Garden Energy Paths

Trace energy through a garden food web

L.6.3.5 "Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the name of the producer, circle the names of consumers, and box the names of decomposers. Use your marks to track where energy moves in the garden.

Who Eats in the Garden?

1 In a sunny community garden, a sunflower uses light to make sugar from water and carbon dioxide. That makes the sunflower a producer, a living thing that makes its own food. A caterpillar eats a sunflower leaf, while a field mouse eats some of its seeds. A chicken pecks at caterpillars in the garden, and a robin catches them too. Later, a hawk may catch a mouse or a robin. Each time one animal eats another, some energy from the food moves to the eater.

2 People are part of this garden food web, not separate from it. A gardener may snack on sunflower seeds or cook and eat a chicken raised nearby. In the first meal, energy moves from the sunflower straight to the person. In the second, it can travel from sunflower leaf to caterpillar to chicken to person. These connected paths form a food web because caterpillars feed more than one bird and the sunflower feeds more than one kind of eater. Consumers get their energy by eating other organisms.

3 The garden also has decomposers, including soil fungi and bacteria. They break down dead sunflowers, fallen leaves, dead animals, and waste. This process returns nutrients to the soil, where new plants can use them. Energy follows a different pattern: at each step, organisms use much of the energy they take in, and some leaves as heat. A food pyramid therefore has a broad producer level at the bottom and less available energy at higher consumer levels. Decomposers get energy from remains at every level, not just from top predators.

2 ANSWER WITH EVIDENCE

Use the passage

1. Write one four-organism food chain that ends with a person. Use arrows to show the direction energy moves.

2. Write two different paths by which energy can move from the sunflower to a hawk.

3. A person eats sunflower seeds one day and chicken another day. In which meal is the person closer to the producer in a food pyramid? Explain.

4. Fungi break down a dead mouse. How do the nutrients and energy from the mouse take different routes afterward?

3 YOUR TURN

Your own words

At a pond, algae make food from sunlight; snails eat algae; small fish eat algae and snails; large fish eat small fish; and people eat large fish. Bacteria break down dead pond life. Write two different food chains from algae to people, then write one sentence explaining where bacteria get energy and why less energy reaches people than was available in the algae.

ANSWER KEY

Garden Energy Paths

GRADE 6 · L.6.3.5

PART 1 · READ AND MARK

Underline the name of the producer, circle the names of consumers, and box the names of decomposers. Use your marks to track where energy moves in the garden. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Write one four-organism food chain that ends with a person. Use arrows to show the direction energy moves.	**Sunflower → caterpillar → chicken → person.**
2	Write two different paths by which energy can move from the sunflower to a hawk.	**Sunflower → field mouse → hawk; sunflower → caterpillar → robin → hawk.**
3	A person eats sunflower seeds one day and chicken another day. In which meal is the person closer to the producer in a food pyramid? Explain.	**The sunflower-seed meal. The person eats the producer directly instead of eating a chicken that ate a caterpillar.**
4	Fungi break down a dead mouse. How do the nutrients and energy from the mouse take different routes afterward?	**Nutrients return to the soil and can be used by plants. Fungi use energy from the mouse, and some energy leaves as heat rather than cycling back to plants.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Algae → small fish → large fish → people.
Algae → snails → small fish → large fish → people.
Bacteria get energy from dead pond life at any level, and less energy reaches people because organisms use energy and some leaves as heat at each step.

Accept arrows or words that show the correct direction of energy transfer. In Part 3, both chains must follow the stated feeding relationships, and the explanation must distinguish energy transfer from nutrient recycling.