

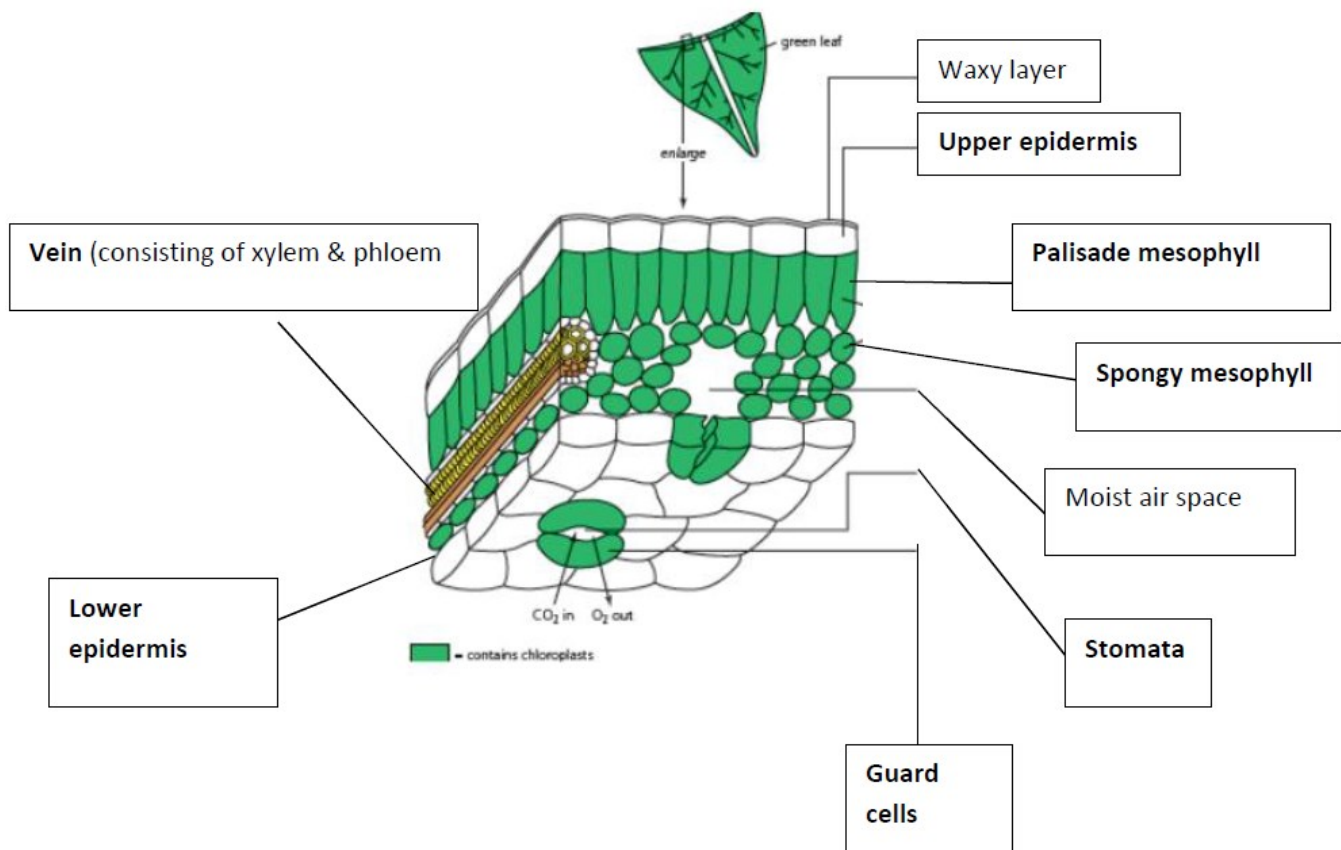
a) Plant organs are :-

Roots

Stems

Leaves

The structure of a leaf is as follows: (learn the parts in **bold**)

