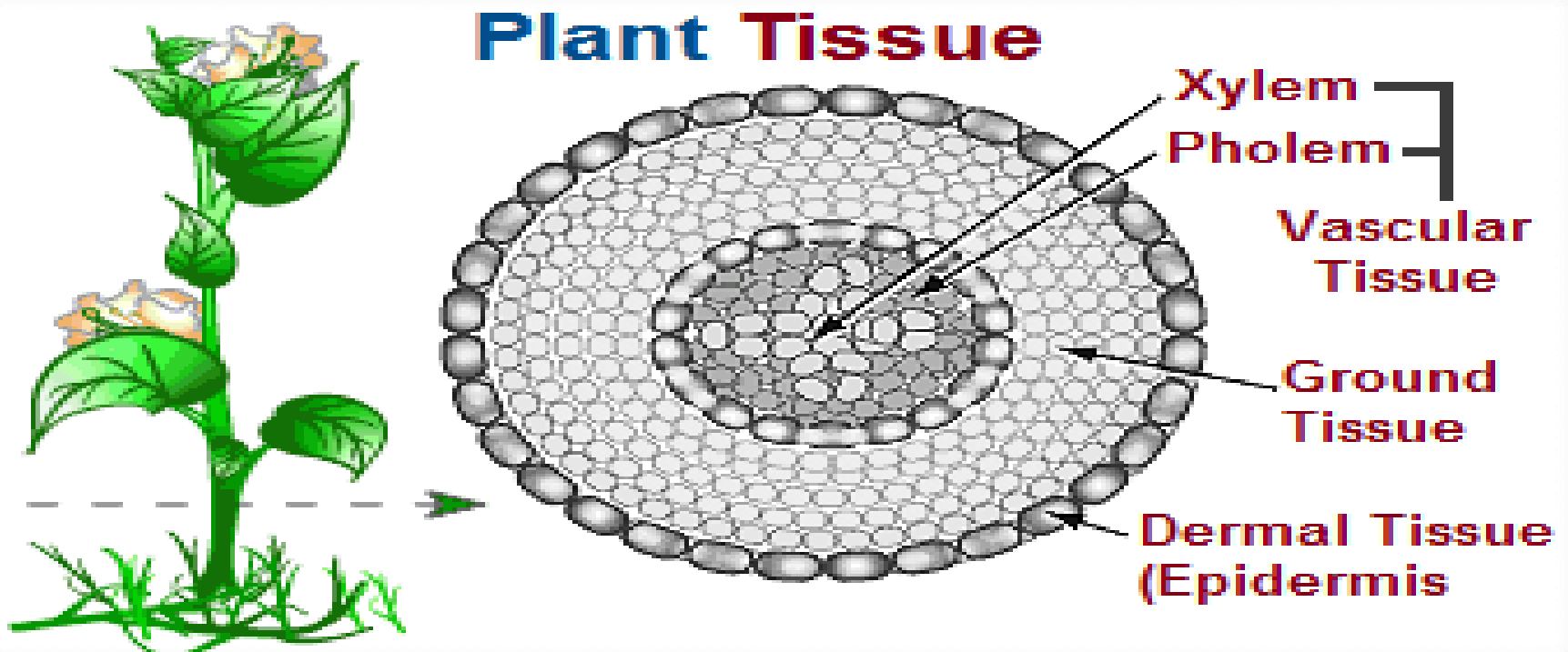
Plant tissues

Lab 6



Plant Tissues Types

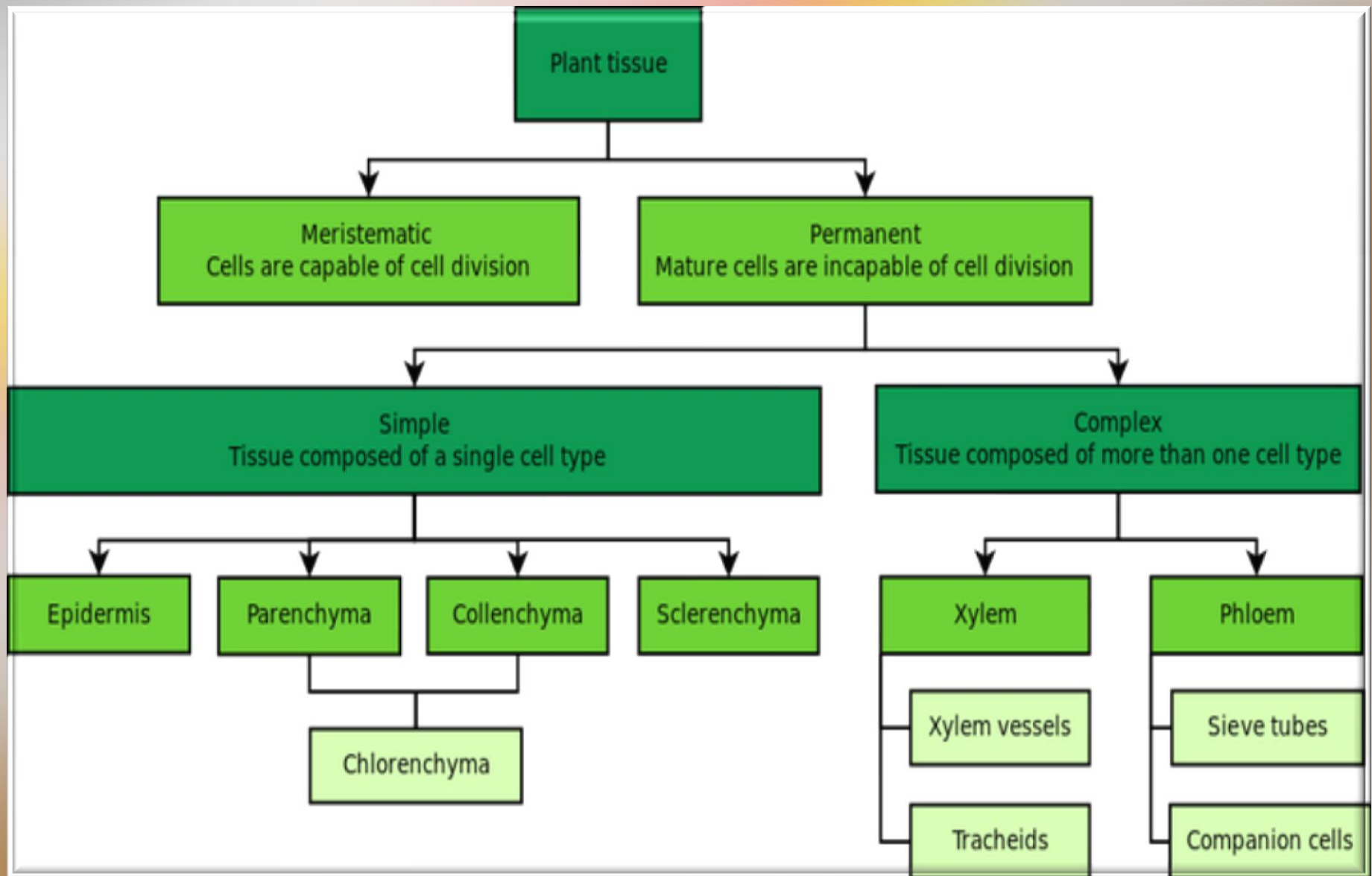
All plant organs (roots, stems, leaves) are composed of the same tissue types.



Tissues

TISSUES- a group of cells functioning together in some specialized activity

Classification of Plant Tissues



Plant Cell and Tissue Types

1. Meristematic tissue

2. Permanent or mature tissue

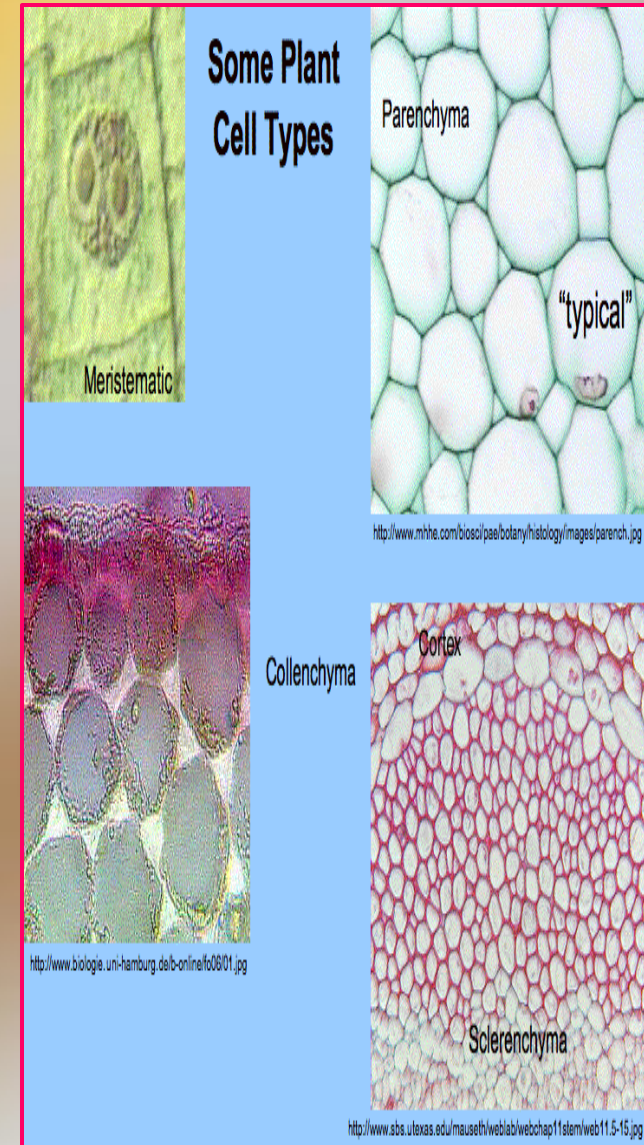
★ **PARENCHYMA** - الأنسجة البرانشيمية

★ **COLLENCHYMA** - الأنسجة الكولنشيمية

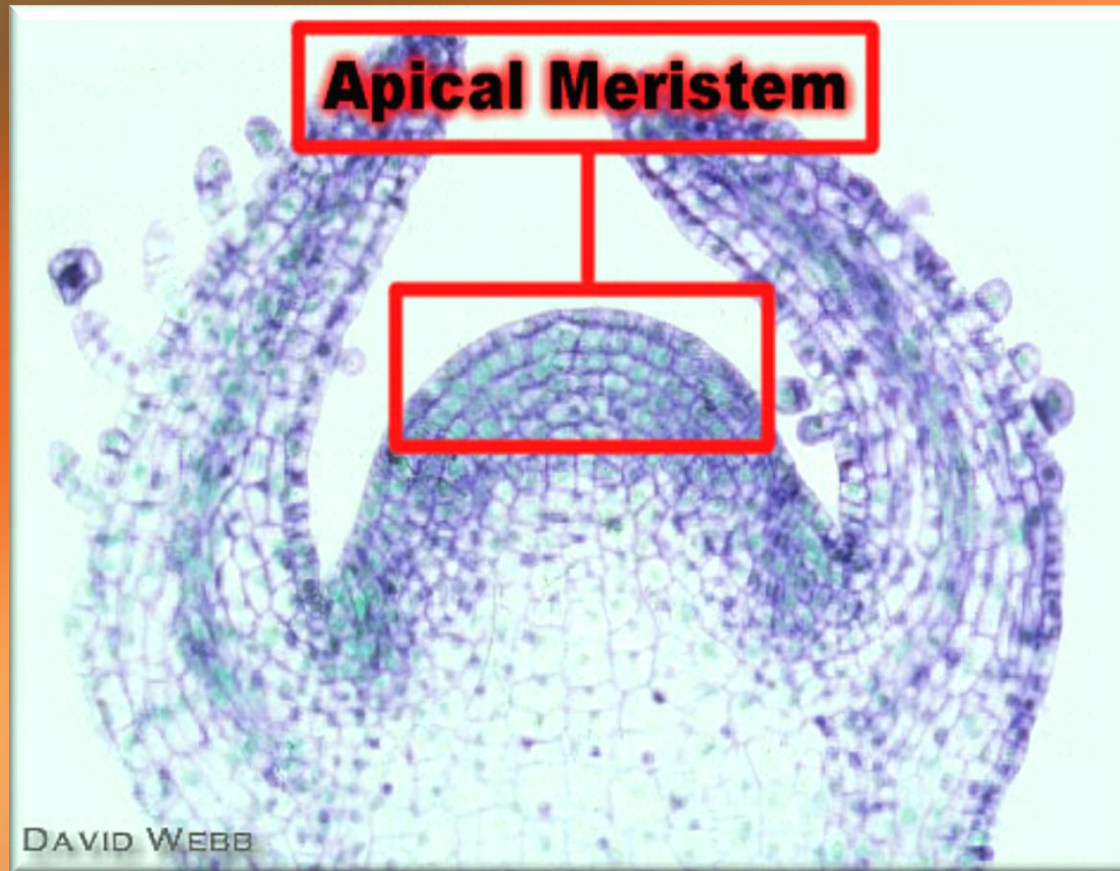
★ **SCLERENCHYMA** - الأنسجة السكلارنشيمية

