Pond Clue Shift

Revise a scientific explanation as evidence changes.

FSL.3B.5 "Analyze presented information when given new information (e.g., given a new scenario, how would a given scenario be changed)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the investigators' starting explanation, then circle four clues that could strengthen, weaken, or complicate it.

What Killed the Pond Fish?

1. At a town pond, dozens of fish are found dead near shore just after sunrise. A thick green algal bloom covers parts of the water. Investigators first suspect that the fish ran out of dissolved oxygen overnight. Algae release oxygen during daylight through photosynthesis, but algae and other organisms consume oxygen while respiring after dark. Bacteria breaking down dead algae also use oxygen. Fish need dissolved oxygen to survive, so a low reading near dawn would fit the investigators' idea. Yet one observation alone cannot prove what caused the deaths.

2. The team measures 3 milligrams of dissolved oxygen per liter at dawn and 9 milligrams per liter that afternoon in the same cove. Oxygen levels can rise during sunny hours, so measurements taken at different times describe different conditions. The team also learns that a heavy storm hit three days before the deaths. Rainwater from nearby fertilized lawns can carry nutrients into the pond, where those nutrients can support rapid algal growth. The investigators have not yet tested that runoff. They must decide which findings fit their first explanation and which findings call for another explanation.

3. Other reports could change the investigation. A maintenance log might reveal that an aerator, a device that moves air into water, ran in the cove throughout the night before the fish died. A laboratory might detect a pesticide in the dead fish at a concentration known to harm them. The team would still need to check whether the pesticide reached the pond before the deaths and whether oxygen was low where the fish were found. Because several factors can act at once, investigators compare when and where each clue was collected before changing their explanation.

2 ANSWER WITH EVIDENCE

Use the passage

1. Suppose a runoff sample from the storm contains a high level of lawn fertilizer. How would that finding affect the investigators' explanation?

2. Another team points to the afternoon oxygen reading to rule out an overnight oxygen shortage. How should the investigators evaluate that claim?

3. Suppose the maintenance log confirms that the aerator ran all night. How should the investigators adjust their explanation?

4. Suppose the laboratory finds a harmful concentration of pesticide in the dead fish. How should the investigation change?

3 YOUR TURN

Your own words

Invent one new piece of evidence about the pond that is not mentioned in the passage. In three sentences, state the evidence, explain how it would change the investigation, and name one check that could test your revised idea.

ANSWER KEY

Pond Clue Shift

HIGH SCHOOL · FSL.3B.5

PART 1 · READ AND MARK

Underline the investigators' starting explanation, then circle four clues that could strengthen, weaken, or complicate it. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Suppose a runoff sample from the storm contains a high level of lawn fertilizer. How would that finding affect the investigators' explanation?	**It would support a possible chain from nutrient runoff to more algae and greater oxygen use, but it would not prove that low oxygen killed the fish.**
2	Another team points to the afternoon oxygen reading to rule out an overnight oxygen shortage. How should the investigators evaluate that claim?	**The afternoon reading does not rule it out. Oxygen can rise during daylight, and the dawn reading was much lower.**
3	Suppose the maintenance log confirms that the aerator ran all night. How should the investigators adjust their explanation?	**They should account for the added air rather than assume the cove was unaerated. They should still check whether oxygen was low where the fish died.**
4	Suppose the laboratory finds a harmful concentration of pesticide in the dead fish. How should the investigation change?	**The team should investigate pesticide exposure as a possible cause, check whether it reached the pond before the deaths, and not assume oxygen shortage was the only factor.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A new report shows that construction runoff turned one pond inlet cloudy just before fish began dying there. I would investigate whether sediment harmed the fish instead of assuming the bloom explains every death. I would compare sediment levels and fish gill damage near that inlet with results from the rest of the pond.

Accept revisions that explain what the new evidence supports or challenges without treating one clue as conclusive. For Part 3, the invented evidence must differ from the passage's clues, and the proposed check must relate to the revised idea.