

Pond Clues

Use observations and data to trace changes through a pond ecosystem.

S7L4.c "Analyze and interpret data to provide evidence for how resource availability, disease, climate, and human activity affect individual organisms, populations, communities, and ecosystems."

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each frog count, circle each condition that changed, and draw an arrow between one condition and a count it may help explain.

Changes at Willow Pond

- ① Students monitored Willow Pond during four spring surveys. At each survey, they counted adult frogs along the same 100-meter shore route and noted conditions. The data table records their observations. Counts do not prove a cause alone, but a change in conditions that occurs with a change in frog numbers can provide evidence for a likely explanation.

WILLOW POND SPRING SURVEYS

Survey date	Adult frogs counted	Conditions observed
April 24	38	Deep water, many insect larvae
May 8	31	Shallow water, few insect larvae
May 22	12	Shallow water, red-leg disease observed
June 5	9	Drought continues, red-leg disease observed

- ② Spring drought lowered pond water and reduced insect larvae, food for frogs. As water shrank, frogs crowded into a smaller area. On May 22, biologists observed red-leg disease, an infection that can kill amphibians. Frog numbers fell from 38 in April to 9 in June. The smaller frog population left fewer prey for herons.
- ③ In July, a construction crew cleared plants from the shore and left loose soil. Rain washed sediment into the pond, making the water cloudy. Fewer underwater plants grew, so insect larvae had less shelter and food. Researchers predicted that lower insect numbers could affect frogs, herons, and other pond organisms.

2 ANSWER WITH EVIDENCE Use the passage

- 1 Compare the April 24 and May 8 surveys. What evidence suggests that resource availability may have affected the frog population?

- 2 What pattern in the table supports the idea that red-leg disease may have contributed to the frog decline?

- 3 How could drought affect an individual frog and the frog population, according to the passage?

- 4 Trace one possible effect of the construction activity on the pond community. Use at least two links from the passage.

3 YOUR TURN Your own words

Create a three-row evidence table for a different ecosystem. Use one climate, disease, resource, or human-activity change in all three rows, include data or observations, and state an evidence-based effect at a different level in each row: individual, population, and community or ecosystem.

ENVIRONMENTAL CHANGE	DATA OR OBSERVATION	EVIDENCE-BASED EFFECT

PART 1 • READ AND MARK

Underline each frog count, circle each condition that changed, and draw an arrow between one condition and a count it may help explain. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Compare the April 24 and May 8 surveys. What evidence suggests that resource availability may have affected the frog population?	The count fell from 38 to 31 frogs as water became shallow and insect larvae became few. Fewer insect larvae meant less food for frogs.
2	What pattern in the table supports the idea that red-leg disease may have contributed to the frog decline?	Red-leg disease was first observed on May 22, when the frog count dropped to 12, and it was still observed on June 5, when only 9 frogs were counted.
3	How could drought affect an individual frog and the frog population, according to the passage?	Drought lowers water and reduces insect larvae, so an individual frog has less food and may be crowded into a smaller area. The frog population declined from 38 in April to 9 in June.
4	Trace one possible effect of the construction activity on the pond community. Use at least two links from the passage.	Clearing shore plants led to sediment washing into the pond. Cloudy water reduced underwater plants, which gave insect larvae less shelter and food. Lower insect numbers could then affect frogs, herons, and other pond organisms.

PART 3 • YOUR TURN (SAMPLE ANSWER)

ENVIRONMENTAL CHANGE	DATA OR OBSERVATION	EVIDENCE-BASED EFFECT
Ten hot, dry days in an oak woodland	18 caterpillars on 10 oak branches, down from 42	An individual warbler may have less caterpillar food.
Ten hot, dry days in an oak woodland	7 warbler nests, down from 12	The warbler population may be smaller.
Ten hot, dry days in an oak woodland	3 hawks seen, down from 6	The woodland community may have fewer warblers and hawks.

Accept evidence-based claims that accurately connect the reported observations to an effect, using cautious terms such as may or could when a cause is not proven. For the open table, accept other plausible ecosystems and data if each row includes a change, evidence, and a correctly identified level of effect.