# Pond Resource Puzzle

Trace how living things depend on and compete for ecosystem resources.

**6.12.A** "investigate how organisms and populations in an ecosystem depend on and may compete for biotic factors such as food and abiotic factors such as availability of light and water, range of temperatures, or soil composition;"

NAME _____ DATE _____

## 1 READ AND MARK

Read it twice

**YOUR JOB** Underline each word or phrase that names a resource eaten by an organism, circle each nonliving factor, and number each sentence that explains competition.

### Resources at Cedar Pond

1. At Cedar Pond, green plants use sunlight, water, and minerals in the soil to grow. These nonliving, or abiotic, factors affect the plants. In spring, tall cattails can shade duckweed floating near the shore. When duckweed receives less light, it grows more slowly. Snails eat duckweed, so fewer duckweed plants can mean less food for snails. Here, sunlight and water help one population, and changes to that population can affect another at the pond.

2. Food can be a biotic factor because it comes from living or once-living organisms. Along the pond edge, rabbits eat grasses, and grasshoppers also eat grasses. During a dry summer, less water reaches the soil. The grasses make less new growth. Rabbits and grasshoppers may then compete because both need the same limited food. Competition does not mean either population will disappear. It means organisms are using the same resource when there is not enough for all of them.

3. Near a sunny bank, lizards hunt insects when air temperatures are warm enough for them to move quickly. After a cool morning, lizards stay less active, while some insects hide under leaf litter. The bank also has sandy soil that drains water quickly. Wildflowers with deep roots can reach water lower in the soil, but shallow-rooted seedlings may dry out. Different populations depend on particular conditions, so a change in temperature, water, light, or soil can change which organisms survive and reproduce there.

## 2 ANSWER WITH EVIDENCE

Use the passage

1. Which two populations may compete for grasses? Explain why they may compete.

2. What abiotic factor changes during the dry summer, and how does that change affect the grasses?

3. Explain how shade from cattails can affect the snail population.

4. How do temperature and sandy soil affect organisms near the sunny bank?

## 3 YOUR TURN

Your own words

Write exactly three sentences about a different ecosystem. Name two populations that compete for one biotic food resource, then explain how one abiotic factor changes the competition.

**ANSWER KEY**

# Pond Resource Puzzle

**GRADE 6 · TEKS 6.12.A**

## PART 1 · READ AND MARK

Underline each word or phrase that names a resource eaten by an organism, circle each nonliving factor, and number each sentence that explains competition. Accept any marking that follows this job and points at the right text.

## PART 2 · ANSWERS

| # | QUESTION | ANSWER |
|---|---|---|
| 1 | Which two populations may compete for grasses? Explain why they may compete. | **Rabbits and grasshoppers may compete because both eat grasses, especially when dry conditions cause less grass growth.** |
| 2 | What abiotic factor changes during the dry summer, and how does that change affect the grasses? | **Less water reaches the soil, so the grasses make less new growth.** |
| 3 | Explain how shade from cattails can affect the snail population. | **Cattail shade gives duckweed less light, so duckweed grows more slowly. Because snails eat duckweed, less duckweed can mean less food for snails.** |
| 4 | How do temperature and sandy soil affect organisms near the sunny bank? | **Warm air helps lizards move quickly enough to hunt insects. Sandy soil drains water quickly, so deep-rooted wildflowers can reach lower water, while shallow-rooted seedlings may dry out.** |

## PART 3 · YOUR TURN (SAMPLE ANSWER)

In a meadow, mice and sparrows both eat grass seeds. After several weeks with little rain, fewer grass plants produce seeds, so the two populations compete for food. The low water supply is an abiotic factor, and the seeds are a biotic factor.

Accept equivalent descriptions of dependence and competition that match the passage. For the open response, accept any accurate ecosystem example with two populations sharing a food resource and a clear effect from an abiotic factor.