Plant responses to light and gravity

Teacher / technician

YEAR 10 / LESSON 44 / BIOLOGY + SCIENCE (DOUBLE AWARD)

Staff preparation and answer guidance. Keep separate from student sheets. Original learning tasks; no supplied numerical example represents class measurements.

Coverage and delivery

Shared Biology / Double Award: 2.83–2.84. Plant responses.

Allow about 60 minutes. Follow the student sequence and use the answers to check reasoning.

Requisition • class of 30, working in 15 pairs

Item	Per pair / setup	Class total
Student booklets	1 per learner	30
Labelled comparison image sets / rulers	1 set and 1 ruler per pair	15 of each

Immediate safety

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

Preparation and delivery

Read alongside the student method

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1. Prepare 15 paired photograph sets from a documented seedling investigation: starting and final images for one-sided versus overhead light, plus a separate gravity comparison kept in darkness. Retain treatment conditions and timestamps. If using schematic drawings instead, label them explicitly as models, not observations.

2. Check that images show comparable species, age, water, temperature and observation intervals. Include initial orientation; an end photograph alone cannot establish the cause of curvature.

3. Provide 30 booklets and 15 rulers. Keep answers separate until learners have attempted the tasks.

Close of lesson

• Return models and keep the corrected work.

Check before teaching

Check the cards, reference data and quantities against this requisition. Keep the staff answer guide separate until the checking stage. Supplied numerical practice datasets are labelled examples; they are not class measurements.

Answers and teaching notes

Expected explanations • do not give as experimental observations

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- Directional growth in response to a directional stimulus.
- Growth towards light.
- Growth away from the direction of gravity.
- Growth towards gravity.
- To reveal biological variation and avoid relying on one specimen.
- Without the starting state and controls it gives weak evidence of what caused the curvature.

References and provenance

Pearson Biology specification

Prepared 22 November 2026. Original wording, tables and questions. Sources inform the concepts and technique; the lesson scope and classroom quantities are explicitly described here. No laboratory trial or final school risk approval is claimed.