Pond Ripple Effects

Trace energy and predict changes in a freshwater food web.

L.5.3B "Students will demonstrate an understanding of a healthy ecosystem with a stable web of life and the roles of living things within a food chain and/or food web, including producers, primary and secondary consumers, and decomposers..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the names of living things in the passage. Then number algae, water fleas, minnows, and herons in the order energy reaches them.

Who Eats Whom in a Pond?

1. At the edge of a freshwater pond, green algae float in sunlit water. Algae use sunlight to make food, so they are producers. Tiny water fleas eat algae. Minnows eat water fleas, and herons catch minnows near the shore. Water fleas are primary consumers because they eat a producer. Minnows are secondary consumers because they eat primary consumers.

2. A food chain shows energy moving from what is eaten to the eater. In this pond, energy moves from sunlight to algae, then to water fleas, minnows, and herons. When plants and animals die, bacteria break down their remains and get energy from them. Bacteria are decomposers. They return nutrients to the water, where algae can use them to grow.

3. People sometimes release bluegill into ponds where bluegill did not live before. Young bluegill also eat water fleas. If bluegill become common, minnows may have less food, and fewer water fleas may leave more algae uneaten. These changes could spread through the food web. Scientists check what each species eats before they predict how adding it might affect the pond.

2 ANSWER WITH EVIDENCE

Use the passage

1. Write a food chain from algae to minnows using arrows. Label the producer, primary consumer, and secondary consumer.

2. How do bacteria get energy in this pond, and how do they help algae?

3. If many bluegill are added to the pond, what might happen to minnows and algae? Explain both predictions.

4. Why should people find out what bluegill eat before releasing them into this pond?

3 YOUR TURN

Your own words

A long dry spell shrinks the pond and reduces its algae. Write a food chain of four living things with arrows showing energy flow. Then write three sentences predicting how water fleas, minnows, and herons might be affected. Explain each prediction using food or energy.

ANSWER KEY

Pond Ripple Effects

PART 1 · READ AND MARK

Underline the names of living things in the passage. Then number algae, water fleas, minnows, and herons in the order energy reaches them. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Write a food chain from algae to minnows using arrows. Label the producer, primary consumer, and secondary consumer.	**Algae (producer) → water fleas (primary consumers) → minnows (secondary consumers).**
2	How do bacteria get energy in this pond, and how do they help algae?	**Bacteria get energy by breaking down dead plants and animals. They return nutrients to the water that algae can use.**
3	If many bluegill are added to the pond, what might happen to minnows and algae? Explain both predictions.	**Minnows may have less food because bluegill also eat water fleas. Algae may increase because fewer water fleas are left to eat it.**
4	Why should people find out what bluegill eat before releasing them into this pond?	**Bluegill may compete with animals already in the pond for food. That change could affect other populations in the food web.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Algae → water fleas → minnows → herons. With less algae to eat, water fleas might decrease. With fewer water fleas, minnows might have less food and decrease. Herons might then have fewer minnows to catch.

Accept predictions stated as possibilities, since population changes are not certain. In the open task, arrows should point from food to eater, and each prediction should follow from the food chain.