Investigating seed germination

Teacher / technician

YEAR 11 / LESSON 84 / 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: 3.5–3.6. Germination and stored reserves.

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
Booklets / daily count sheets	1 per learner	30
Untreated seeds	30 per pair	450 plus spares
Dishes / equal paper layers	3 per pair	45 dishes and paper sets
Water / measuring pipette	pilot-set dampening volume	supply for 30 moist dishes and maintenance
Temperature locations / thermometers	room and cool, matched light	2 monitored locations
Labels / ventilated covers	matching treatment identification	45 labels; matching cover provision

Immediate safety

Do not eat seeds or seedlings. Check seed and plant allergies; avoid treated seed coatings. Wash hands after handling. Keep dishes closed during inspection if mould appears, and have staff remove them without opening or sniffing. Use a science refrigerator, not food-storage space.

Preparation and delivery

Read alongside the student method

YEAR 11 / LESSON 84 / BIOLOGY + SCIENCE (DOUBLE AWARD)

1. Choose a known untreated fast-germinating seed batch, such as cress, and pilot room-temperature germination. Provide ten seeds in each of three dishes per pair: 450 seeds for 15 pairs plus spare.

2. Pilot a dampening volume for the dish/paper size and record it for all moist dishes; avoid standing water. Provide identical paper and loose-fitting lids.

3. Use a recorded room-temperature location and a science refrigerator around 4–8 °C. Keep light comparable, for example by using matching ventilated opaque covers, and record temperatures rather than relying on dial settings.

4. Arrange five daily observations and consistent measured moisture maintenance. Preserve dry controls. Provide a later warm recovery observation for cool seeds and plan staff disposal of mouldy material.

5. Discuss oxygen using the specification and cited guide. Do not label this water/temperature design as an isolated oxygen test.

Close of lesson

- Staff dispose of seeds and paper after the investigation; keep mouldy dishes closed.
- Clean reusable dishes and wash hands.

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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- Visible root emergence.
- To reduce differences in viability, species and prior treatment.
- 80%.
- Enzyme-mediated processes generally proceed more slowly at low temperature.
- Stored reserves in the seed.
- No; oxygen is not independently manipulated.

References and provenance

Pearson Biology specification

SAPS: investigating seed germination

Pearson: core practical guide

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.