

Build an Ecosystem

A1-BIO project summative · 25% due: End of Component 1 (Lesson 4)

Summative task for the Biological sciences strand, modelled on the SCSA Year 4 exemplar 'build an ecosystem' task. Students design an ecosystem around a tree, draw and label food chains with correct arrows, include producers, consumers and a decomposer, and explain the ecological relationships and what would happen if one living thing were removed. Completed individually in class (about one lesson). Assesses ULO1 (food chains) and ULO7 (communicating and applying). Weighting is a school convention (25% of four equally weighted summatives), not mandated by the syllabus.

Task

You are going to build your own **ecosystem**. Your ecosystem must show how living things depend on each other for food and energy — with **producers**, **consumers** and at least one **decomposer**.



Remember: energy starts at the Sun and passes along the food chain. Each arrow points towards the living thing doing the eating.

What you will hand in: one labelled ecosystem diagram (Part A) and your written answers (Parts B–D). Work on your own. You may use the class word wall to help with spelling.

Part A — Draw your ecosystem

1. In the box, draw an ecosystem built around a tree. Your ecosystem must include:

- at least **one producer** (for example a tree, grass or flowers)
- at least **two consumers** (for example a bird, an insect, a possum)
- at least **one decomposer** (for example a fungus, worm or beetle)

Draw **arrows** to show at least two food chains. Remember: each arrow points **towards the living thing doing the eating**. Label every living thing.

Part B — Name the roles

2. List the living things in your ecosystem and write the role of each one.

Living thing	Role (producer / consumer / decomposer)

Part C — Explain the relationships

3. Choose **one food chain** in your ecosystem. Explain how energy passes along it, starting with the Sun.

4. Explain why your ecosystem needs a **decomposer**. What job does it do?

Part D — What if it changed?

5. Choose **one living thing** in your ecosystem and imagine it disappeared. Explain what would happen to the rest of your ecosystem, and why.

Aim for your best work: use correct science words (producer, consumer, decomposer, energy, nutrients), make your arrows point the right way, and give *reasons*, not just single words.

Rubric criteria (weights as a percentage of this assessment)

Criterion	Weight	Descriptor
Food chains and the flow of energy	30%	High (5–6): Draws two or more accurate food chains with arrows that correctly point towards the eater, and clearly explains the flow of energy beginning with the Sun. Sound (3–4): Draws food chains with mostly correct arrows and describes the energy flow. Limited (1–2): Draws a simple chain; arrows may be incorrect and the energy flow is unclear.
Roles: producers, consumers and decomposers	30%	High (5–6): Builds an ecosystem containing producers, consumers and at least one decomposer, all correctly labelled with their roles. Sound (3–4): Includes producers, consumers and a decomposer; most roles labelled correctly. Limited (1–2): Includes some living things with few or incorrect role labels.
Ecological relationships and change	25%	High (5–6): Clearly explains the role of decomposers (returning nutrients to the soil) and gives a well-reasoned account of the flow-on effects if one living thing were removed. Sound (3–4): Explains the decomposer's role and describes a likely effect of removing a living thing. Limited (1–2): States the decomposer's role and/or an effect with little reasoning.
Communication and scientific vocabulary	15%	High (3): Communicates ideas clearly and logically, using correct scientific vocabulary (producer, consumer, decomposer, energy, nutrients, ecosystem) throughout. Sound (2): Communicates clearly with some scientific vocabulary. Limited (1): Ideas are unclear or use little scientific vocabulary.