

CIE Biology GCSE

8 - Transport in Plants

Flashcards



What does the xylem transport?



What does the xylem transport?

Water and minerals



What does the phloem transport?



What does the phloem transport?

Sugars like sucrose

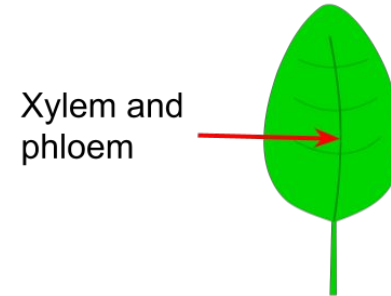
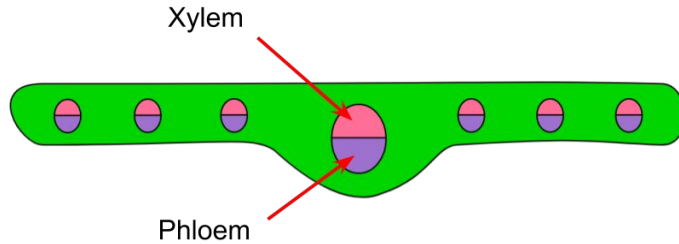


Describe the position of the xylem and phloem in the leaf



Describe the position of the xylem and phloem in the leaf

The xylem is on the top of the phloem

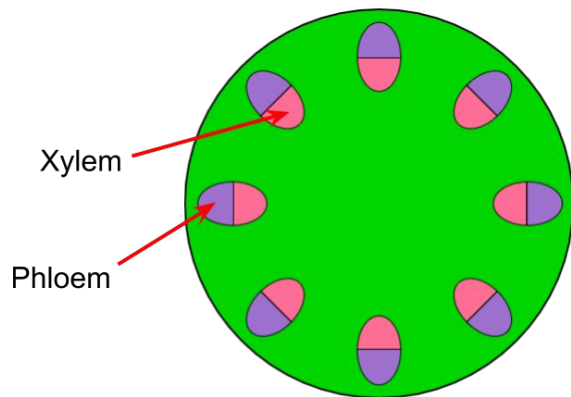


Describe the position of the xylem and phloem in the stem



Describe the position of the xylem and phloem in the stem

The xylem is on the inside of the stem



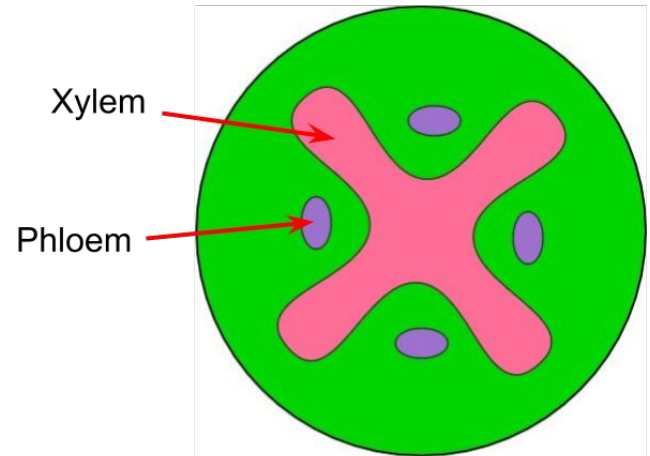
Describe the position of the xylem and phloem in the root



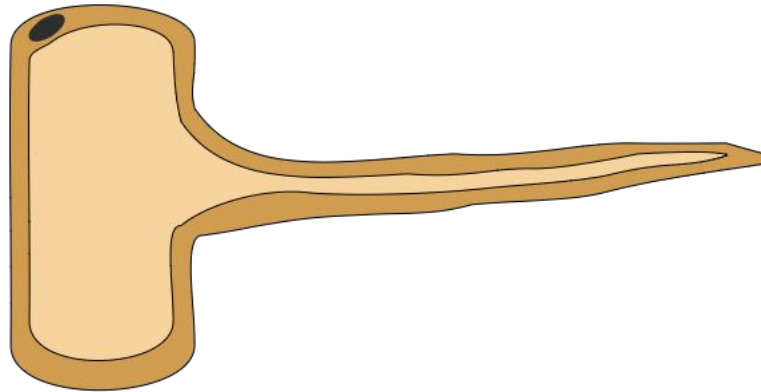
Describe the position of the xylem and phloem in the root

The xylem is in the middle in an X shape

The phloem is on the outside of the xylem

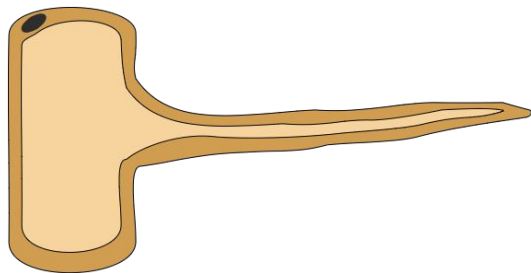


What type of plant cell does this diagram show?



What type of plant cell does this diagram show?

A root hair cell



Describe the pathway of water through a plant



Describe the pathway of water through a plant

Root hair cell → Root cortex cells →
Xylem → Mesophyll cells



How are root hair cells adapted to their function?

(Higher/Supplement)



How are root hair cells adapted to their function? (Higher/Supplement)

- Long root hair extension to increase surface area for uptake
- Thin membranes to decrease the diffusion distance



Describe the process of transpiration



Describe the process of transpiration

- Water is lost through the stomata
- More water is drawn up to replace the lost water



What is the transpiration stream?



What is the transpiration stream?

The transpiration stream is the flow of water through a plant



Define transpiration



Define transpiration

The evaporation of water from the aerial parts of a plant on the surface of the mesophyll cells which is followed by diffusion of water vapour through the stomata



Why is water lost from plants? (Higher/Supplement)



Why is water lost from plants? (Higher/Supplement)

- Plants have large air spaces in them
- Plants have stomata (pores) in the leaves which allows water to diffuse out of the plant
- Plants have a large surface area for evaporation to occur



Explain the movement of water through a plant (Higher/Supplement)



Explain the movement of water through a plant (Higher/Supplement)

- Water evaporates from the leaves creating a negative pressure in the xylem (**transpiration pull**)
- Water is drawn up the xylem in a column that is held together by **cohesion**



How does temperature affect the rate of transpiration?



How does temperature affect the rate of transpiration?

- As the temperature increases, so does the transpiration rate
- The molecules have more KE and evaporation happens faster



How does light intensity affect the rate of transpiration?



How does light intensity affect the rate of transpiration?

- The brighter the light, the more stomata are open and the rate of photosynthesis increases which both decrease the amount of water in the plant
- The rate of transpiration increases



How does the wind speed affect the rate of transpiration?



How does the wind speed affect the rate of transpiration?

- The faster the wind speed, the faster the water is moved away from the plant, creating a steeper gradient and increasing the transpiration rate



What causes wilting? (Higher/Supplement)



What causes wilting? (Higher/Supplement)

A lack of water which means the plant cells are not turgid and so the plant is not supported



Describe translocation (Higher/Supplement)



Describe translocation (Higher/Supplement)

Translocation is the movement of sugars and amino acids up or down the phloem from source to sink (with the use of energy)

