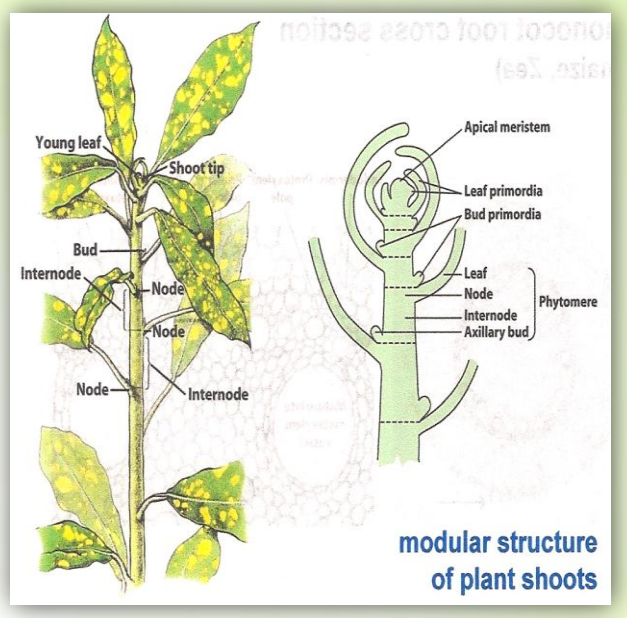
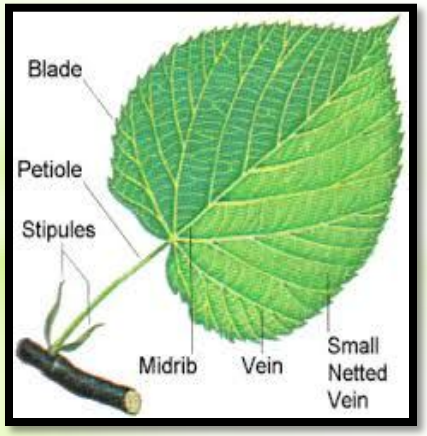
Leaves

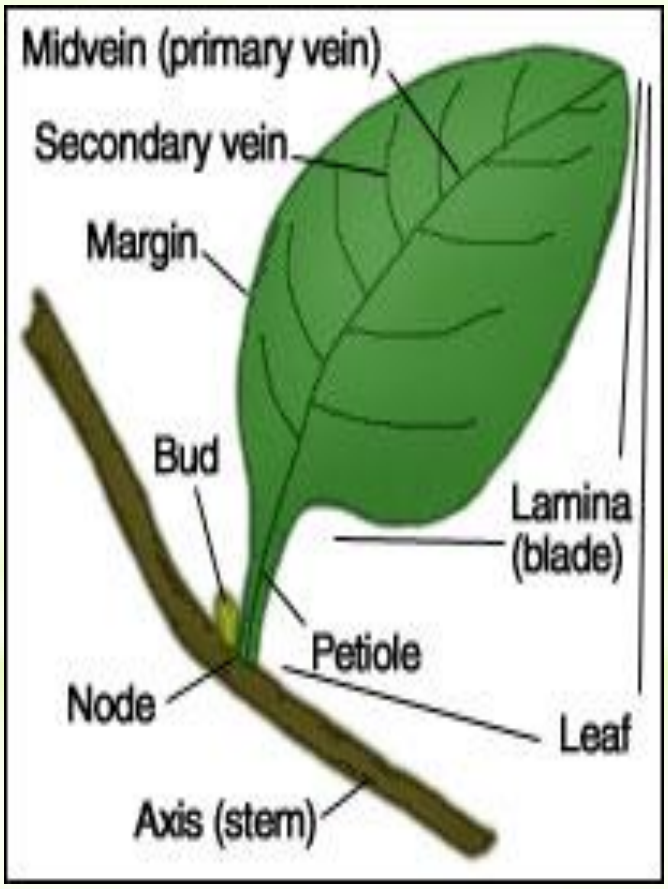
All leaves originate as **primordial** in the buds. At maturity, most leaves consist of stalk, called the **petiole**, and a flattened **blade**, or **lamina**, which have a net work of *veins* (*vascular bundles*).