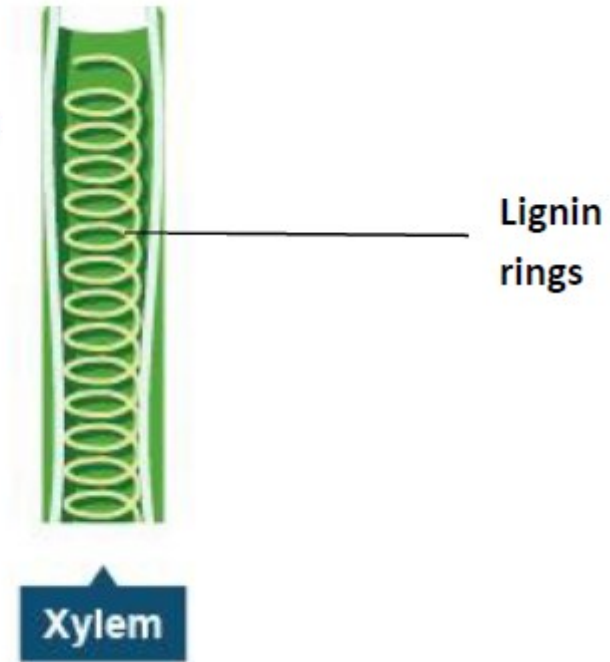


b) Water transport

The **Xylem vessels** are involved in transporting **Water & Minerals**.

Water & Minerals enter a plant through **Root Hairs** and are transported in **dead xylem vessels**.

Xylem cells are **lignified** to Withstand the pressure Changes as water moves through the plant.

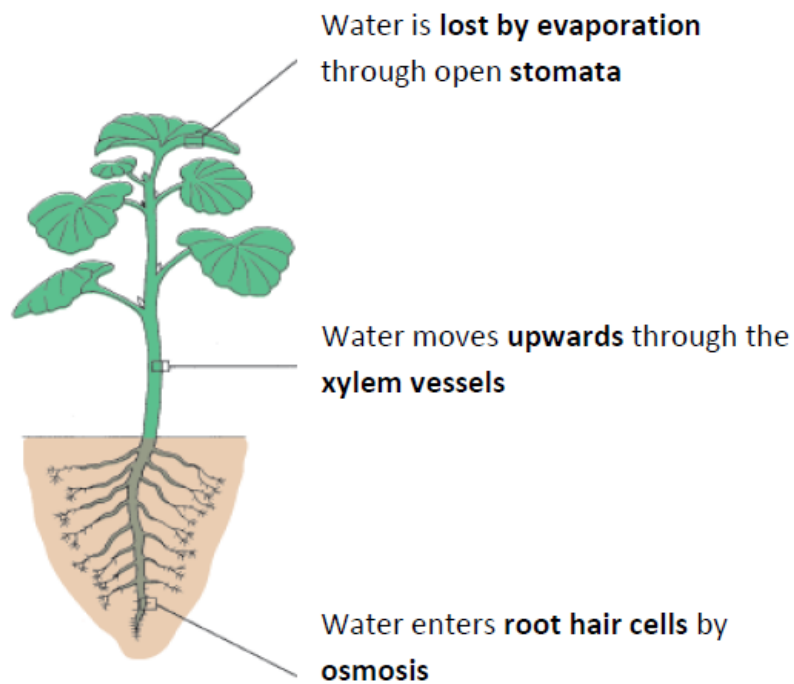


c) Transpiration

Transpiration is the process of **water moving through a plant** and its **evaporation** through the **stomata**.

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External factors can increase or decrease the rate of transpiration in a plant.

Transpiration is affected by:

WIND SPEED

HUMIDITY (moisture in air)

TEMPERATURE

SURFACE AREA

Increased wind speed, increase rate of transpiration.