★ **XYLEM** الخشب

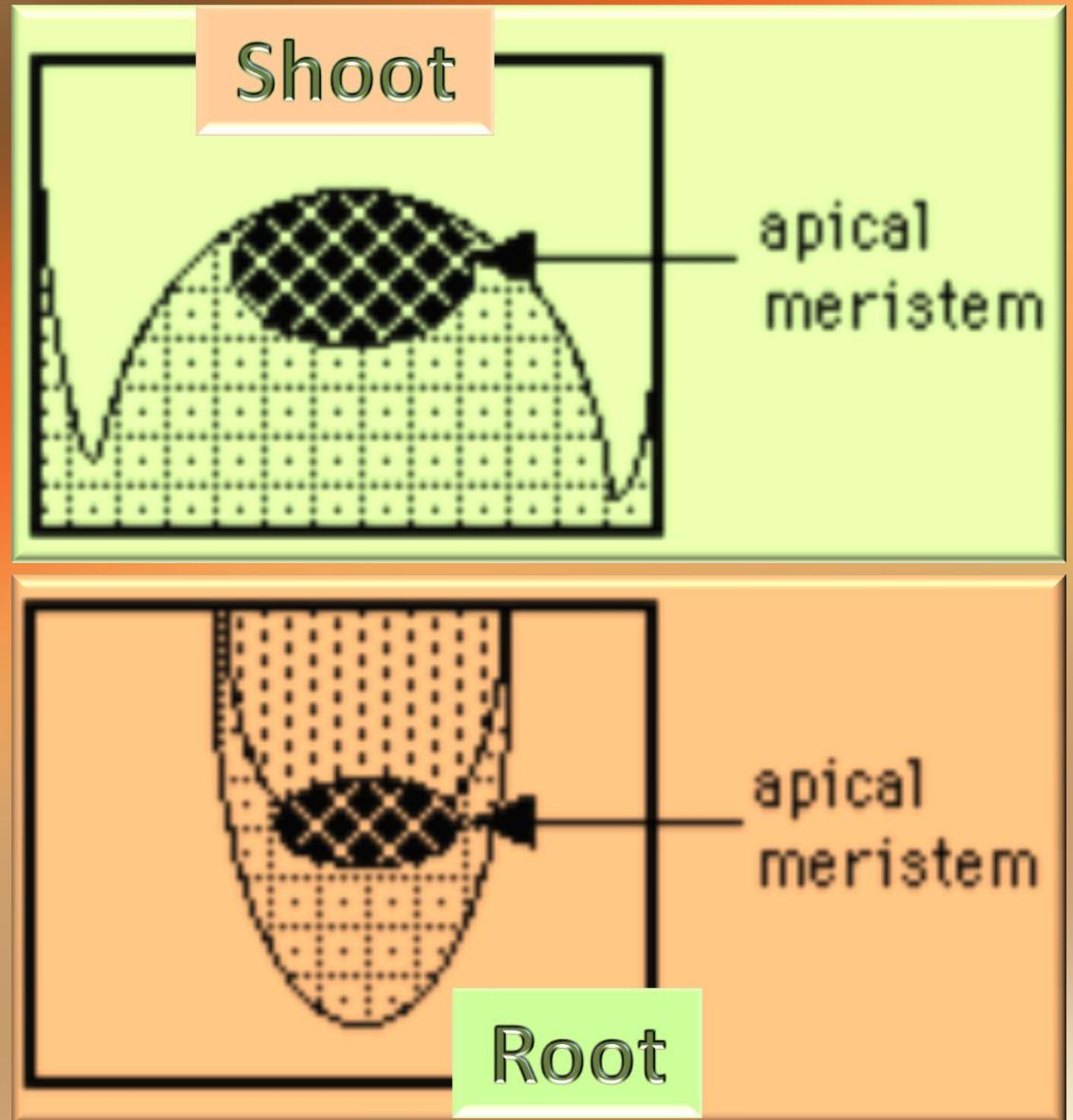
★ **PHLOEM** اللحاء



Meristematic tissue

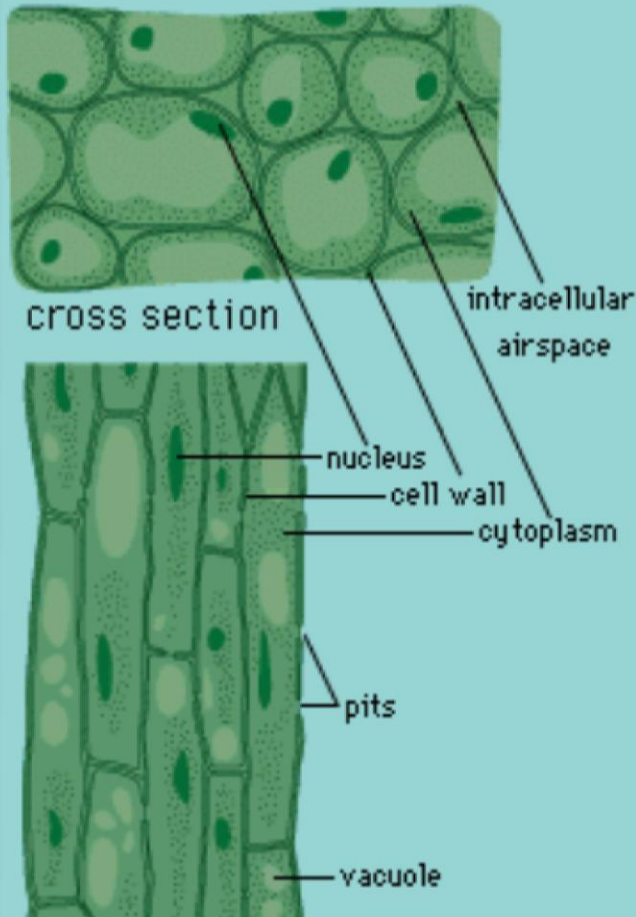


Meristematic tissue



2. Permanent or mature tissue

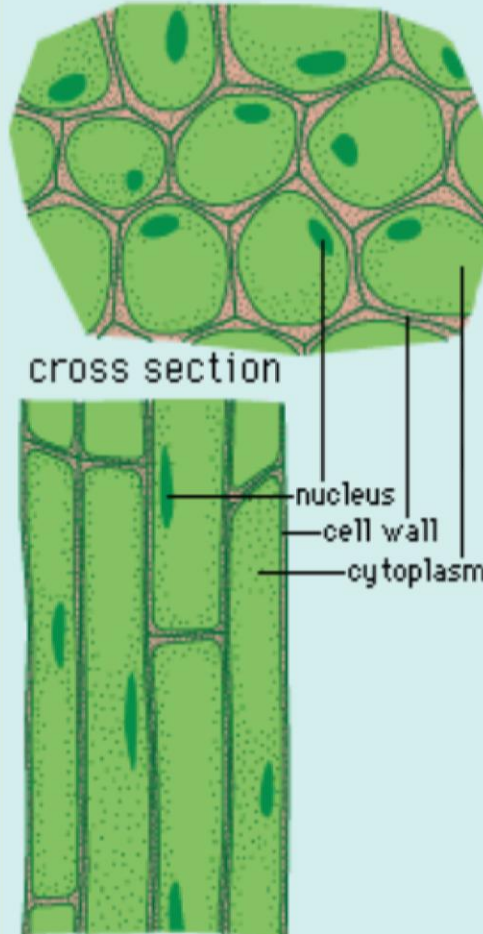
parenchyma tissue



longitudinal

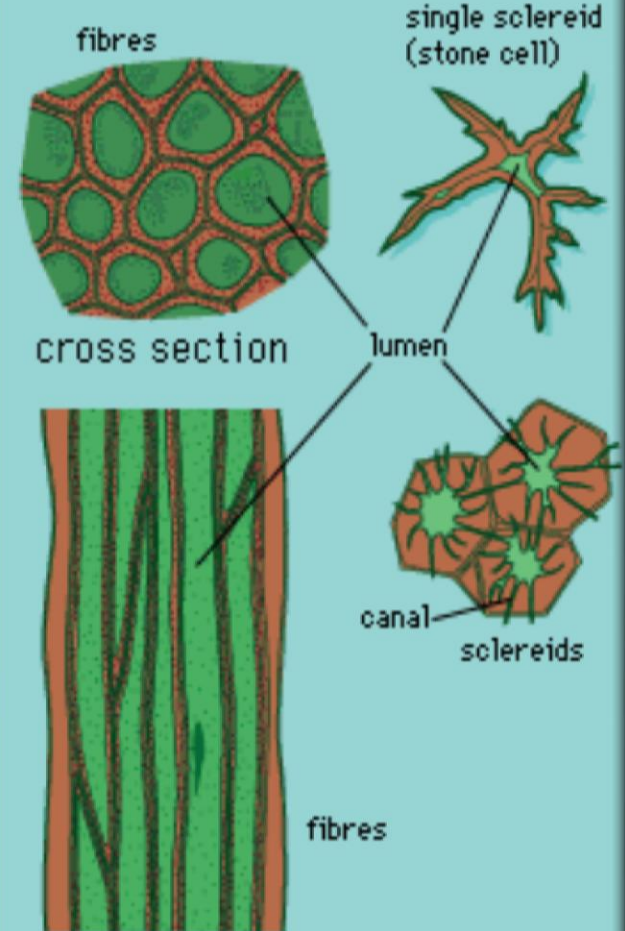
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collenchyma tissue



longitudinal

sclerenchyma tissue



longitudinal

PARENCHYMA

Characteristics

least specialized cell type

only thin primary cell wall is present

possess large central vacuole

generally alive at functional maturity

This tissue is found in the soft parts of the plant like the cortex(outer region) and pith (inner region) of the roots and stems.