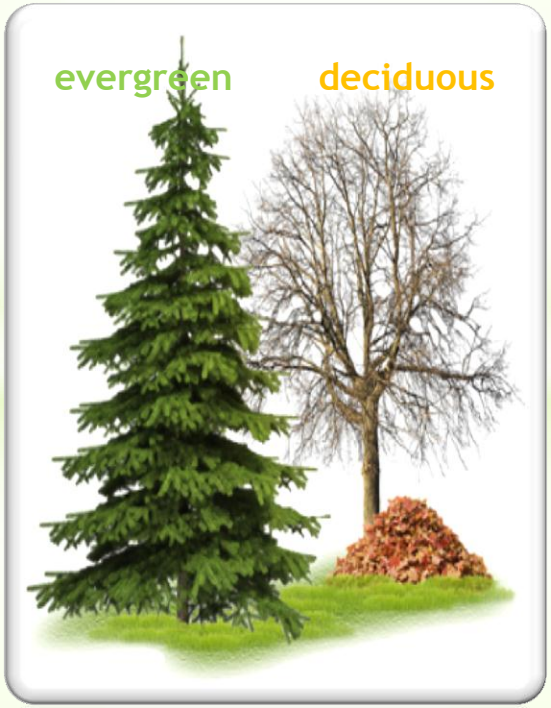
A pair of appendage, called **stipules**, are sometimes present at the base of the petiole. Occasionally, leaves may lack petioles; when they do they are said to be sessile.



*Leaf structure



Leaves of deciduous trees normally live through only one growing season, and even those of evergreen trees are rarely functional for more than two to seven years.



