Carbon cycling and forest change

Teacher / technician

YEAR 11 / LESSON 109 / 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: 4.10. Biology-only extension: 4.18B deforestation.

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
Carbon-store and process-arrow 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

YEAR 11 / LESSON 109 / BIOLOGY + SCIENCE (DOUBLE AWARD)

1. Provide 30 booklets, 15 rulers and 15 sets of carbon-store and process-arrow cards.

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

3. Label cards for the stores and processes named in the method. Provide separate forest-intact and forest-cleared diagrams; mark detailed soil/water effects as Biology-only. No combustion experiment is used.

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

YEAR 11 / LESSON 109 / BIOLOGY + SCIENCE (DOUBLE AWARD)

- Photosynthesis.
- Yes.
- Organic molecules pass from food to consumer.
- It converts stored carbon into CO_2 and other products.
- It removes biomass and can reduce future uptake or release existing stores.
- Increased erosion/leaching or altered evapotranspiration.

References and provenance

Pearson Biology specification

NOAA: carbon-cycle basics

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.