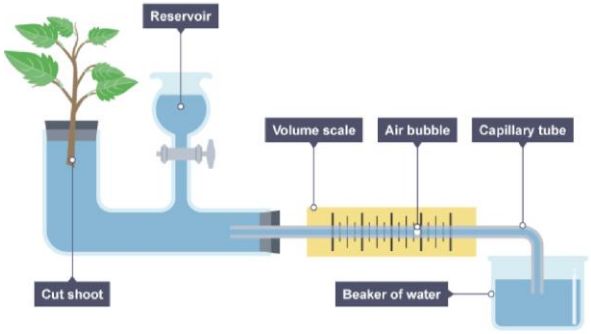
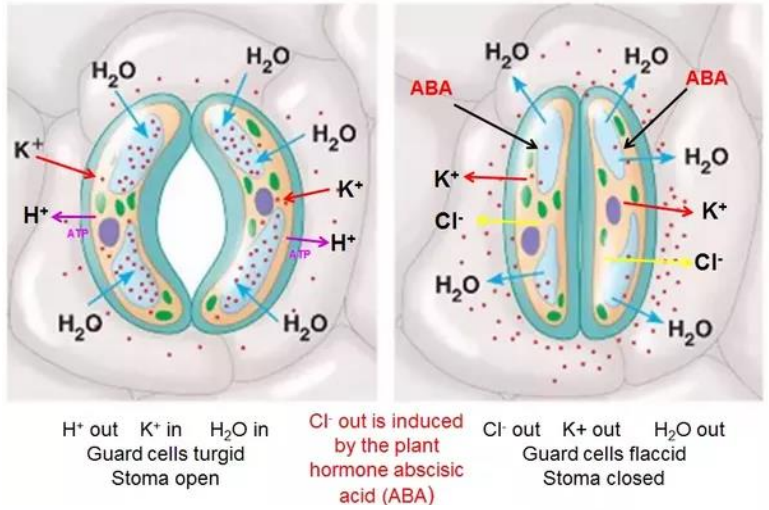
Key vocabulary: Plant organisation and transport	
Roots	Plant organ that absorbs water
Stem	Plan organ that transports water, minerals and sugar around the plant and to support the plant
Leaves	Site of photosynthesis
Veins	Contain xylem (transport H_2O) and phloem (transports sugar)
Epidermal tissue	Covers surface, see through to let light in
Palisade tissue	Has many chloroplast for photosynthesis
Spongy mesophyll	Contains air spaces, large surface area for gas exchange
Guard cell	Cells found on the lower epidermis. Controls the size of the stomata
Stomata	Small holes found on the lower epidermis. Allow O_2 and CO_2 into and out of the leaf.
Transpiration	Loss of water by evaporation from the leaf
Transpiration stream	Movement of water from the roots to the leaves
Translocation	Movement of sugar around the plant

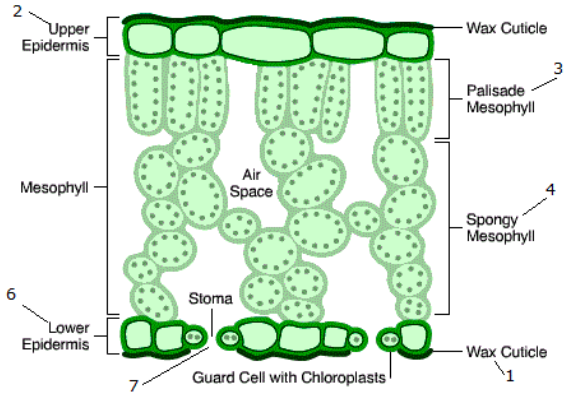
Potometer – used to measure water loss from a plant

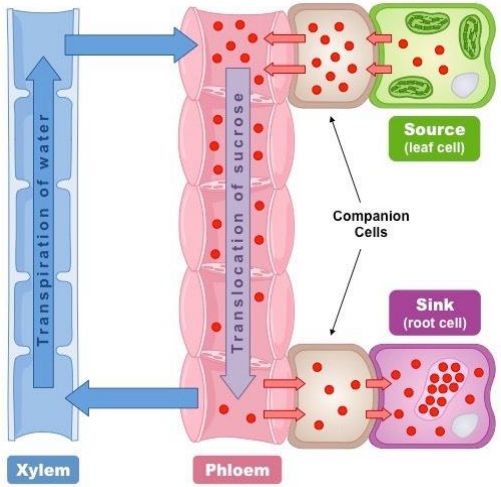


Importance of transport in plants:

- ❑ plant cells need sugar for respiration
- ❑ Sugar and minerals needed for growth
- ❑ Water needed for photosynthesis
- ❑ Water needed to support cells







How do plants control water loss?

- ❑ Plants have a waxy cuticle – prevents evaporation off the upper epidermis
- ❑ most stomata found on the lower epidermis
- ❑ Wilting of plant can reduce water loss. The leaves collapse which reduces surface area
- ❑ Stomata can close during the day – prevents water loss

Factors affecting transpiration

Plants can dehydrate if the rate of evaporation is greater than the uptake of water.

Factors that effect the rate of photosynthesis also effect the rate of transpiration. These factors include:

- ❑ **Temperature** – as temperature increases, so does rate of transpiration. Water molecule move faster as they have more energy.
- ❑ **Humidity** – diffusion of water vapour is faster in dry air compared to damp air.
- ❑ **Air flow** – windy conditions increase transpiration. Keeps steep concentration gradient between inside and outside of leaf.
- ❑ **Light intensity** – greater light intensity increase rate of photosynthesis.