Transport in plants

A-Level Biology · Vocabulary in context

Word	Example
tissue /ˈtɪʃuː/	Muscle is a **tissue**.
xylem /ˈzaɪləm/	The **xylem** carries water up the plant.
mineral ion /ˈmɪnərəl ˈaɪɒn/	Plants take in each **mineral ion**, such as nitrate, from the soil.
phloem /ˈfləʊɪm/	The **phloem** carries sugar through the plant.
assimilate /əˈsɪmɪleɪt/	Sucrose is the main **assimilate** carried in the phloem.
transverse section /trænsˈvɜːs ˈsekʃn/	A **transverse section** is a thin slice cut straight across a stem.
dicotyledonous plant /ˌdɪkətɪˈliːdənəs plænt/	A bean is a **dicotyledonous plant**: its seed has two seed leaves.
vessel /ˈvesl/	A xylem **vessel** is a long, dead, empty tube that carries water.
lignin /ˈlɪgnɪn/	**Lignin** makes the xylem walls strong.
pits /pɪts/	Water moves sideways between xylem vessels through small holes called **pits**.
sieve tube /sɪv tjuːb/	A **sieve tube** in the phloem carries sugar around the plant.
sieve plate /sɪv pleɪt/	A **sieve plate** is the end wall of a sieve tube, full of holes.

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companion cell /kəm'pænɪən sel/	A **companion cell** gives energy to the sieve tube next to it.
nucleus /'nju:klɪəs/	The **nucleus** holds the cell's DNA.
mitochondria /ˌmaɪtə'kɒndrɪə/	**Mitochondria** release energy from food.
vascular bundle /'væskjʊlə 'bʌndl/	A **vascular bundle** holds xylem and phloem together.
root hair cell /ru:t heə sel/	A **root hair cell** has a long thin part that takes in water from the soil.
osmosis /ɒz'məʊsɪs/	Water enters the root by **osmosis**.
apoplast pathway /'æpəplæst 'pæθweɪ/	In the **apoplast pathway**, water moves through the cell walls.
cell wall /sel wɔ:l/	A **cell wall** gives a plant cell its shape.
cellulose /'selju:ləʊs/	Plant cell walls are made of **cellulose**.
symplast pathway /'sɪmplæst 'pæθweɪ/	In the **symplast pathway**, water moves through the cytoplasm of the cells.
plasmodesmata /ˌplæzməʊd'smɑ:tə/	**Plasmodesmata** are thin channels through the walls between two plant cells.
endodermis /'endəʊdəmɪs/	The **endodermis** is a ring of cells around the centre of the root.
Casparian strip /kæ'speərɪən strɪp/	The **Casparian strip** blocks water in the cell walls, so it must go into the cells.
suberin /'sʌbərɪn/	**Suberin** is a waxy material that water cannot pass through.



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transpiration /trænspəˈreɪʃn/	**Transpiration** is the loss of water from leaves.
evaporation /ɪˌvæpəˈreɪʃn/	**Evaporation** dries wet clothes.
water vapour /ˈwɔːtə ˈveɪpə/	**Water vapour** leaves the leaf through the stomata.
diffuse /dɪˈfjuːz/	Molecules **diffuse** from high to low concentration.
stomata /ˈstəʊmətə/	Gases enter the leaf through the **stomata**.
atmosphere /ˈætməsfɪə/	Water vapour leaves the leaf and goes into the **atmosphere**.
hydrogen bond /ˈhaɪdrədʒn bɒnd/	A **hydrogen bond** is a weak pull between molecules, such as between water molecules.
cohesion /kəʊˈhiːʒn/	**Cohesion** holds water molecules together, so they move up the xylem in a column.
tension /ˈtenʃn/	The **tension** in the rope holds up the lamp.
adhesion /ədˈhiːʒn/	**Adhesion** makes water stick to the walls of the xylem.
potometer	A **potometer** measures how fast a shoot takes up water.
xerophyte /ˈzɪərəfaɪt/	A cactus is a **xerophyte**: it lives where there is little water.
adapted /əˈdæptɪd/	A cactus is **adapted** to dry places.
cuticle /ˈkjuːtɪkl/	The waxy **cuticle** stops the leaf losing water.

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sucrose /ˈsuːkrəʊs/	Plants move sugar around as **sucrose**.
amino acid /əˈmiːnəʊ ˈæsɪd/	Glycine is the simplest **amino acid**.
source /sɔːs/	A leaf is a **source**: it makes sugar for the rest of the plant.
sink /sɪŋk/	A root is a **sink**: it uses or stores sugar.
proton pump /ˈprəʊtɒn pʌmp/	A **proton pump** uses ATP to push hydrogen ions out of the cell. ATP
cotransporter protein /ˈkɒtrənspɔːtə ˈprəʊtiːn/	A **cotransporter protein** carries sucrose and a hydrogen ion into the cell together.
active transport /ˈæktɪv ˈtrænspɔːt/	**Active transport** uses energy to move ions into root cells.
water potential /ˈwɔːtə pəˈtenʃl/	Water moves from high **water potential** to low water potential.
hydrostatic pressure /ˌhaɪdrəˈstætɪk ˈpreʃə/	High **hydrostatic pressure** in the phloem pushes the sap along.
mass flow /mæs fləʊ/	In **mass flow**, the whole liquid moves, carrying everything dissolved in it.

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