Exercise walk-through

Translocation ▪ 8.4

eXercise

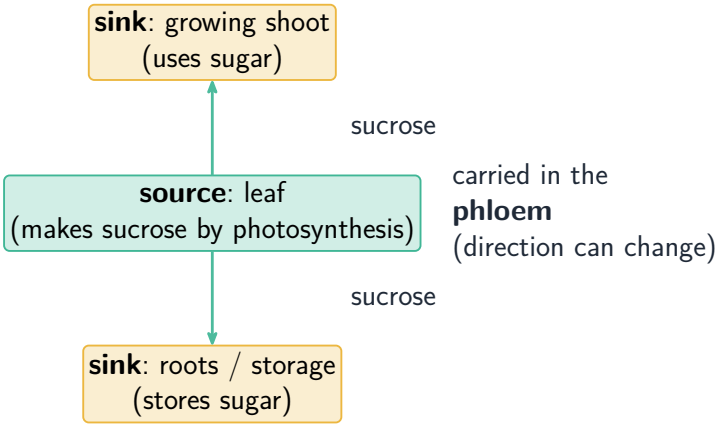
You must be able to

- define translocation
- identify sources and sinks
- explain why the direction can change

Method — Sources and sinks

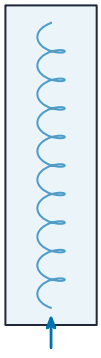
- **source:** releases sucrose (e.g. a photosynthesising leaf, or a store being used).
- **sink:** uses or stores it (e.g. growing roots, a storage organ).

Method — Sources and sinks



Phloem carrying sucrose from a source leaf to sink roots/shoots

Method — Sources and sinks

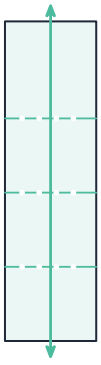


dead, hollow cells;
thick **lignin** walls

carries water + minerals **up** only

also **supports** the plant

xylem



living cells;
sieve plates

carries sucrose + amino acids

moves **both ways**

phloem

Translocation moves sugars in the phloem

Practice 2.1 ▪ 1 mark

Define translocation.

Solution 2.1

Worked steps

the movement of sucrose and amino acids in the phloem (from source to sink) B1.

Practice 2.2 ▪ 1 mark

Give one example of a source.

Solution 2.2

Worked steps

a photosynthesising leaf (or a storage organ releasing sugar) B1.

Exam-style 3.1 ▪ 1 mark

Translocation moves substances in the:

A xylem, upward only

B phloem, from source to sink

C xylem, from leaves to roots

D air spaces

Solution 3.1

Method: Sources and sinks

A xylem, upward only

B phloem, from source to sink ✓

C xylem, from leaves to roots

D air spaces

Worked steps

B. Translocation moves substances in the phloem from source to sink.

Exam-style 3.2 ▪ 1 mark

A leaf making sugar in summer acts as a source.
(a) Name a sink that the sugar might be transported to.
(b) Explain why a potato tuber can be a sink in summer but a source in spring.

Solution 3.2

Method: Sources and sinks

Worked steps

(a) growing roots / a storage organ **B1**.
(b) in summer it stores sugar, so it is a sink **M1**; in spring it releases stored sugar to grow new shoots, so it becomes a source **A1**.