



6.3 Water and minerals

6.4 Review questions 3 and 4

Objective: Describe the process of transpiration

<https://www.youtube.com/watch?v=XscwBiUCK18>

Book page 88

Review questions 3,4

6.3

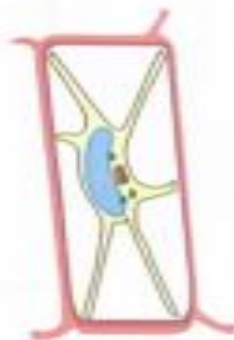
Water and minerals

Objective

- Describe how water and minerals are absorbed by roots and transported to leaves



turgid cell



flaccid cell in a plant that is short of water

- Flaccid cells are floppy so they cannot stand upright.

Why plants need water

Plants need water because their cells use water for photosynthesis, and water evaporates from their leaves. If a plant doesn't get enough water, it **wilts**. That means its leaves and stem droop because their cells cannot support themselves.

Normally each cell's vacuole pushes against its cell walls (see page 43). This keeps the cell **turgid**, which makes it firm and rigid.

If a plant can't take in enough water, each cell's vacuole shrinks. Then there's nothing to press the cytoplasm against the cell wall. The cell becomes **flaccid**. Flaccid cells are floppy, so they can't hold a plant up.

Water also carries minerals to cells. The minerals are stored in the vacuole until the cell needs them.



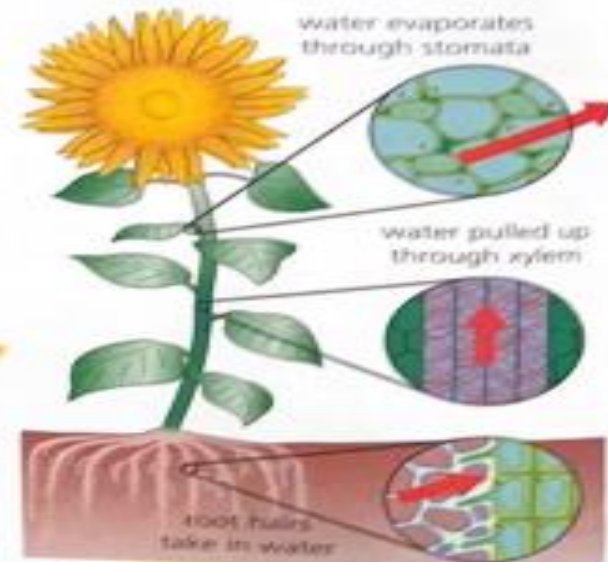
- This plant has wilted. Its cells cannot support themselves without water.

How do water and minerals enter and leave the plant?

The flow of water through a plant is called **transpiration**.

It begins when water evaporates and escapes through gaps called **stomata** on the undersides of the leaves. This pulls more water up through **xylem** vessels to replace it.

Xylem vessels are hollow tubes. They run through the stem connecting the veins in the leaves to the roots. The roots maintain the plant's water supply by absorbing it from the soil. **Root hair cells** (see page 45) give the root a very large surface area to make this easier. They also use some of the energy they get from respiration to take minerals in from the soil.



- Evaporation from the leaves makes water flow continuously from the roots to the leaves.

6.4 Review

Answer key /pages 90,91 questions 3, 4

Question 3 :

Q3.a. As the light intensity increased, the amount of dissolved oxygen increased.

b. As the light intensity increased, the amount of dissolved carbon dioxide would decrease because more would be used for photosynthesis

Question 4 :

- a. **Oxygen gas**
- b. **Apparatus B.**
- c. **By increasing light intensity .**

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Thank you