Distribution and biodiversity along a transect

Teacher / technician

YEAR 11 / LESSON 105 / BIOLOGY ONLY

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

Coverage and delivery

Biology only: 4.3B–4.4B. Distribution and biodiversity using quadrats.

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

Requisition • class of 30, five groups of six

Item	Per pair / setup	Class total
Gridded quadrat / 8 m tape	1 set per group of six	5 sets
Plant keys / species sheets	1 set per group plus spare sheets	5 sets
Optional light meter	consistent instrument method	up to 5, or shared calibrated method
Booklets	1 per learner	30

Immediate safety

Staff check the site for traffic, water, sharp litter, animal waste and unsafe ground. Stay inside agreed boundaries, wear suitable footwear and weather protection, avoid unknown plants and animals, and wash hands before eating. Keep tapes flat and visible to reduce trips.

Preparation and delivery

Read alongside the student method

YEAR 11 / LESSON 105 / BIOLOGY ONLY

1. Choose five safe separated transects crossing a comparable gradient. Assign groups of six and avoid trampling before recording. Confirm that all endpoints and quadrat placements remain inside authorised safe areas.

2. Provide five tape/quadrat/key sets. Agree species-identification codes, target-cover estimation and quadrat orientation before starting.

3. Use five positions per transect, 25 quadrats total. Keep effort equal; provide extra species-recording paper because a fixed small table cannot predetermine actual richness.

4. If using light meters, check range, units and consistent measurement geometry. Record time and weather; avoid treating a qualitative shade category as calibrated irradiance.

Close of lesson

- Collect tapes and markers, leave organisms in place and check no litter remains.
- Wash hands before eating or drinking.

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 105 / BIOLOGY ONLY

- To sample the gradient consistently.
- The number of species in the defined sample.
- Sampling area affects what is found.
- No.
- To assess variation beyond one line.
- No; moisture, soil and disturbance may also vary.

References and provenance

Pearson Biology specification

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.