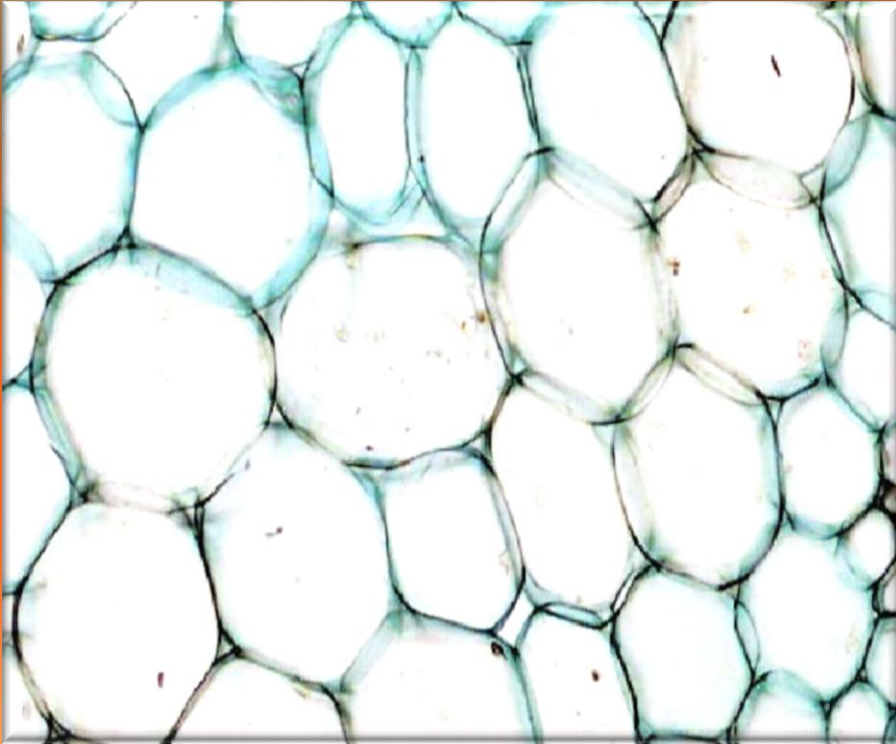
Functions

make up most of the ground tissues of the plant
storage

photosynthesis

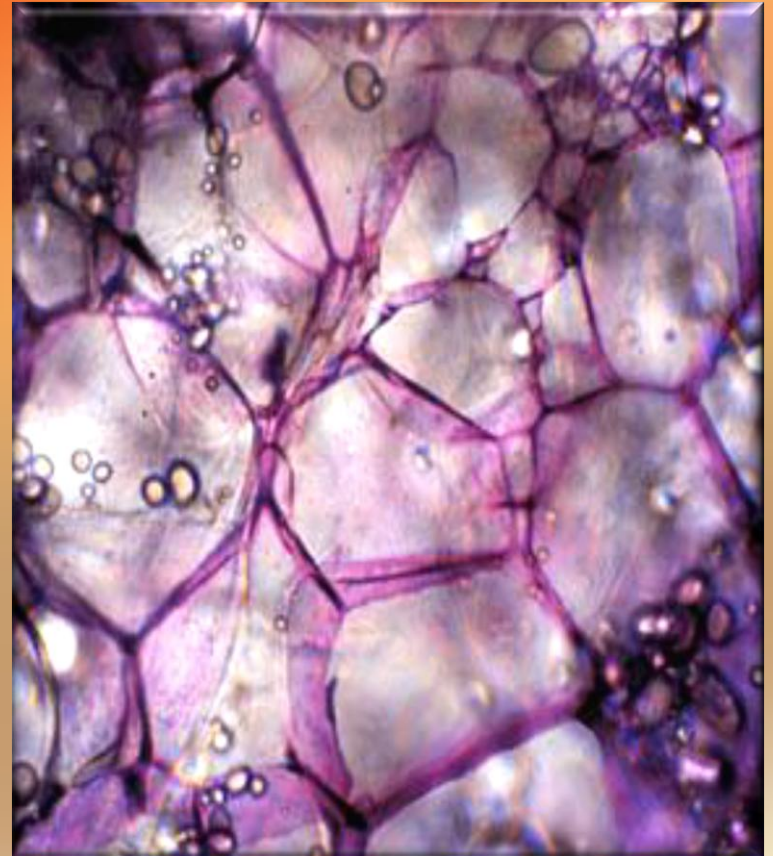
can help repair and replace damaged organs by
proliferation and specialization into other cells

Parenchyma

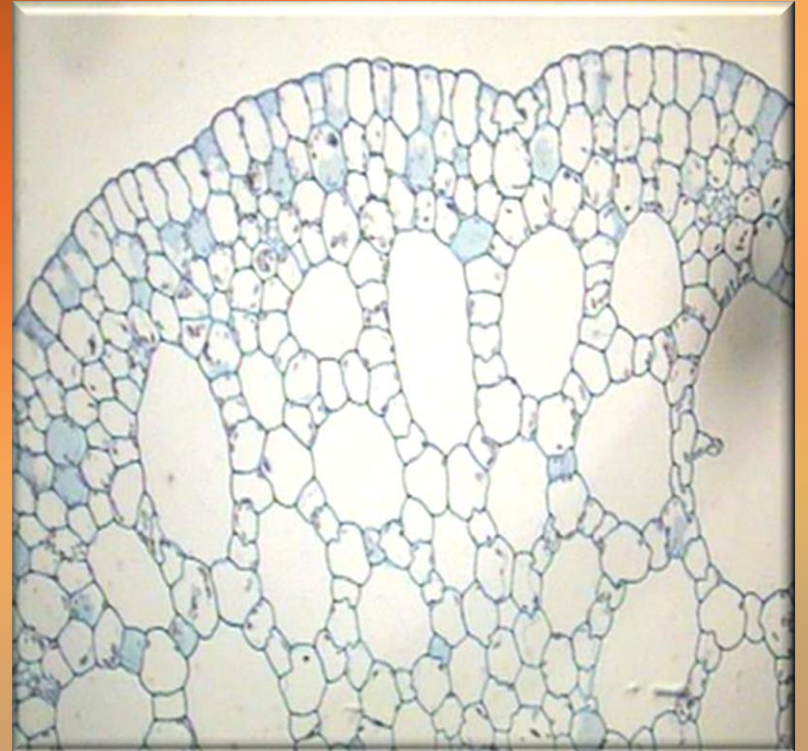
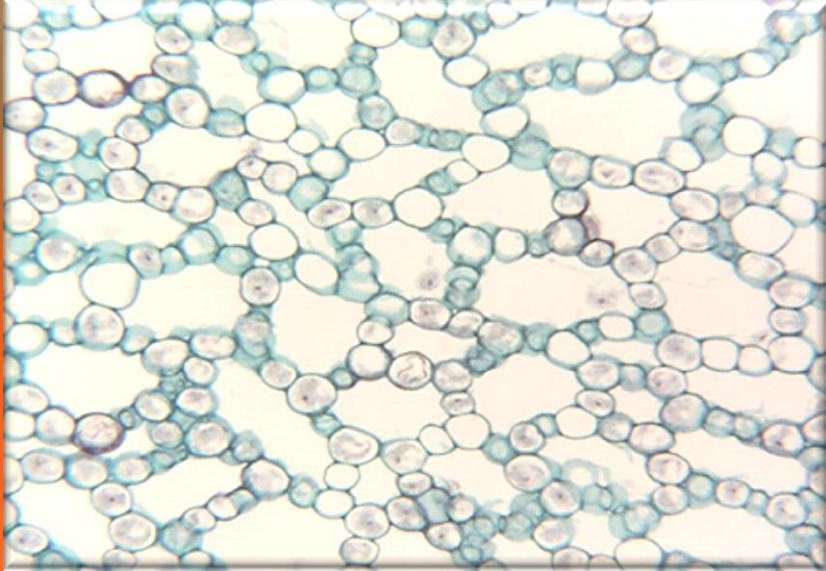


Equal diameters parenchyma

Ribbed

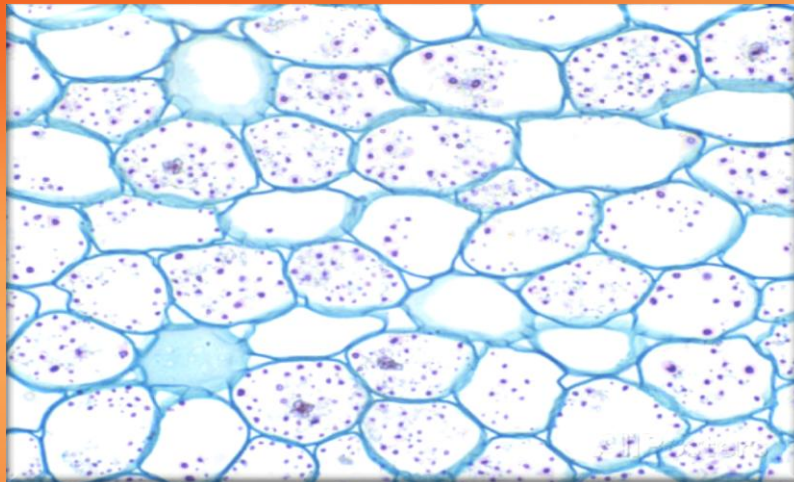
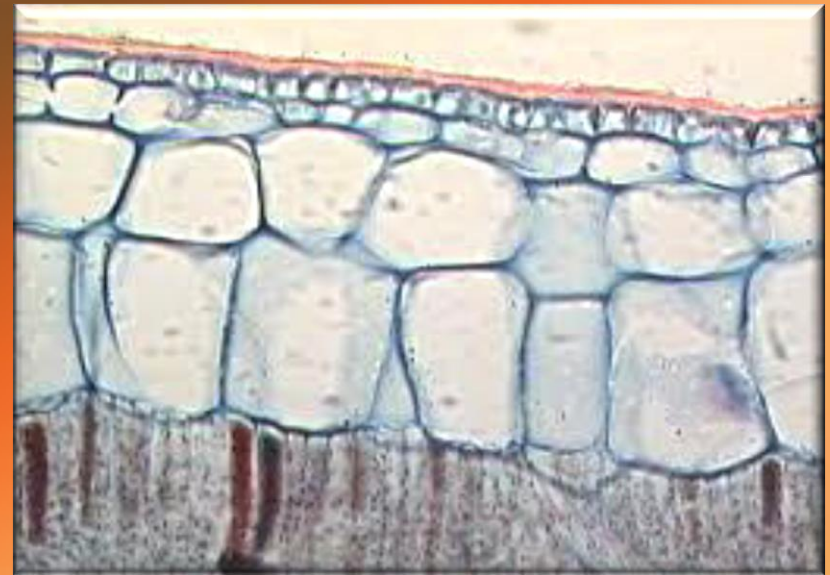
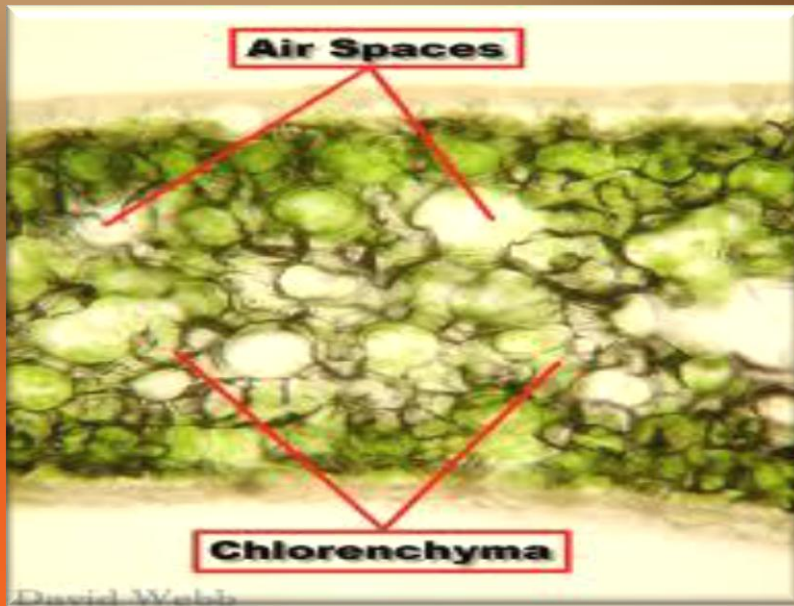


