

# Pond in Motion

Trace how environmental changes shape organisms, populations, and communities.

**LS.8** "The student will investigate and understand that ecosystems, communities, populations, and organisms are dynamic and change over time. Key ideas include organisms respond to daily, seasonal, and long-term changes..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

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

**YOUR JOB** Underline each environmental change in the passage. Circle the response or effect it causes, then write D for daily, S for seasonal, or L for long-term or large-scale beside each underlined change.

### A Changing Pond Community

- ① At a pond near a school, living things respond to changes that happen each day. On hot, bright afternoons, turtles climb onto logs to warm themselves, while many fish move into cooler, deeper water. At night, bats hunt insects above the pond. In autumn, shorter days and cooler temperatures signal some birds to migrate. Frogs become less active as winter approaches. These behaviors help individual organisms find suitable temperatures, food, shelter, or places to reproduce.
- ② A population includes members of one species living in the same area. Its size can change when resources or conditions change. After several rainy weeks, pond plants may grow quickly, providing more hiding places and food for insect larvae. More larvae can support more frogs. However, a dry summer can lower the water level. Fewer shallow-water plants and less space for eggs may reduce the frog population. Predators, disease, and competition can also limit population growth.
- ③ Some changes affect the whole ecosystem. Fertilizer washed from nearby lawns can add extra nutrients to a pond. This can cause eutrophication, in which heavy algal growth blocks light and later decomposes. Decomposers use oxygen while breaking down the algae, leaving too little dissolved oxygen for fish and other animals. Over many years, warmer winters may change the timing of migration or breeding. A hurricane can uproot trees and flood shorelines quickly. After any disturbance, survivors and new organisms may gradually reshape the community.

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

**1** Name one daily response and one seasonal response described in the first paragraph.

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**2** How could several rainy weeks lead to an increase in the frog population? Use the chain of effects from the passage.

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**3** According to the passage, why can eutrophication harm fish and other animals in a pond?

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**4** What may warmer winters change, and what two immediate effects can a hurricane have on the pond ecosystem?

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

Choose a local ecosystem, such as a meadow, forest, stream, or schoolyard. Write exactly three sentences that explain a seasonal or daily response, a change that could increase or decrease one population, and a large-scale change that could reshape the community.

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**PART 1 • READ AND MARK**

Underline each environmental change in the passage. Circle the response or effect it causes, then write D for daily, S for seasonal, or L for long-term or large-scale beside each underlined change. Accept any marking that follows this job and points at the right text.

**PART 2 • ANSWERS**

| # | QUESTION                                                                                                             | ANSWER                                                                                                                                                                                             |
|---|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Name one daily response and one seasonal response described in the first paragraph.                                  | <b>Daily: Many fish move into cooler, deeper water on hot afternoons, or bats hunt insects at night. Seasonal: Some birds migrate in autumn, or frogs become less active as winter approaches.</b> |
| 2 | How could several rainy weeks lead to an increase in the frog population? Use the chain of effects from the passage. | <b>Rain helps pond plants grow. More plants provide food and hiding places for insect larvae, and more larvae can support more frogs.</b>                                                          |
| 3 | According to the passage, why can eutrophication harm fish and other animals in a pond?                              | <b>Extra nutrients can cause heavy algal growth. When the algae decompose, decomposers use oxygen, leaving too little dissolved oxygen for fish and other animals.</b>                             |
| 4 | What may warmer winters change, and what two immediate effects can a hurricane have on the pond ecosystem?           | <b>Warmer winters may change the timing of migration or breeding. A hurricane can uproot trees and flood shorelines.</b>                                                                           |

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

In a meadow, shorter autumn days cause some butterflies to migrate. If spring wildflowers increase, more nectar may allow the butterfly population to grow. A severe wildfire could remove plants and shelter, so fewer butterflies and different plant species may make up the community afterward.

Accept equivalent cause-and-effect statements that match the passage. For the open response, accept varied ecosystems and organisms if all three required types of change are included and the effects are scientifically reasonable.