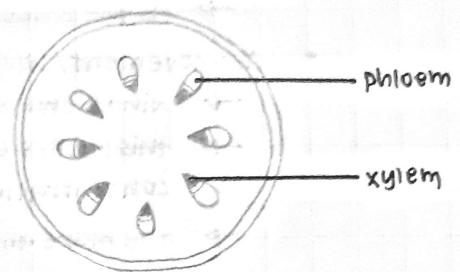


TRANSPORT IN PLANTS

TRANSPORT VESSELS

xylem

- conduct water and mineral salts from roots to leaves
- support
- adaptations
 - hollow lumen without protoplasm to reduce resistance to water
 - deposition of lumen on cell walls that strengthens and provides support



phloem

- conduct sugars and amino acids from leaves to other parts of plant (translocation)

TRANSPIRATION

- loss of water vapour from a plant, mainly through stomata of the leaves

transpiration pull

- water travels from roots to leaves via xylem vessels against gravity

QUESTION

| TRANSPIRATION | TRANSPIRATION PULL |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">water from mesophyll cells form a thin film of moisture over their surfacewater evaporates from the thin film of moisture and moves into the intercellular air spaces. water vapour accumulates in the large air spaces near the stomatawater vapour diffuses through stomata to drier air outside the leaf. This is transpiration. | <ul style="list-style-type: none">as water evaporates from the mesophyll cells, water potential of cell sap decreasesMesophyll cells begin absorbing water by osmosis from the cells deeper inside the leaf, which in turn remove water from veins (xylem vessels)this results in transpiration pull, a suction force which pulls the whole column of water up the xylem vessels |