

Unit plan example: Matter on the Move: Food Webs and Decomposers

Grade / subject	Grade 5 science
Duration	8 lessons of about 45 minutes (2 weeks)
Unit summary	Students explain where the matter in living things comes from and where it goes, using a model of a local ecosystem that includes plants, animals, decomposers and the environment.

1. Standards

Code	Performance expectation
5-LS2-1	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
5-PS3-1	Use models to describe that energy in animals' food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun.

Standards quoted from nextgenscience.org. Use them only if your state or district has adopted NGSS; otherwise replace them with your own standards.

2. Big ideas

- Matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food.
- Animals get matter and energy by eating plants or other animals.
- Decomposers break down dead plants and animals and return materials to the soil and air.
- The energy in food was once energy from the sun.

3. Essential questions

- Where does the matter that makes up a tree come from?
- What happens to a leaf after it falls?
- Why would an ecosystem without decomposers be in trouble?

4. Learning objectives

- I can describe producers, consumers and decomposers with examples from a real ecosystem.
- I can build a food web and trace where matter goes when one organism eats another.
- I can explain what decomposers do, using evidence from our decomposition jars.
- I can use a model to show that the energy in food started as energy from the sun.

5. Assessment evidence

When	Evidence
Pre-assessment (lesson 1)	Quick draw: "Where does the wood of a tree come from?" Keep the drawings; students revise them in lesson 8.
Formative checks	Exit tickets in lessons 2 to 6 (one question each), food web check in lesson 4, peer feedback on the model draft in lesson 7.
Summative performance task	Each student (or pair) builds and explains a labeled model of matter moving in a local ecosystem: at least one producer, two consumers, one decomposer, air, water and soil, with arrows and a short written explanation. Scored with the four-criterion rubric below.

6. Lesson sequence

#	Focus	Main activities	Check for understanding	Materials
1	Notice the phenomenon	Observe photos of a fresh log and a rotting log. Pre-assessment quick draw. Generate questions.	Class question board	Photos, quick-draw sheet
2	Plants make food	Discuss what plants need; read a short text on plants using air and water to grow. Start a class model.	Exit ticket: what does a plant take in?	Short reading, class model poster
3	Consumers and food chains	Sort organism cards into producers and consumers; build food chains; arrows show what is eaten by what.	Exit ticket: fix a wrong arrow	Organism cards
4	Food webs	Build a woodland food web and trace matter; remove one organism and predict effects.	Food web check (partner explain)	Grade 5 ecosystems lesson pack (Draft My Lesson library)
5	Decomposers at work	Set up sealed decomposition jars (leaves, fruit peel, soil); record a first observation. Observe again in the following lessons.	Exit ticket: predict the jar in one week	Clear jars with lids, soil, leaves, peel, hand lenses
6	Energy from the sun	Trace energy from sun to plant to animal; compare the path of energy and of matter in the model.	Exit ticket: where did the energy in a sandwich come from?	Energy arrow cards
7	Build the model (draft)	Students draft their ecosystem model; peer feedback with the rubric; revise.	Peer feedback form	Rubric, large paper, markers
8	Explain and reflect	Final model and written explanation; revisit the lesson 1 quick draw and revise it.	Summative performance task	Rubric

7. Rubric for the performance task

Criterion	Meets the standard when...	Beginning	Developing	Secure
Components	Model includes producer, consumers, decomposer, air, water and soil.			
Matter arrows	Arrows correctly show matter moving between organisms and the environment.			
Decomposers	Explains how decomposers return materials to the soil and air.			
Energy	Explains that energy in food started as energy from the sun.			

8. Differentiation

- Vocabulary cards with pictures (producer, consumer, decomposer, matter, energy).
- Sentence frames: "Matter moves from ___ to ___ when ___."
- Model scaffold with pre-drawn organisms for students who need it.
- Extension: add a human action (composting, pesticide) and explain its effect on the model.

Safety note

Decomposition jars stay sealed and are not opened in class; students wash hands after handling soil. Check your school rules for any allergy concerns.

This example is a starting point. Check it against your adopted standards, your materials and your students before teaching.