Parenchyma

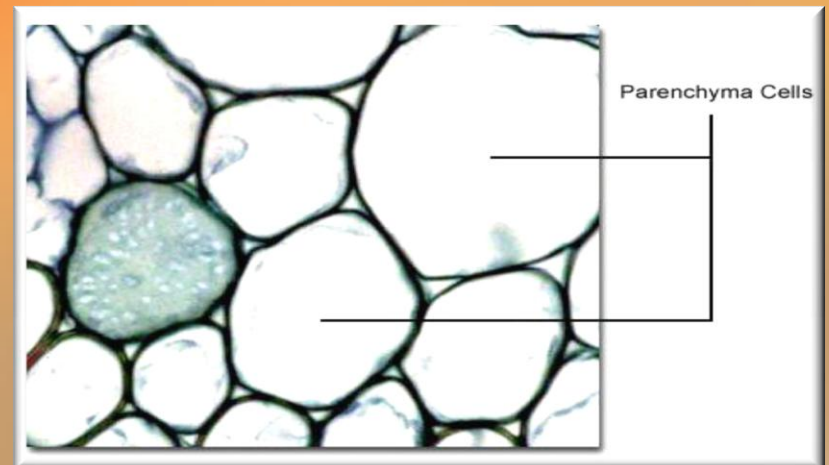


aerenchyma

Chlorenchyma



food storage parenchyma



Water storage parenchyma

Collenchyma

Characteristics

possess thicker primary cell walls than that of parenchyma

no secondary cell wall present

generally alive at functional maturity

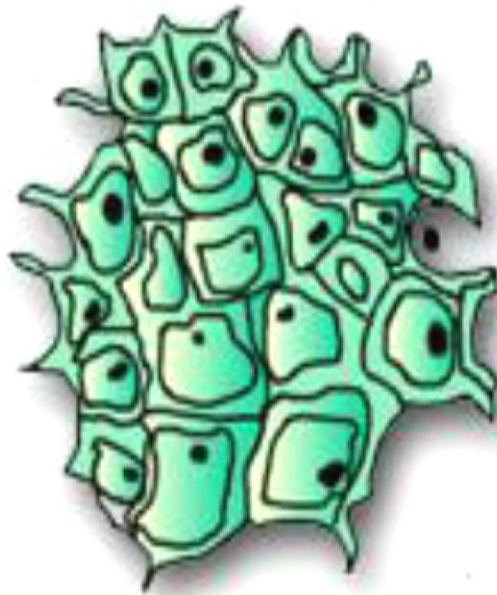
Functions

provide support without restraining growth

Types of collenchyma



Lamellar

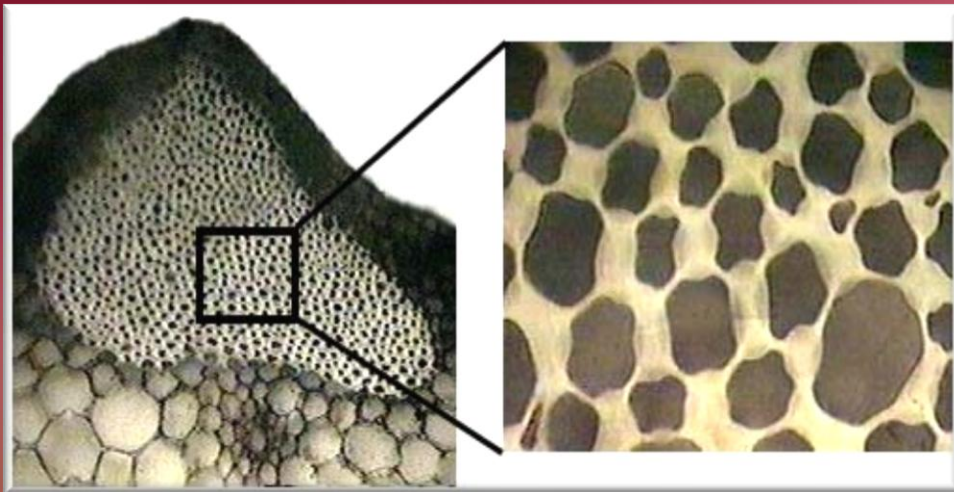
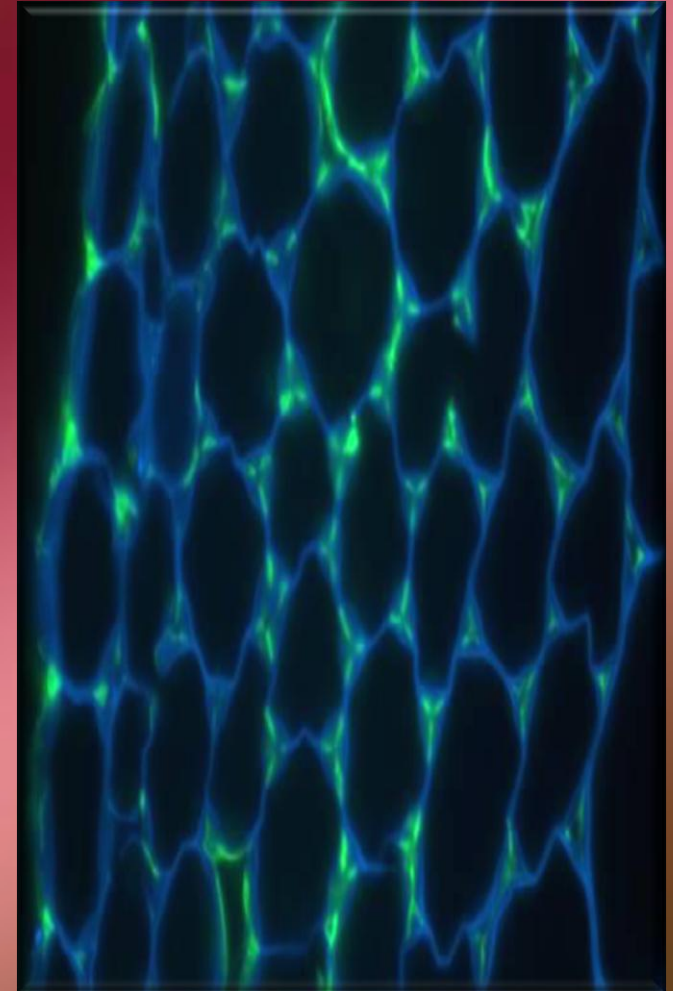
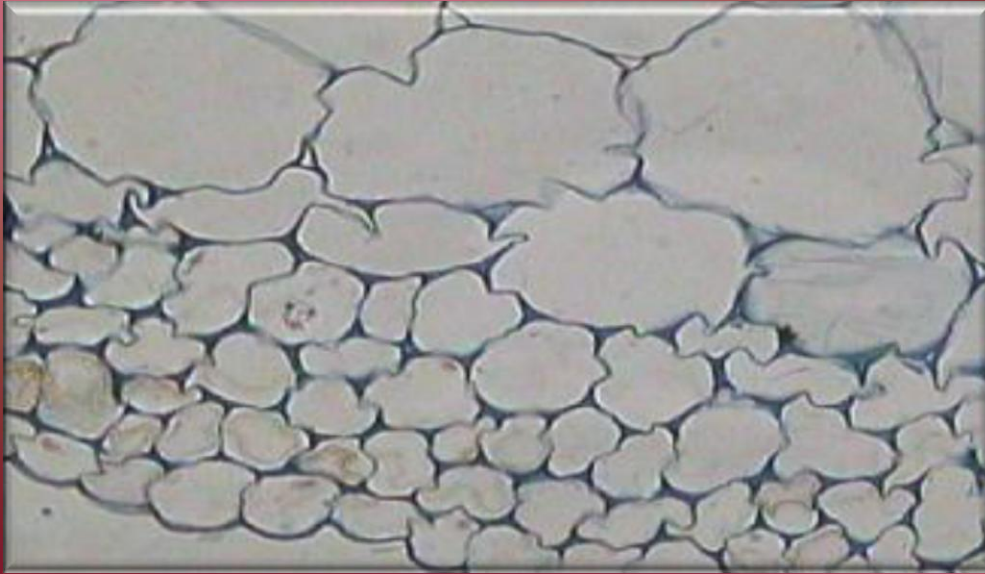


Angular

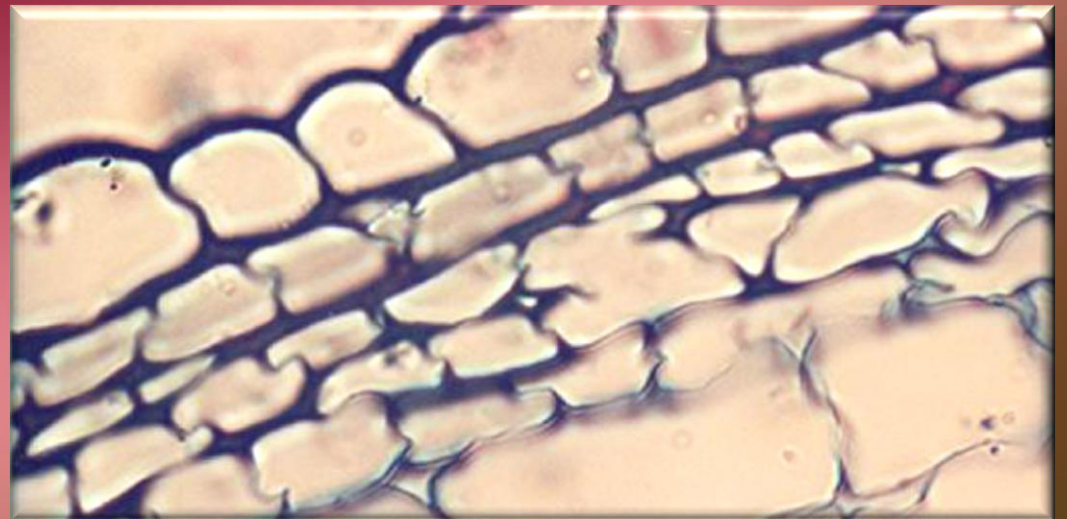
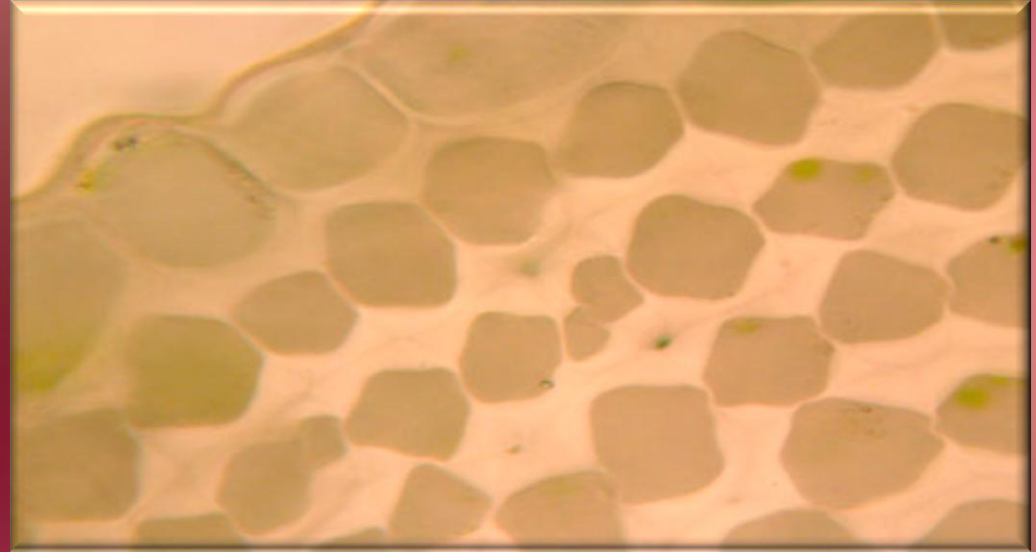


