Review: transport in plants

Student activity • observation and reasoning

YEAR 10 / LESSON 47 / BIOLOGY + SCIENCE (DOUBLE AWARD)

The question

Can you link structures, substances and evidence?

Use the supplied examples, record your reasoning and correct it using evidence.

Equipment

- Student booklet, paper models, pencil and ruler

Paper, modelling and written reasoning only. No chemicals or biological samples are handled.

Course coverage: Shared transport and tropisms; Biology-only transpiration extensions marked.

Plan, model or apparatus sketch

Draw and label the apparatus or biological model; identify one limitation.

Method and reasoning

Read the whole sequence before starting

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1. Draw and label xylem and phloem routes.

2. Explain source-to-sink transport with two routes in different directions.

3. Explain why a large plant requires transport systems.

4. Use differential elongation to explain shoot phototropism.

5. Biology extension: distinguish root osmosis, xylem transport, leaf evaporation and vapour diffusion.

6. Biology extension: evaluate one potometer claim using your measurements and controls.

Cleanup

- Return models and keep the corrected work.

Record your evidence

Blank spaces are for your own work

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Reference and task data

Shared work covers transport systems and tropisms. Detailed root absorption, transpiration and potometer analysis are Biology extensions. Correct two misconceptions using evidence.

Example / trial	Observation / evidence	Explanation / limit
Evidence / comparison		
Explanation		
Limit / correction		

Show your calculations, labelled model or correction here.

Explain and evaluate

Use evidence and show calculation steps where relevant

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1. Name two phloem solutes.

2. What moves in xylem?

3. Why is transport useful?

4. Which shoot side elongates more?

5. Biology: where does evaporation occur?

6. Biology: what does a bubble potometer measure?