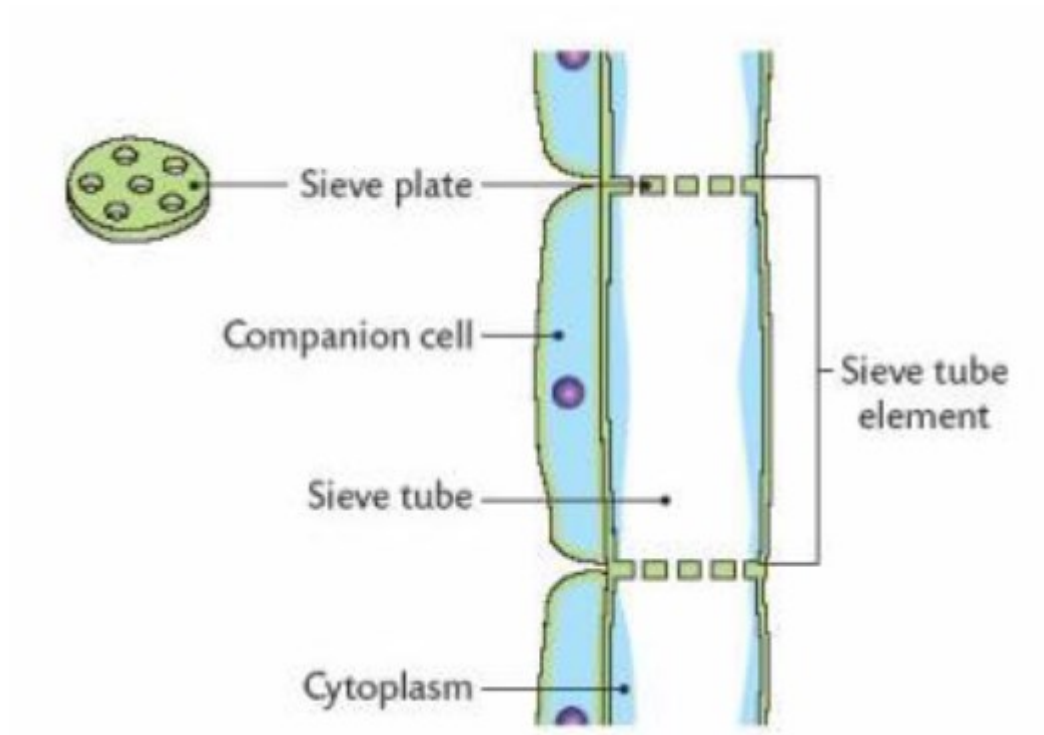
Increased humidity, decreases rate of transpiration.

Increased temperature, increases rate of transpiration.

Increased Surface Area (bigger leaves), increases rate of transpiration.

d) Sugar Transport

Sugar (glucose) is transported **up & down** the plant in **living Phloem**.

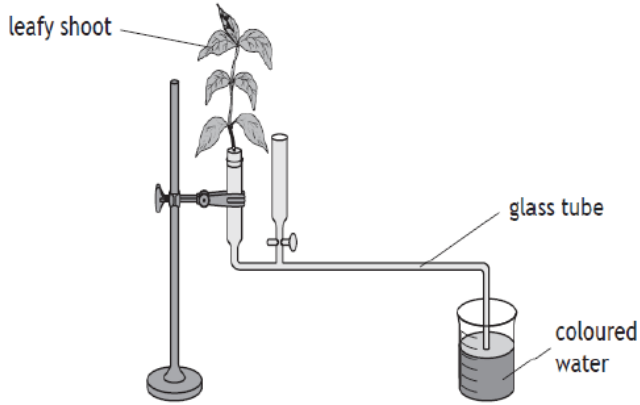


Phloem cells have **Sieve Plates** and associated **Companion Cells**.

Examples

The rate of transpiration in plants can be measured using the apparatus shown below.

As the plant transpires, coloured water is drawn up the glass tube and its volume measured, over a set period of time, to give the rate of transpiration.



Changes in the surrounding environment can have an effect on the rate of transpiration.

(i) Select one of the environmental changes listed below by circling it.

increase in humidity	increase in temperature	increase in wind speed
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State the effect of this change on the rate of transpiration.

(ii) Choose any of the environmental changes listed above and describe an addition to the apparatus shown, which would allow an investigation into its effect.

Environmental change _____

Description of addition _____

Increase in humidity – decreases rate of transpiration.

Increase in temperature – increases rate of transpiration

Increase in wind speed – increases rate of transpiration.

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humidity

put the apparatus in a (transparent) bag /container

temperature

put a heater beside it/put in a water bath at a higher temperature

wind speed

use a fan/hairedryer on cool setting beside the apparatus