When Ponds Shrink

Trace how a drought changes life in a pond.

L.6.3.3 "Analyze cause and effect relationships to explore how changes in the physical environment (limiting factors, natural disasters) can lead to population changes within an ecosystem."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two changes in the pond's physical environment, and circle two effects on animal numbers. Draw an arrow from each underlined cause to a related circled effect.

A Pond Through a Dry Summer

1 At the edge of a town, a small pond is home to bluegill fish, dragonfly young, and green frogs. In spring, rain fills the pond and covers the shallow, weedy places where frogs lay eggs. One summer, weeks pass without rain. The water level drops, leaving some egg-laying places dry. Fewer frog eggs can develop into tadpoles in the remaining water. Water has become a limiting factor: even if adult frogs stay nearby, the pond has less room for their young to survive.

2 The pond's shrinking size creates another problem. Its shallow water heats quickly under the sun, and warm water holds less dissolved oxygen than cool water. Bluegill need oxygen from the water to live. As oxygen becomes scarce, some bluegill die, and others may move into a deeper part of the pond. Fewer bluegill remain in the shallow area where a kingfisher usually hunts. The bird may hunt at another pond instead, but this change in its hunting spot does not prove that the entire kingfisher population has fallen.

3 In early autumn, steady rain refills the pond. The water covers shallow plants again, giving frogs more places to lay eggs if the water stays high into next spring. Cooler, deeper water can also hold more oxygen, so bluegill may have a better chance of surviving. Still, a full pond does not instantly replace the frogs or fish lost during the dry months. Young animals need time to grow, and adults may need to return from other places. The effects of a drought can last longer than the drought itself.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did the lack of rain affect the number of frog eggs that could develop into tadpoles? Trace the steps.

2. Explain two ways the drought led to fewer bluegill in the shallow water.

3. Why does a kingfisher hunting at another pond not prove that the kingfisher population fell?

4. How could autumn rain help bluegill, and why might their population not rise right away?

3 YOUR TURN

Your own words

Imagine a windstorm knocks down many tall trees in a forest. Write four or five sentences predicting how this change could affect the populations of two kinds of living things over time. Name one limiting factor and explain at least two cause-and-effect links.

ANSWER KEY

When Ponds Shrink

GRADE 6 · L.6.3.3

PART 1 · READ AND MARK

Underline two changes in the pond's physical environment, and circle two effects on animal numbers. Draw an arrow from each underlined cause to a related circled effect. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did the lack of rain affect the number of frog eggs that could develop into tadpoles? Trace the steps.	**Without rain, the pond level dropped and some egg-laying places dried out. Fewer eggs could develop into tadpoles.**
2	Explain two ways the drought led to fewer bluegill in the shallow water.	**The shallow water heated up and held less oxygen. Some bluegill died when oxygen became scarce, while others moved to deeper water.**
3	Why does a kingfisher hunting at another pond not prove that the kingfisher population fell?	**A bird can change where it hunts without dying. The passage gives no evidence that the total number of kingfishers fell.**
4	How could autumn rain help bluegill, and why might their population not rise right away?	**Rain refills the pond, and its cooler, deeper water can hold more oxygen. Replacing lost fish takes time because young fish must grow or adults must return.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A windstorm knocks down many tall trees, so the number of living tall trees falls. More sunlight reaches the ground, and the population of sun-loving shrubs may grow. Because food is a limiting factor for rabbits, more shrubs could help the rabbit population rise. If more rabbits survive, hawks may have more prey and increase later.

Accept other reasonable cause-and-effect chains supported by the passage. For the open task, look for two population predictions, a named limiting factor, and at least two clear links from the windstorm to later changes.