# 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** /kəmˈpænɪən sel/ | A **companion cell** gives energy to the sieve tube next to it. |
| **nucleus** /ˈnjuːklɪəs/ | The **nucleus** holds the cell's DNA. |
| **mitochondria** /ˌmaɪtəˈkɒndrɪə/ | **Mitochondria** release energy from food. |
| **vascular bundle** /ˈvæskjʊlə ˈbʌndl/ | A **vascular bundle** holds xylem and phloem together. |
| **root hair cell** /ruːt heə sel/ | A **root hair cell** has a long thin part that takes in water from the soil. |
| **osmosis** /ɒzˈməʊsɪs/ | Water enters the root by **osmosis**. |
| **apoplast pathway** /ˈæpəplæst ˈpæθweɪ/ | In the **apoplast pathway**, water moves through the cell walls. |
| **cell wall** /sel wɔːl/ | A **cell wall** gives a plant cell its shape. |
| **cellulose** /ˈseljuːləʊs/ | Plant cell walls are made of **cellulose**. |
| **symplast pathway** /ˈsɪmplæst ˈpæθweɪ/ | In the **symplast pathway**, water moves through the cytoplasm of the cells. |
| **plasmodesmata** /ˌplæzməʊdˈsmɑːtə/ | **Plasmodesmata** are thin channels through the walls between two plant cells. |
| **endodermis** /ˈendəʊdəmɪs/ | The **endodermis** is a ring of cells around the centre of the root. |
| **Casparian strip** /kæˈspeərɪən strɪp/ | The **Casparian strip** blocks water in the cell walls, so it must go into the cells. |
| **suberin** /ˈsʌbərɪn/ | **Suberin** is a waxy material that water cannot pass through. |

DNA

| Word | Example |
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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. |