Review: variation, evolution and biotechnology

Teacher / technician

YEAR 11 / LESSON 101 / 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 variation, selection and genetic engineering; Biology-only cloning and molecular mutation detail marked.

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
Variation and recombinant-DNA recap cards	1 set per pair	15 sets
Rulers	1 per pair	15

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. Provide 30 booklets, 15 rulers and 15 sets of variation and recombinant-DNA recap cards.

2. Keep answers separate until learners have attempted the tasks; discuss the reasons for corrections.

3. Write the stated beetle counts on cards; reuse the labelled restriction-enzyme, vector and ligase diagrams from Lesson 99. Keep cloning detail marked Biology-only.

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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- No.
- Cuts DNA at specific recognition sites.
- Joins DNA fragments.
- Parents and offspring with desired inherited traits.
- No; it refers to transferred genetic material between species in this course.
- Environmental effects, mutation and other biological differences can affect phenotype.

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.