

Pond Connections

Trace how living and nonliving parts shape an ecosystem.

6.12 "Organisms and environments. The student knows that interdependence occurs between living systems and the environment. The student is expected to: investigate how organisms and populations in an ecosystem depend on and may compete for..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline every biotic or abiotic factor that an organism needs or competes for. Circle each named relationship term, competition, predatory, mutualism, parasitism, or commensalism, then write 1, 2, and 3 beside the sentences that define organism, population, and community.

Life at a Prairie Pond

- ① At the edge of a prairie pond, one leopard frog is an organism. All leopard frogs living near the pond form a population. The frogs, cattails, dragonflies, fish, turtles, insects, and other populations form a community. The community and its nonliving surroundings make an ecosystem. Each level is nested inside the next. A frog needs insects for food, pond water, shelter among plants, and temperatures warm enough for its body to function. Its needs connect it to both living and nonliving parts of the ecosystem.
- ② Near the shore, cattails and other plants compete for space, water, mineral nutrients in the soil, and light. When tall cattails crowd together, fewer leaves receive light. Open spaces allow sunlight to reach shorter plants, which can then make food. Frogs and small fish may compete for insects. This is competition because both need the same limited biotic factor, insects. A green heron catching a frog is a predatory relationship. The heron gets food, while the frog is harmed and eaten. Changes in water level or temperature can change which populations survive.
- ③ Some close relationships are symbiotic. In mutualism, both organisms benefit. Bees get nectar from prairie flowers, and the flowers are pollinated when bees move pollen. In parasitism, one organism benefits while the host is harmed. A tick drinking a turtle's blood gains food, but the turtle loses blood. In commensalism, one benefits and the other is not helped or harmed. A small bird may nest in a cattail; the bird gains support, while the cattail is usually unaffected. These relationships can affect population sizes.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How does the passage organize one leopard frog, all leopard frogs near the pond, and the different populations at the pond?

2 Name two factors cattails may compete for. Why do open spaces help shorter plants?

3 Why is a green heron catching a frog a predatory relationship?

4 Describe mutualism, parasitism, and commensalism using one example from the passage for each.

3 YOUR TURN _____ Your own words

Choose an ecosystem that is not described in the passage. Complete the table with an organism, its population, and its community. Include one needed biotic or abiotic factor and one labeled relationship in the Detail column.

ORGANIZATION LEVEL	EXAMPLE	DETAIL

PART 1 • READ AND MARK

Underline every biotic or abiotic factor that an organism needs or competes for. Circle each named relationship term, competition, predatory, mutualism, parasitism, or commensalism, then write 1, 2, and 3 beside the sentences that define organism, population, and community. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How does the passage organize one leopard frog, all leopard frogs near the pond, and the different populations at the pond?	One leopard frog is an organism. All leopard frogs near the pond are a population, and the different populations together are a community.
2	Name two factors cattails may compete for. Why do open spaces help shorter plants?	Cattails may compete for space, water, mineral nutrients in the soil, or light. Open spaces allow sunlight to reach shorter plants so they can make food.
3	Why is a green heron catching a frog a predatory relationship?	The heron gets food, while the frog is harmed and eaten.
4	Describe mutualism, parasitism, and commensalism using one example from the passage for each.	In mutualism, both benefit, as bees get nectar and flowers are pollinated. In parasitism, a tick gains food while a turtle loses blood. In commensalism, a bird gains support from a cattail while the cattail is usually unaffected.

PART 3 • YOUR TURN (SAMPLE ANSWER)

ORGANIZATION LEVEL	EXAMPLE	DETAIL
Organism	one desert cottontail	It needs water and grasses for food.
Population	desert cottontails living in one desert wash	The rabbits compete for limited grasses.
Community	cottontails, coyotes, mesquite trees, lizards, and ants in a desert wash	A coyote catching a cottontail is a predatory relationship.

Accept accurate ecosystem examples that correctly distinguish one organism, one population of the same species in one area, and a community of different populations. The detail must include a plausible biotic or abiotic need and an accurately labeled relationship.