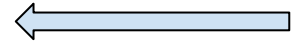


Water moves up the xylem through transpiration

Sucrose from a source is loaded into the phloem tubes through ATP, increasing the solute concentration in the sieve tubes.

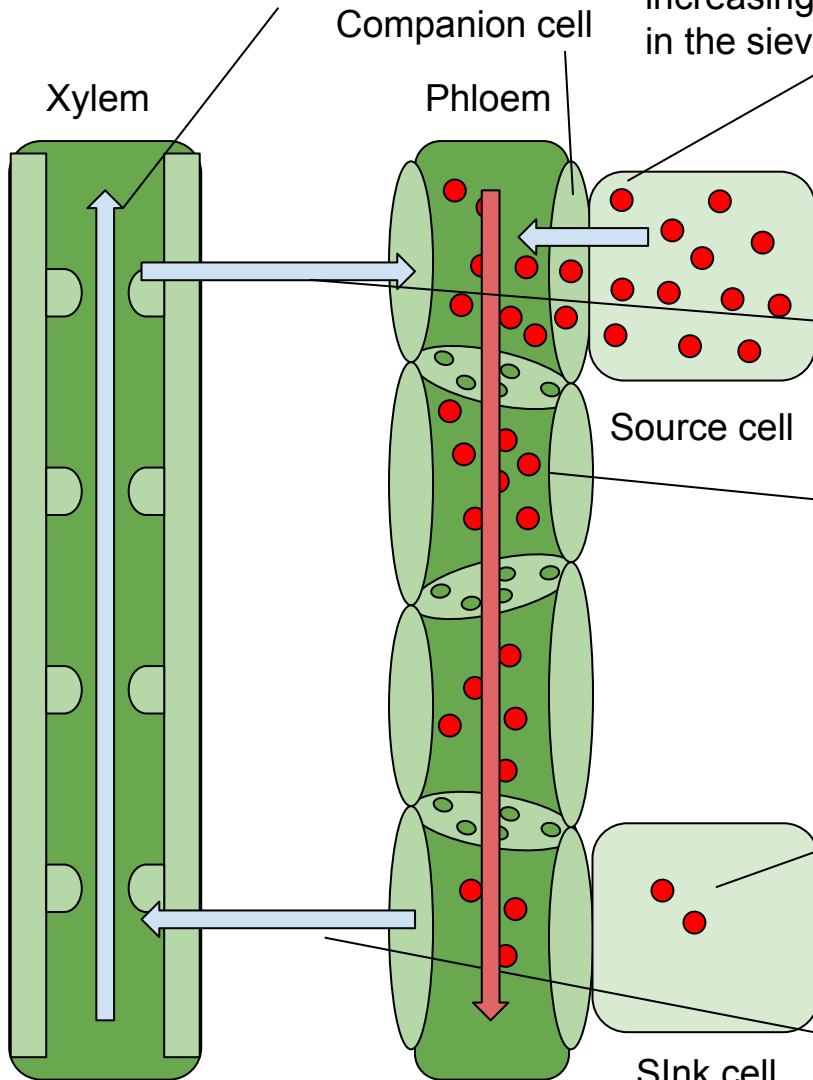


Water movement



Sucrose movement

● = Sucrose molecule



The concentration gradient allows the water from the xylem to move passively through osmosis from low solute concentration to high.

Due to the high hydrostatic pressure, the sap is pushed from the source to the sink.

Sugar is unloaded by companion cells, lowering the solute concentration.

This allows water to passively go back to the xylem vessel through osmosis. There is now low hydrostatic pressure in the sink so sap from the source flows to the sink.

Sink cell