Lacunar

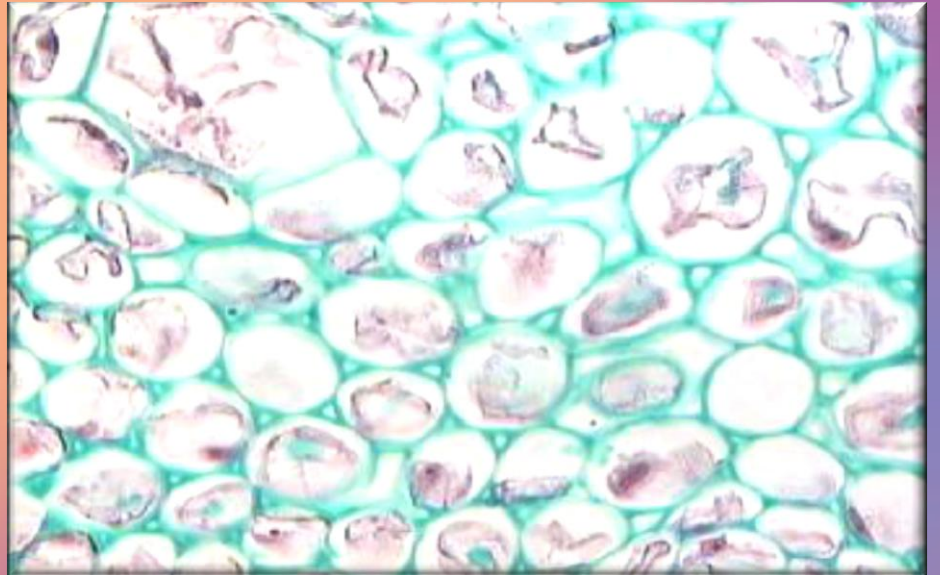
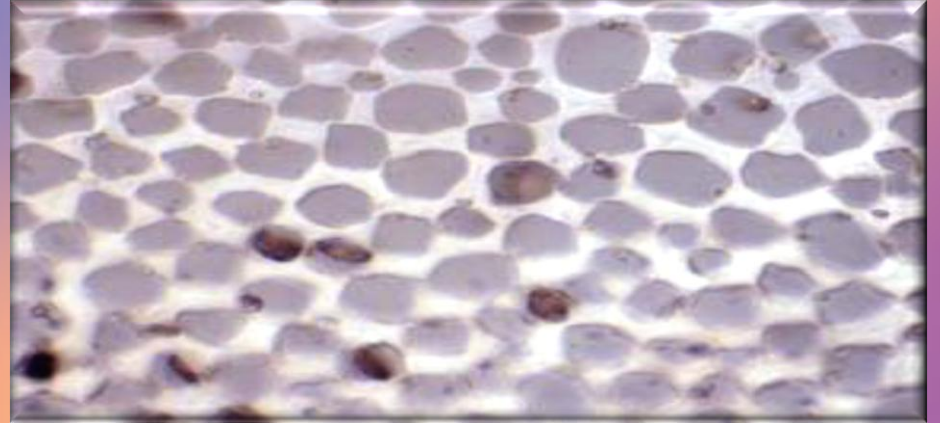
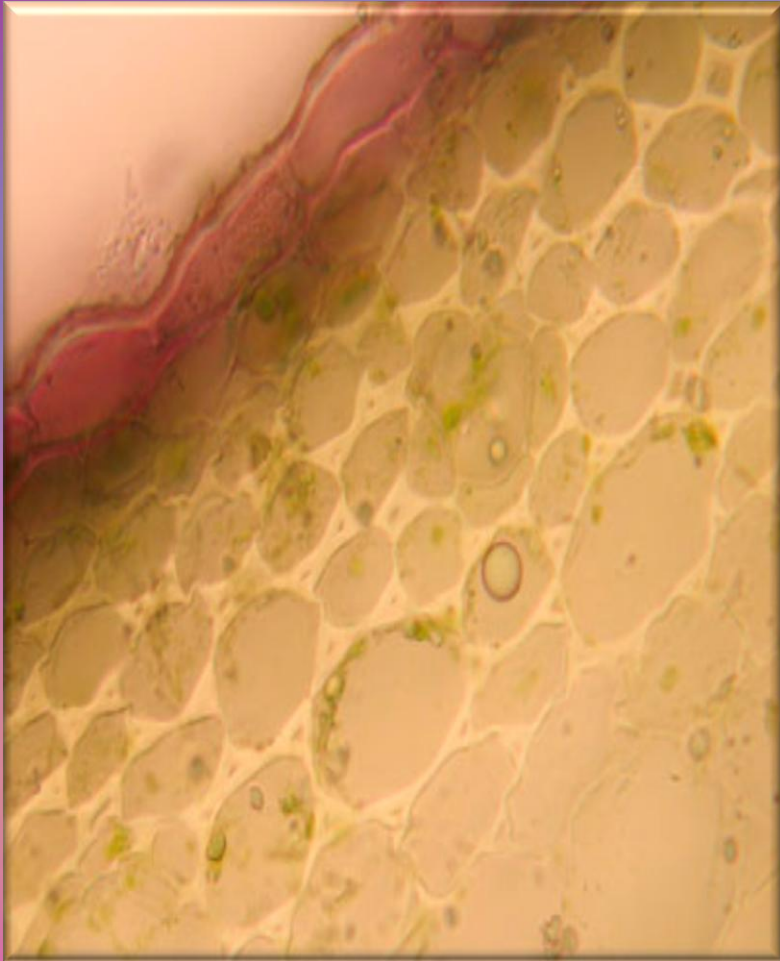
1- Angular collenchyma زاوي



2- Lamellar (lamellate) collenchyma صفائي



3- Lacunar (lacunate) collenchyma فراغي



Sclerenchyma

Characteristics

**have secondary cell walls
strengthened by lignin
often are dead at functional
maturity**

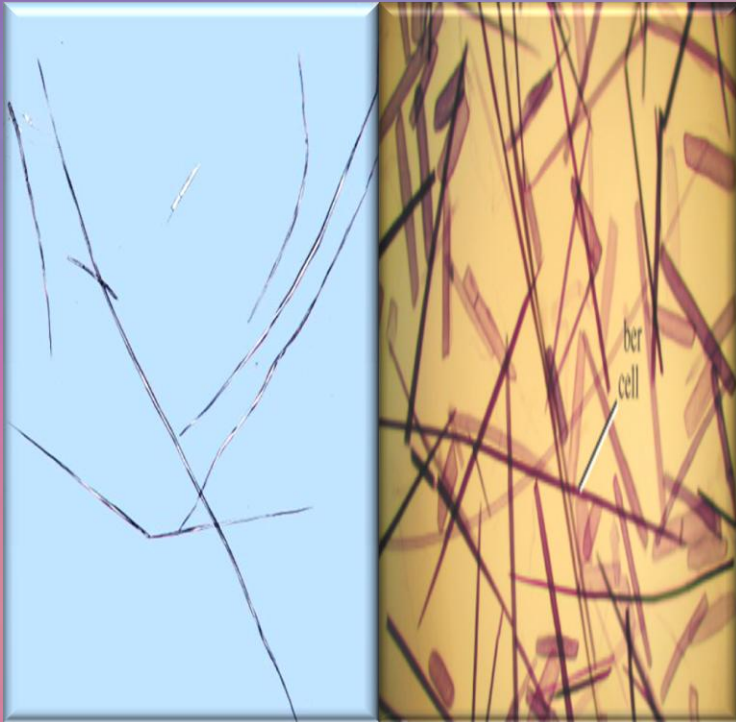
two forms: fibers and sclereids

Functions

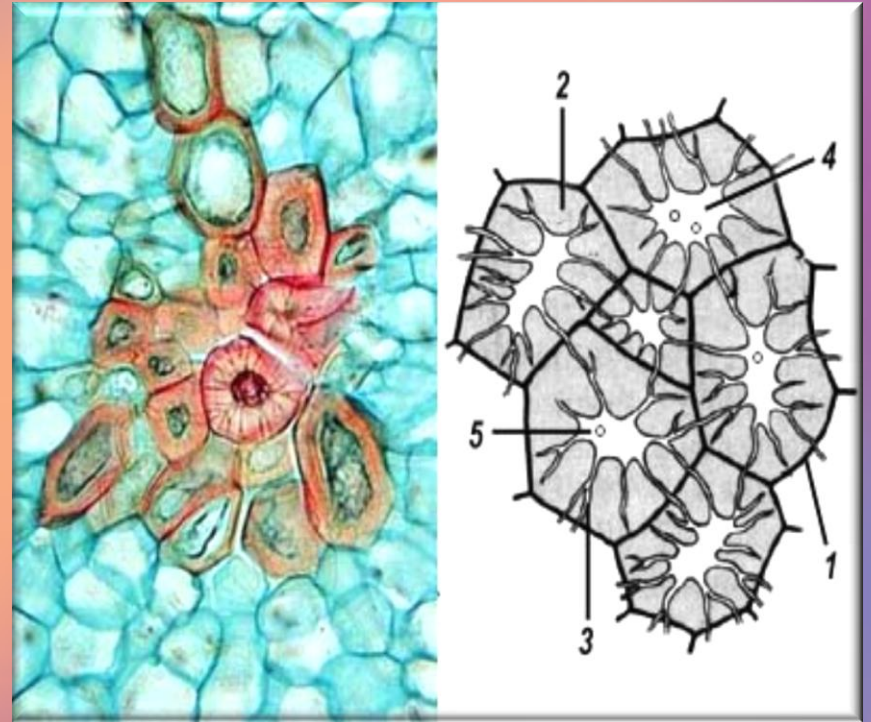
**rigid cells providing support and
strength to tissues**

Sclerenchyma

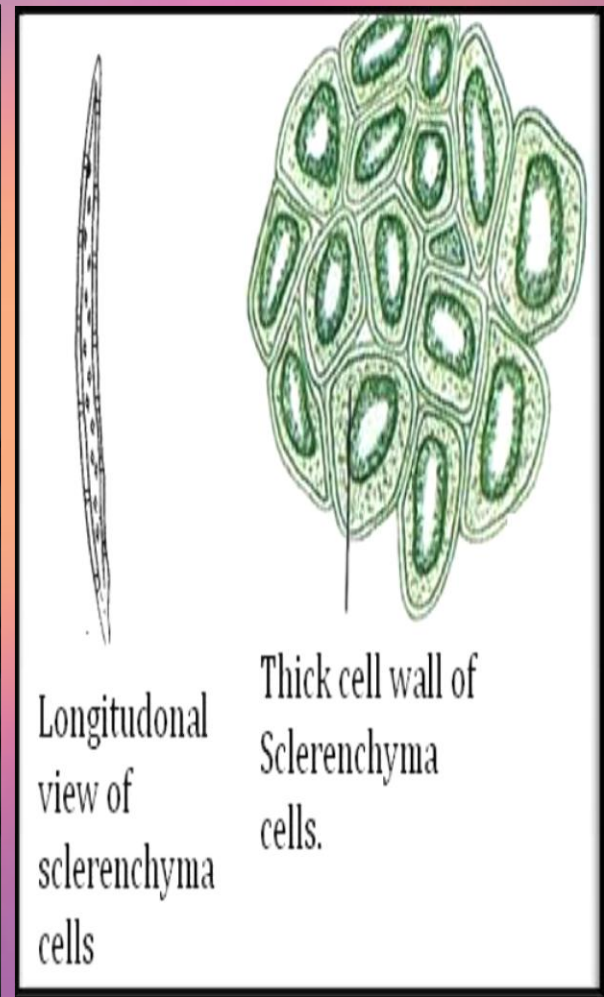
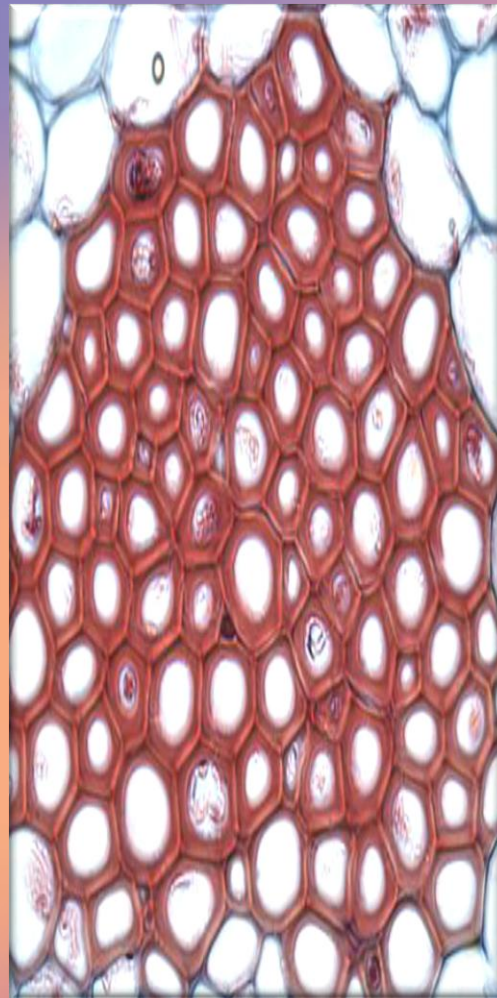
1- fiber