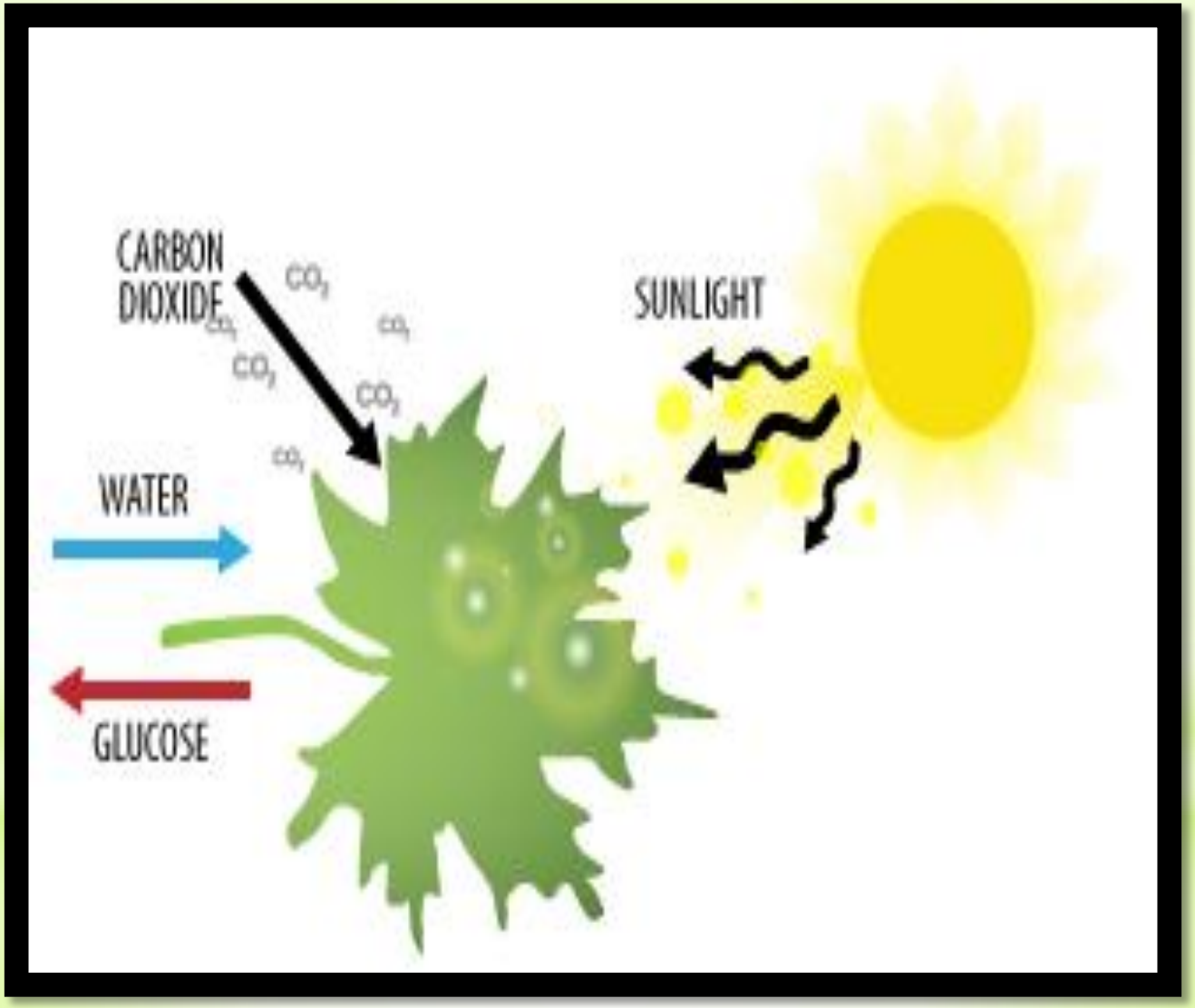
Leaf Functions

1- photosynthis

2- Transpiration

3- Others

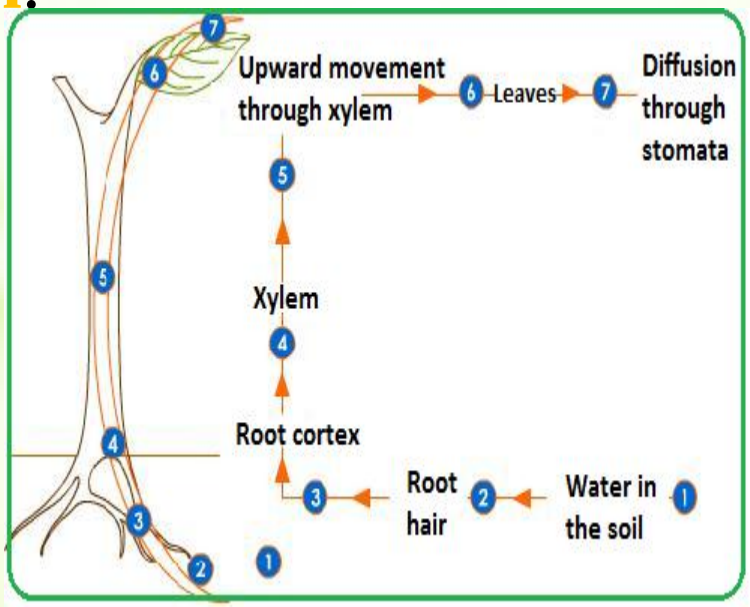
light energy available to them by means of the most important process for life on earth. This process called, **photosynthesis**, involves trapping of energy in sugars molecules that are constructed from ordinary water and carbon dioxide present in the atmosphere. All the energy needs of living organisms ultimately depend on


CARBON DIOXIDE
CO_2
SUNLIGHT
WATER
GLUCOSE

Leaves also perform other functions. For example, all living cells respire, and in process of this and other metabolic activities, waste products are produced. These wastes are deposited outside the plant when the leaves are shed, mostly in the fall, after being sealed off at the base of the petioles. The following season the discarded leaves are replaced with new ones.

