

# Lake Change Chain

Trace causes, effects, and evidence in a changing lake.

**6.5.B** “identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems;”

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## 1 READ AND MARK \_\_\_\_\_ Read it twice

**YOUR JOB** Underline each cause, circle each effect, and number the steps in one cause-and-effect chain from 1 to 3.

### A Clearer Lake

- ① At Clear Lake, students noticed that the water looked clearer than it had the previous summer. Small striped zebra mussels had entered the lake on a boat trailer. Each mussel filtered tiny algae from the water as it fed. With fewer algae floating near the surface, sunlight reached deeper water. The clearer water seemed helpful at first, but it signaled a larger change. The lake's food web and bottom habitat were beginning to shift in ways people could not easily see.
- ② The algae that zebra mussels remove are food for zooplankton, tiny animals that drift in the water. Young fish often eat zooplankton. Therefore, when mussels greatly reduce algae, zooplankton may have less food, and young fish may have fewer prey to eat. At the same time, extra sunlight can help rooted plants grow in deeper areas. Thick plant beds can change where fish swim and where predators hunt. One new cause, the mussels' filtering, can lead to several connected effects.
- ③ To investigate whether zebra mussels were causing these changes, scientists compared two similar coves. One cove had many mussels on rocks, while the other had very few. During the same week, the scientists measured water cloudiness, algae, zooplankton, and plant coverage in both coves. A comparison cannot prove that mussels caused every difference because the coves may differ in other ways. Still, collecting several kinds of evidence helps scientists test a cause-and-effect explanation rather than relying on one observation.

**2 ANSWER WITH EVIDENCE** \_\_\_\_\_ Use the passage

**1** What caused more sunlight to reach deeper water in Clear Lake?

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**2** Explain the chain of effects that could lead from fewer algae to young fish having less food.

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**3** How can extra sunlight change the lake habitat after it reaches deeper water? Give two effects from the passage.

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**4** Why did the scientists compare two similar coves and measure several kinds of evidence?

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**3 YOUR TURN** \_\_\_\_\_ Your own words

Choose a scientific phenomenon you can observe, such as a plant growing differently in shade and sun. Write a cause-and-effect explanation, then describe a fair comparison that could investigate whether the cause is responsible for the effect.

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**PART 1 • READ AND MARK**

Underline each cause, circle each effect, and number the steps in one cause-and-effect chain from 1 to 3. Accept any marking that follows this job and points at the right text.

**PART 2 • ANSWERS**

| # | QUESTION                                                                                                         | ANSWER                                                                                                                                                                         |
|---|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | What caused more sunlight to reach deeper water in Clear Lake?                                                   | <b>Zebra mussels filtered algae from the water. With fewer algae near the surface, more sunlight reached deeper water.</b>                                                     |
| 2 | Explain the chain of effects that could lead from fewer algae to young fish having less food.                    | <b>Fewer algae can leave zooplankton with less food. With fewer zooplankton available, young fish may have fewer prey to eat.</b>                                              |
| 3 | How can extra sunlight change the lake habitat after it reaches deeper water? Give two effects from the passage. | <b>Extra sunlight can help rooted plants grow in deeper areas. Thick plant beds can change where fish swim and where predators hunt.</b>                                       |
| 4 | Why did the scientists compare two similar coves and measure several kinds of evidence?                          | <b>They were testing whether zebra mussels were linked to changes in the lake. Measuring several kinds of evidence gives stronger support than relying on one observation.</b> |

**PART 3 • YOUR TURN (SAMPLE ANSWER)**

Plants in shade may grow more slowly because they receive less sunlight for photosynthesis. I would grow the same kind of plant in shaded and sunny places, using the same soil, water, and pot size. Each week, I would measure the height and number of leaves on the plants.

Accept any accurate cause-and-effect explanation and an investigation that compares conditions while keeping important variables the same. Students should name observable evidence they would collect.