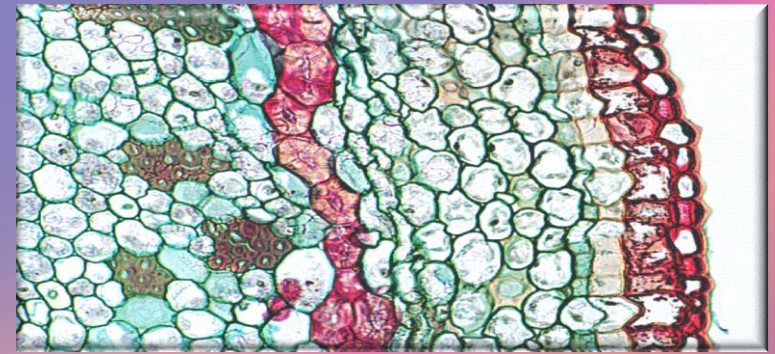
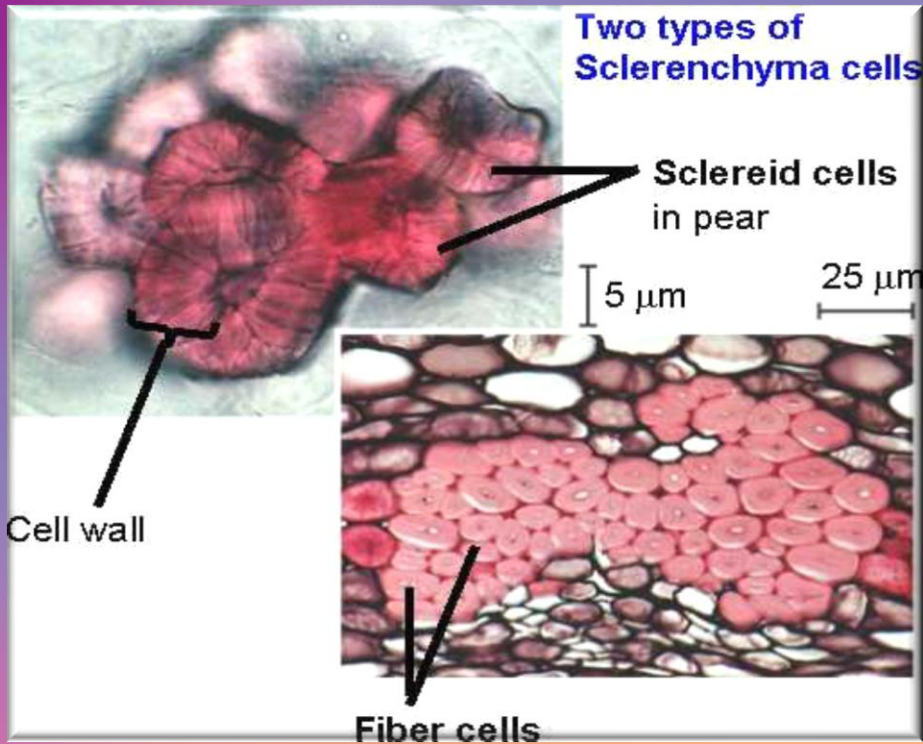
2-sclereids -stone cells



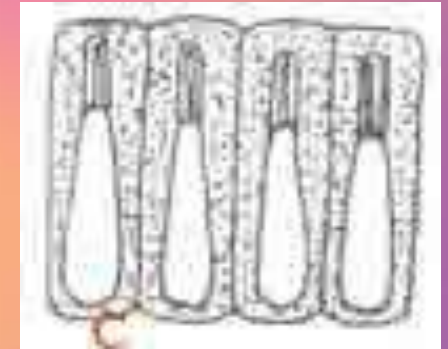
1-Fibres



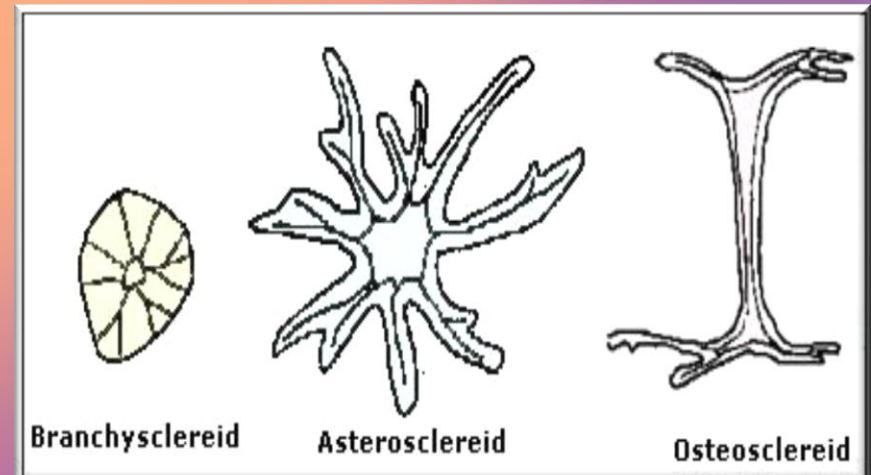
2-Sclereids



خلايا حجرية عصوية
Bacillary

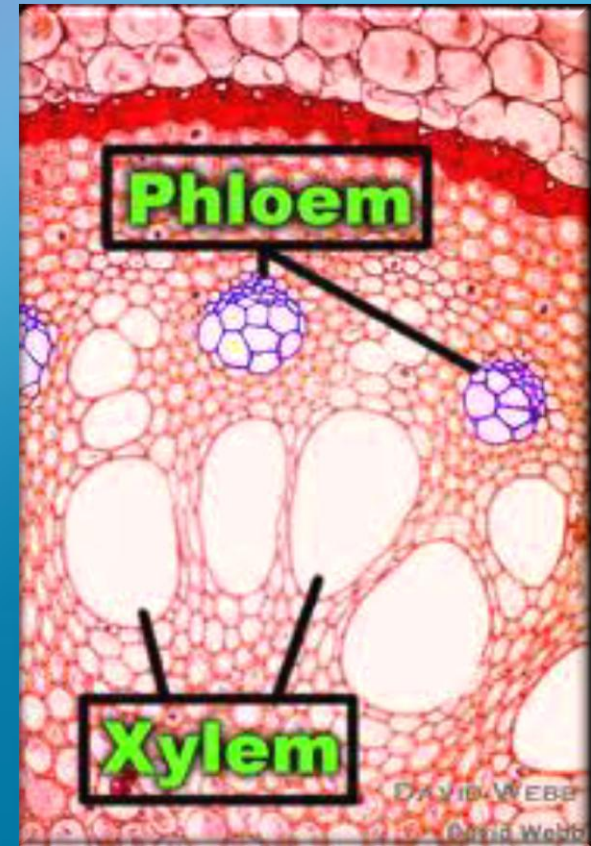
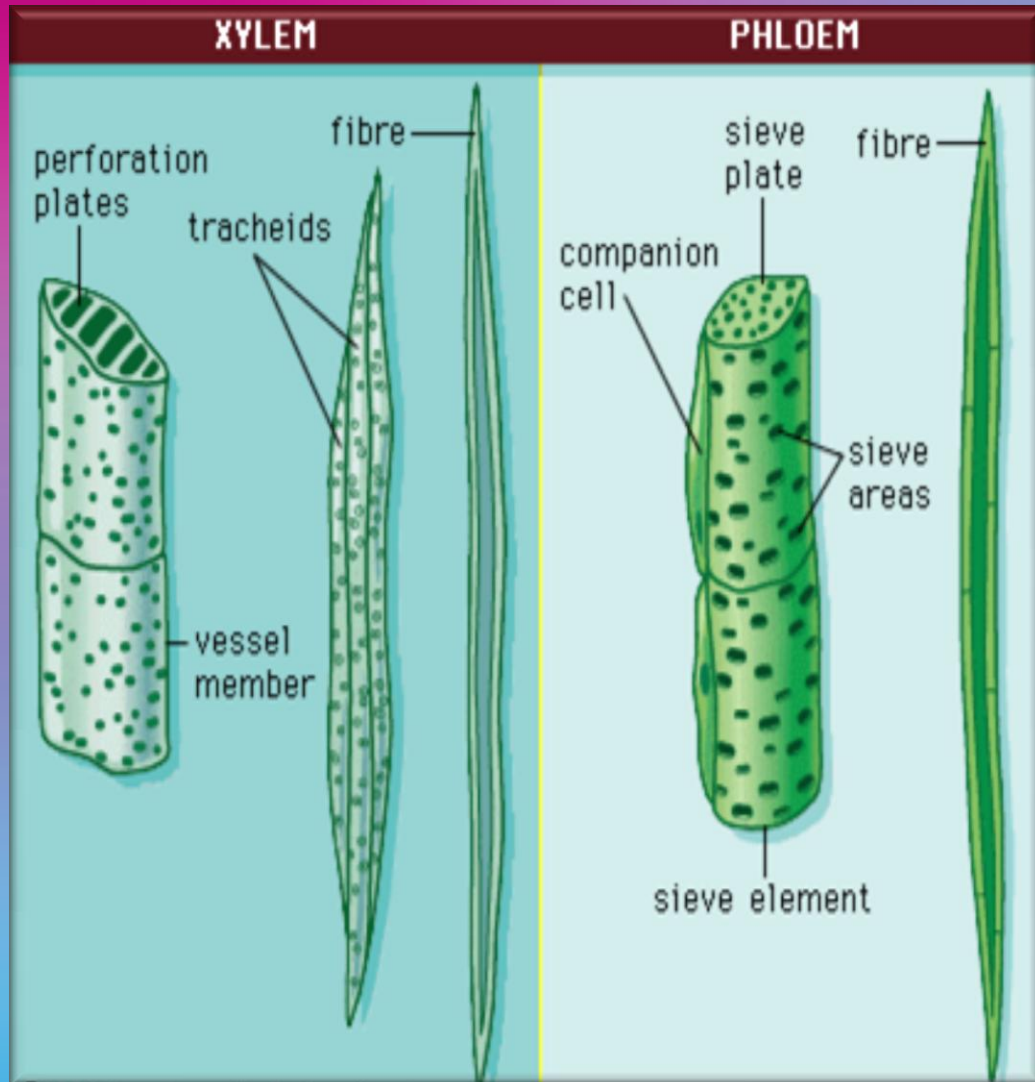