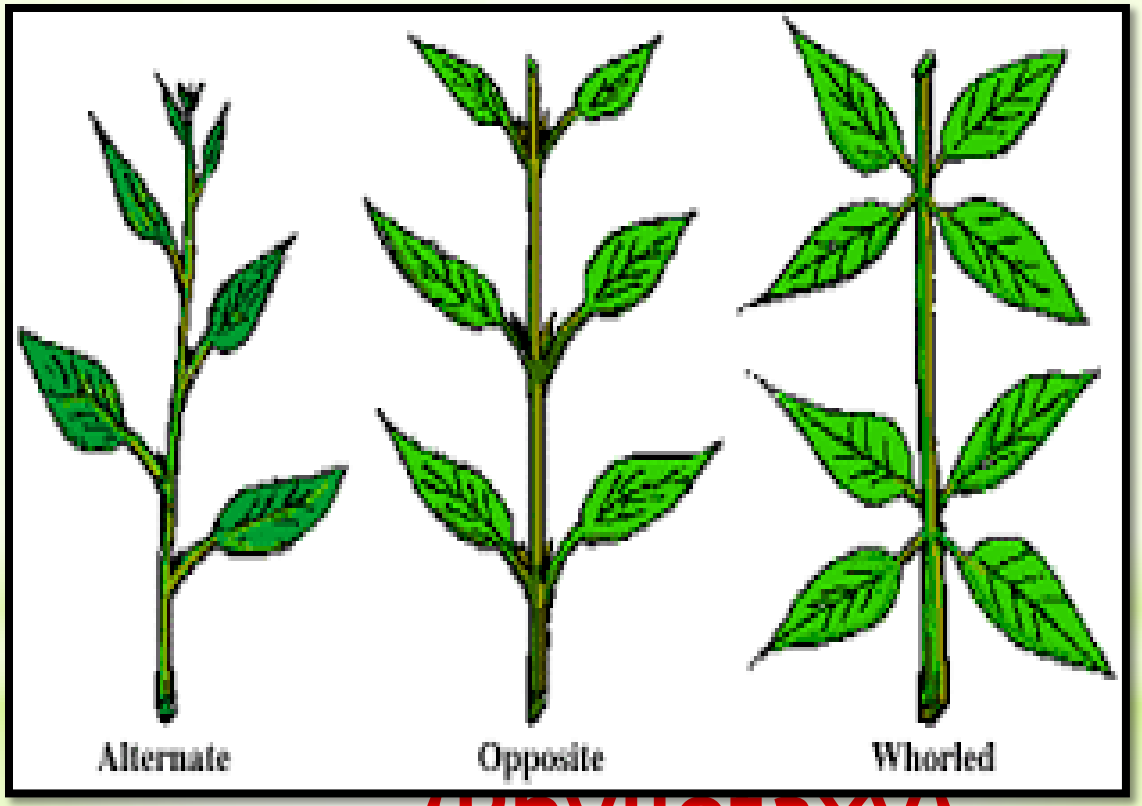
Leaves are also involved in the movement of water absorbed by the roots and transported throughout the plant.

Most of water reaching the leaves evaporates into the atmosphere by the process known as **transpiration**.



Arrangement of leaves on a stem (Phyllotaxy):

The arrangement of leaves may be one in which the leaves are **spiral** or **alternate** pattern, or two leaves may be attached at the same node, providing an **opposite** arrangement. When three or more leaves are occur at the node, they are said to be **whorled**.



on

(Phyllotaxy)

Spiral or alternate

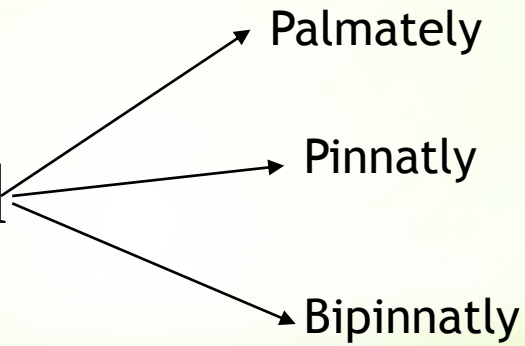
Opposite

Whorled

Types of Leaves

1- Simple

2-Compound



Types of leaves

The leaf may be simple with an undivided blade, or it may be compound leaf with blade divided into leaflets in various ways. Pinnatly compound leaves have the leaflets in pairs along a central stalk-like rachis, while Palmately compound leaves have all the leaflets attached at same point at the end of the petiole. Sometimes the leaflets of Pinnately compound leaf may be subdivided into still smaller leaflets, forming a Bipinnately compound leaf.

Types of leaves

Pinnately C. L.

Alterna te

Palmately C.L.

Opposi te

Palmatel y V.

Pinnataly V.

Parallel V.

Whorled

Fan Shaped

Dichotomou s V.

Linear L.

Globe Shaped

Venations

1- Pinnate

2- Palmate

3- Dicotomous

4- Parallel

5- Reticulate