

WJEC England Biology GCSE

2.3 - Transport systems in plants

Flashcards

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



What does the xylem transport?



What does the xylem transport?

Water and minerals



How is the xylem adapted to transport water?



How is the xylem adapted to transport water?

- It is waterproofed using a substance called lignin
- The xylem cells are dead and have no organelles so there is more space for water



How are root hair cells adapted to their function?



How are root hair cells adapted to their function?

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



What process do root hair cells use to take up water?



What process do root hair cells use to take up water?

Osmosis



What process do root hair cells use to take up mineral salts?



What process do root hair cells use to take up mineral salts?

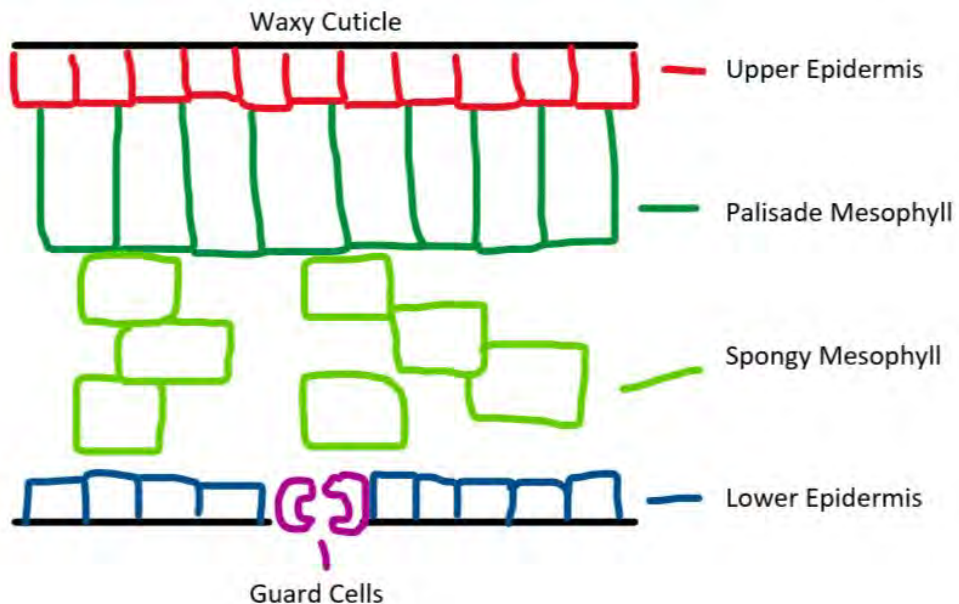
Active transport



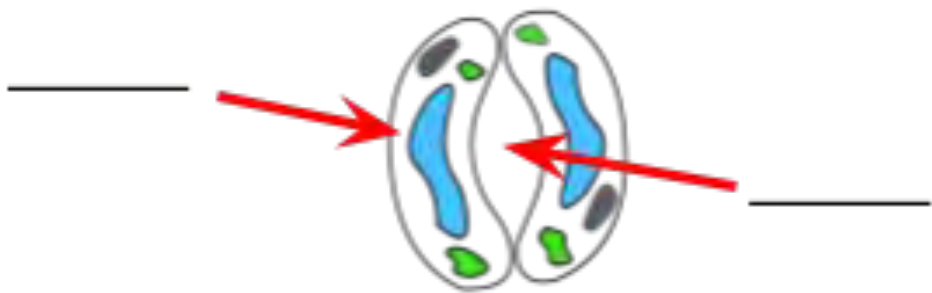
Describe the structure of leaf tissue



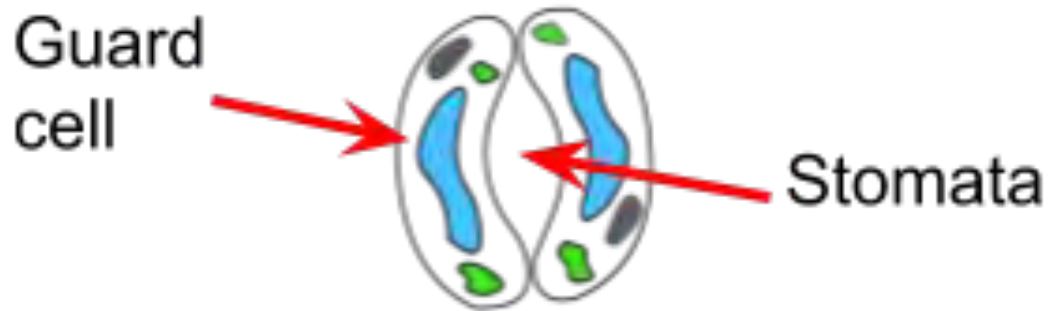
Describe the structure of leaf tissue



Label this diagram of a stomata



Label this diagram of a stomata



State 3 benefits of transpiration



State 3 benefits of transpiration

- The stream of water cools the plant
- The water helps to support the plant by creating turgor pressure
- The plant has a constant water supply for photosynthesis



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



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 does the phloem transport?



What does the phloem transport?

Sugars like sucrose



Describe translocation



Describe translocation

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



Describe how to use a potometer to measure transpiration



Describe how to use a potometer to measure transpiration

- The plant is placed in the end of an airtight tube containing water
- A single air bubble is introduced into the tube and the movement of the bubble is measured over time