oval in shape star shaped bone shaped



Complex Permanent Tissues

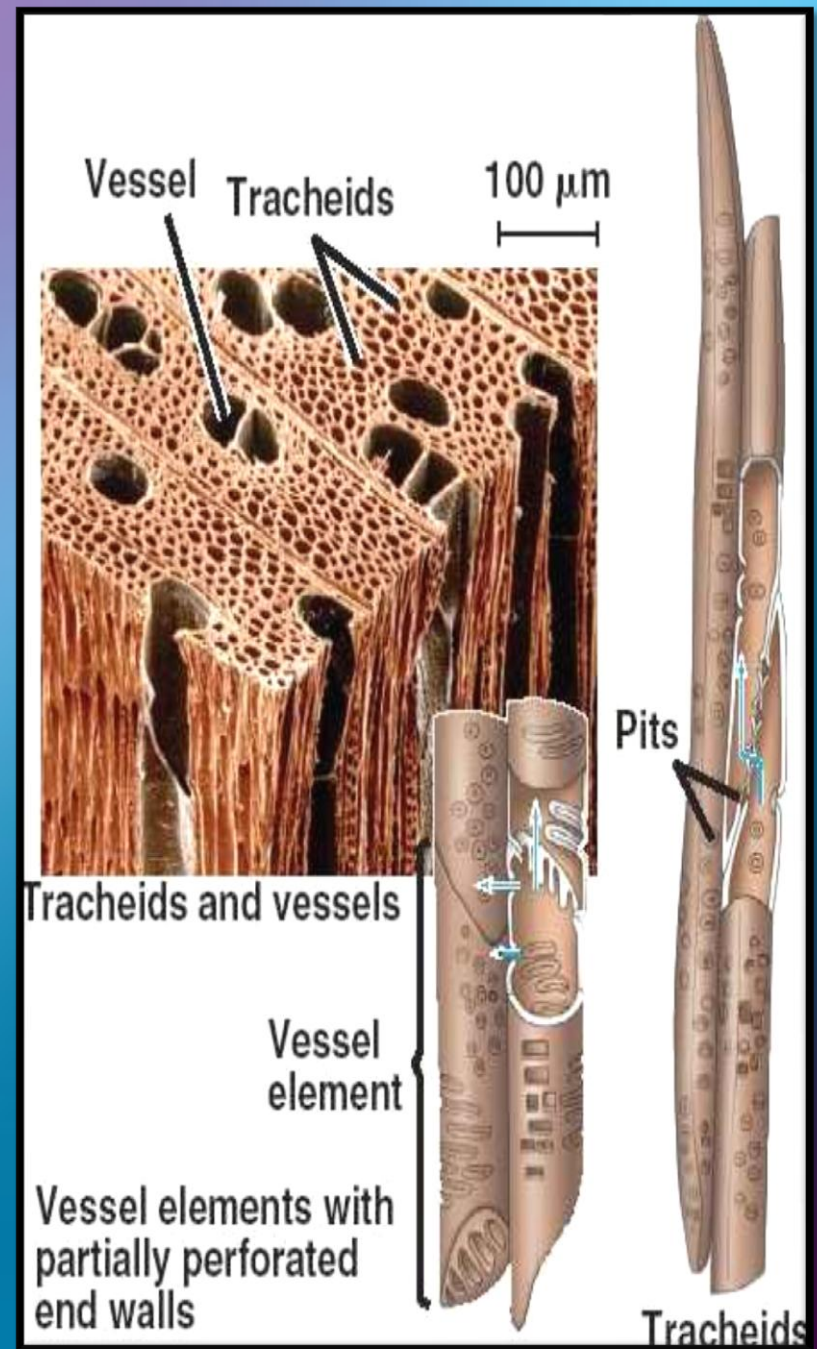
Xylem and Phloem



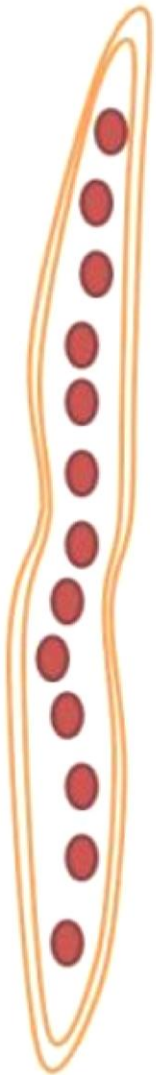
Xylem

They are four basic elements in Xylem :

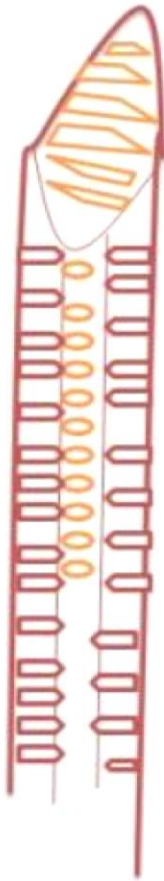
- ❖ Xylem tracheids
- ❖ Xylem tracheae or vessels
- ❖ Xylem fibers
- ❖ Xylem parenchyma



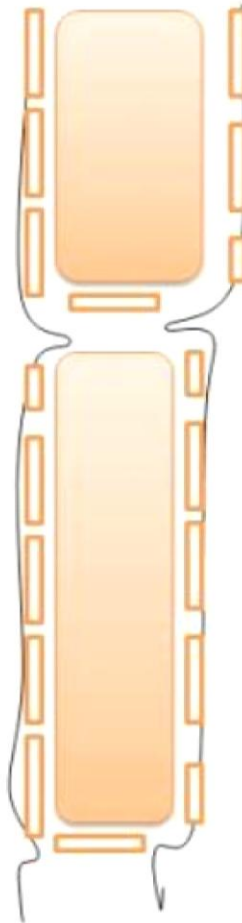
Different xylem elements



A tracheid



**Tracheae
or vessel**



Xylem parenchyma



Xylem fiber

أنواع التغلظات في الخشب

حلزوني
Spiral



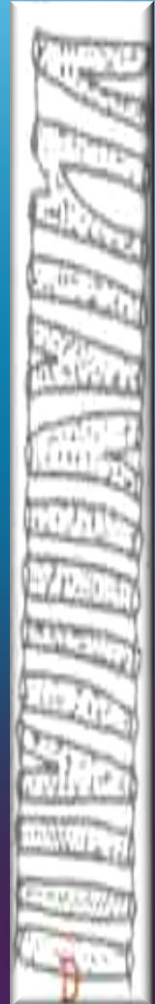
حلقي
annular



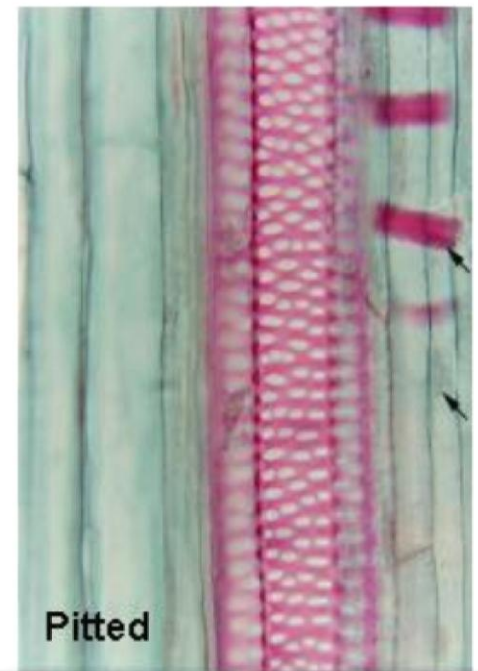
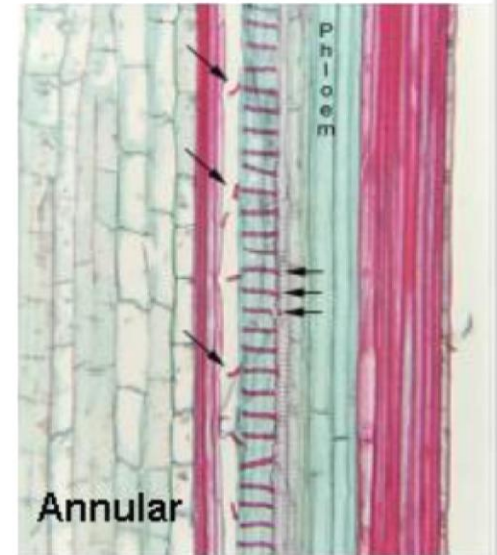
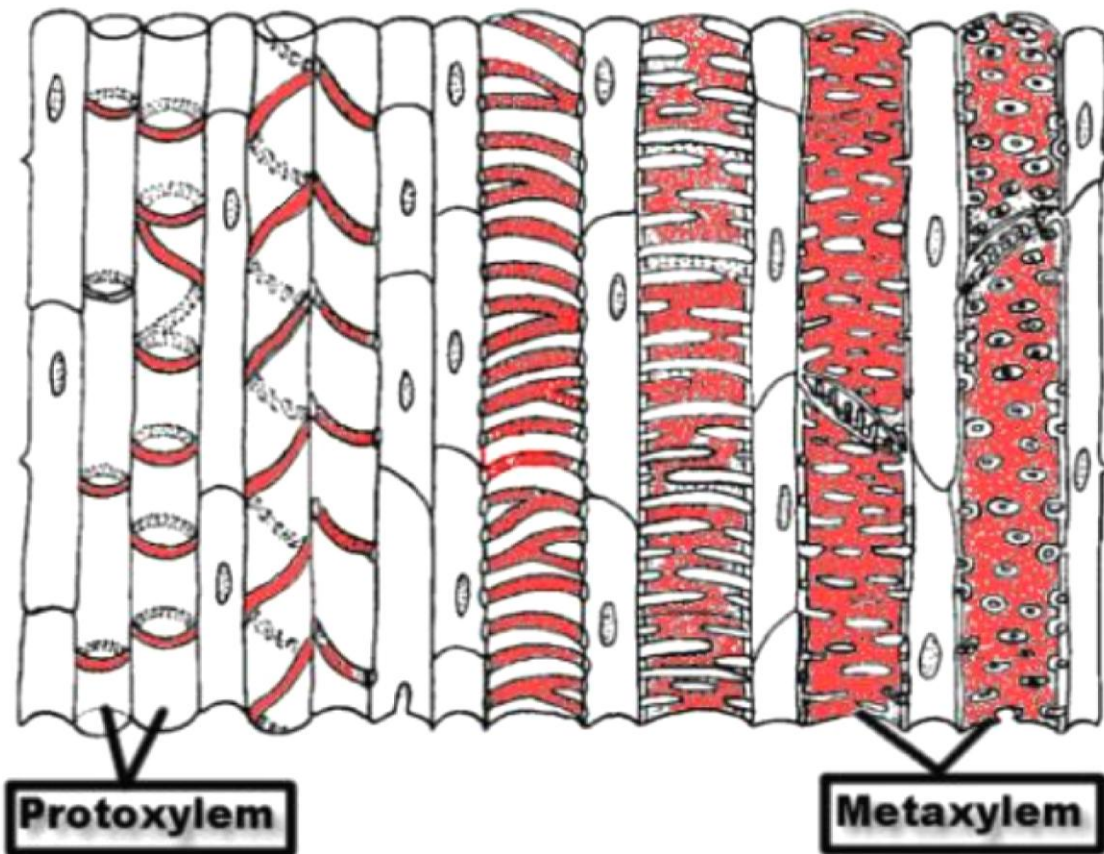
منقر
pitted



شبكة
reticulate



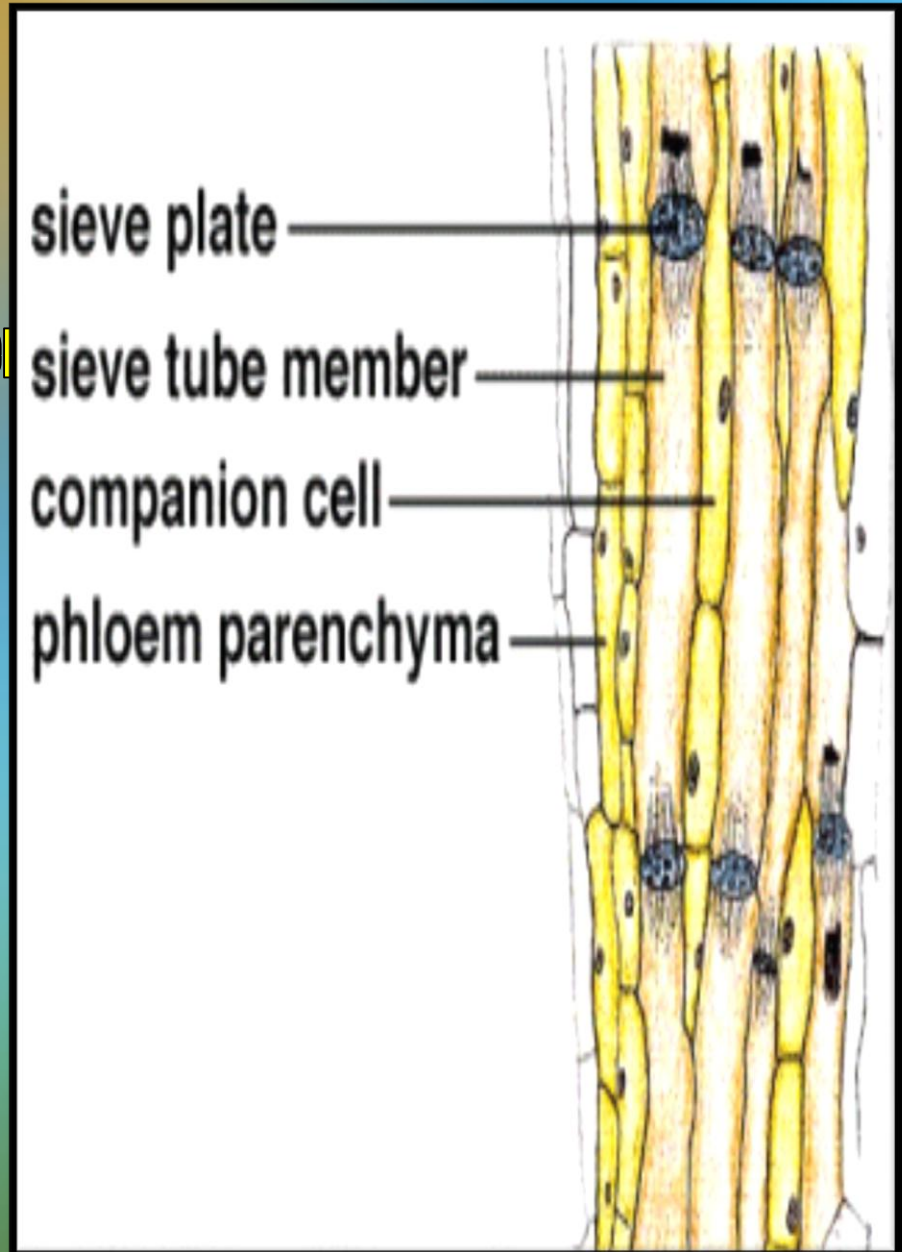
Examples of Vessel Elements

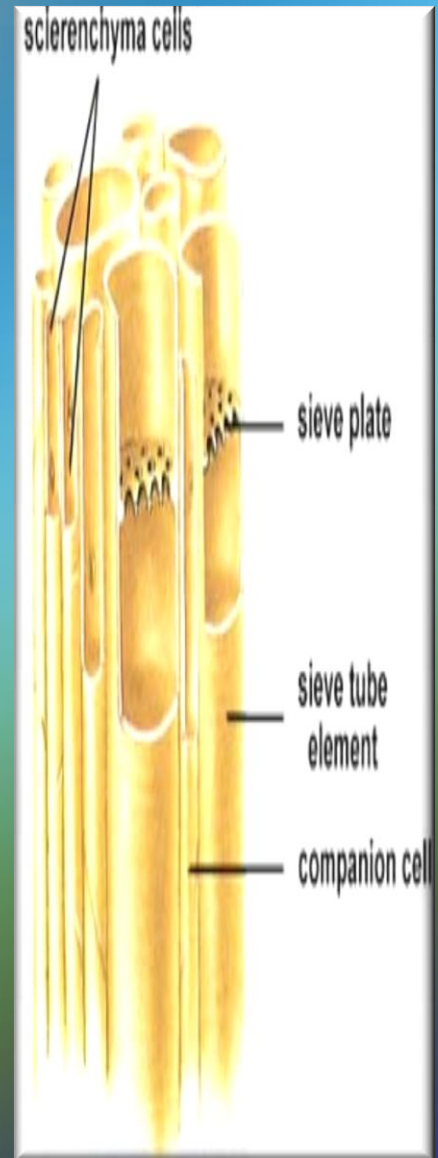
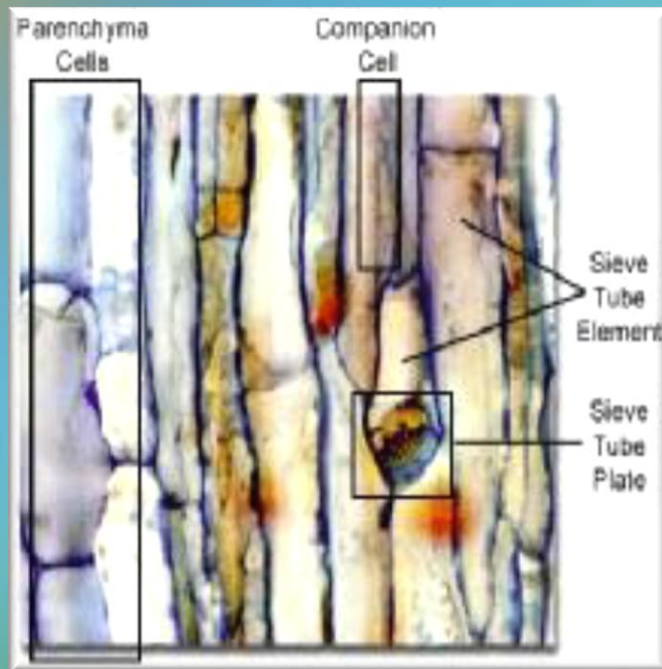
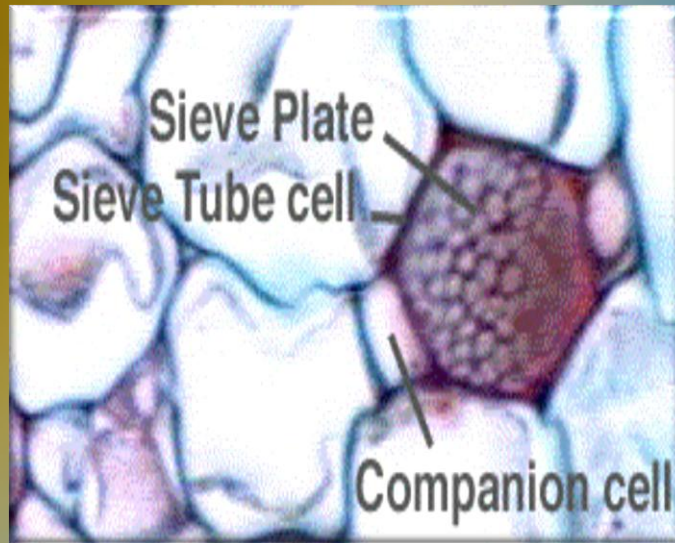
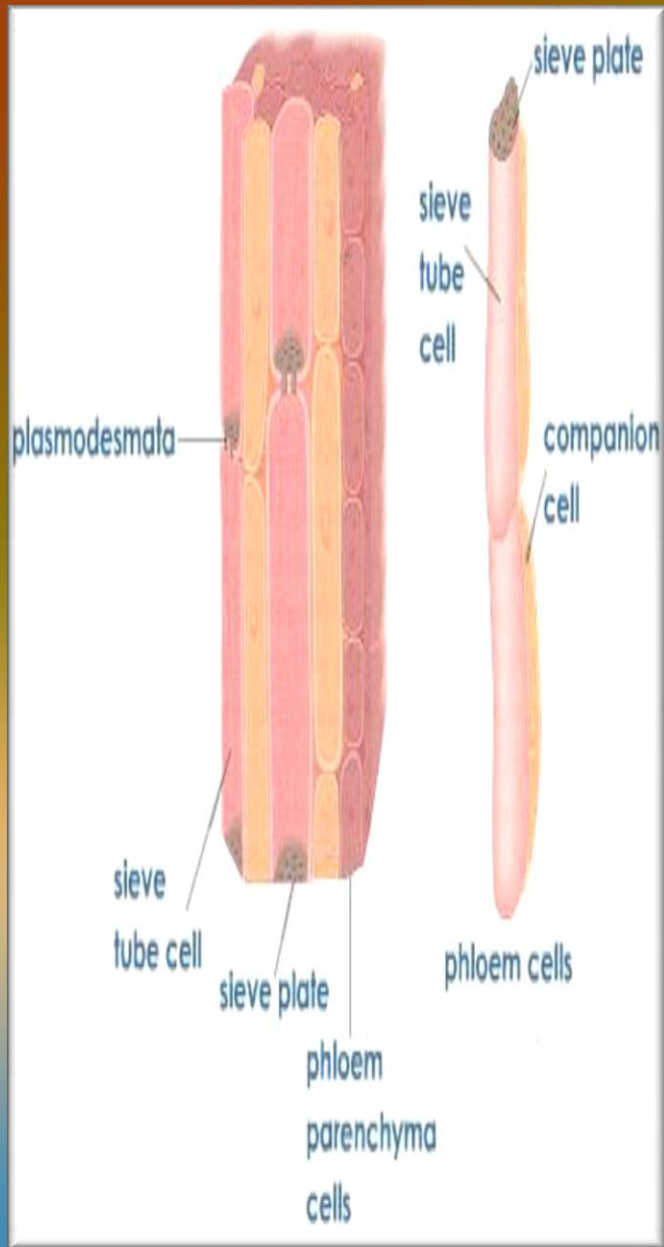


Phloem

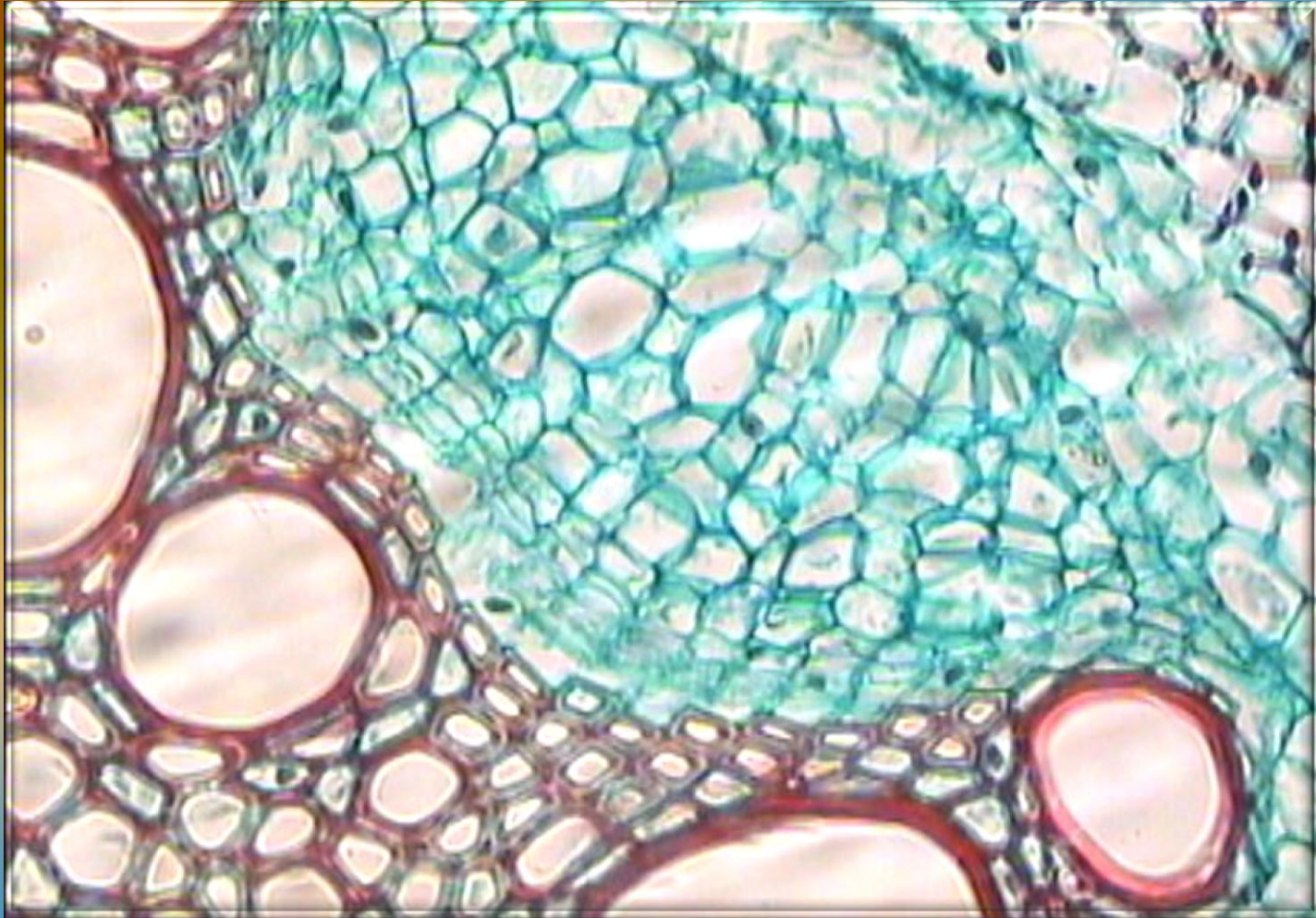
Phloem is a heterogenous tissue, made up of four different types of cellular elements, namely,

- **Sieve tubes**
- **Companion cells**
- **Phloem parenchyma**
- **Phloem fibres**





Phloem parenchyma



Munira Al-Dosari



Thank You
Thank You
Thank You!!!!

