Life in a Pool

How living and nonliving factors shape survival

L.6.3.1 "Use scientific reasoning to explain differences between biotic and abiotic factors that demonstrate what living organisms need to survive."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two living factors, circle two nonliving factors, and write 1 beside a sentence that shows why an organism needs both kinds of factors.

When the Tide Goes Out

1 At low tide, a rocky pool holds a small world. Green algae cling to the rocks, and sea snails scrape the algae for food. An anemone catches tiny shrimp with its tentacles. Algae, snails, anemones, and shrimp are biotic factors because they are living things. The rock, seawater, sunlight, and air are abiotic factors because they are not alive. Both kinds of factors affect survival. The snails need living algae to eat, but they also need seawater to keep their bodies moist.

2 As the sun warms the shallow pool, some seawater evaporates, but the salt stays behind. The remaining water becomes saltier. If too much water evaporates, a snail may dry out even when algae are still plentiful. Sunlight also helps the algae make their own food. Without enough light, the algae cannot grow well, leaving snails with less to eat. A change in an abiotic factor can therefore affect one organism directly and another organism through its food supply.

3 A wave washes over the rocks and refills the pool with seawater. This brings the salt level closer to that of the sea and helps keep the snails wet. The wave may also bring tiny shrimp into the pool, giving the anemone a chance to feed. But extra shrimp alone cannot save an anemone if the pool dries out. Food comes from living things, while water and suitable conditions come from nonliving parts of the habitat. To explain survival, consider how both kinds of factors work together.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why does a sea snail need both algae and seawater to survive? Name which factor is biotic and which is abiotic.

2. A pool still has plenty of algae, but much of its water evaporates. Why might a snail have trouble surviving?

3. How could too little sunlight leave the snails with less food? Explain the steps.

4. A wave refills the pool and brings in shrimp. Explain how it helps the anemone through one biotic factor and one abiotic factor.

3 YOUR TURN

Your own words

Imagine a robin hunting earthworms on a grassy field after rain. In three or four sentences, explain how one biotic factor and one abiotic factor affect the robin's survival, then predict what could happen if the soil dries.

ANSWER KEY

Life in a Pool

GRADE 6 · L.6.3.1

PART 1 · READ AND MARK

Underline two living factors, circle two nonliving factors, and write 1 beside a sentence that shows why an organism needs both kinds of factors. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why does a sea snail need both algae and seawater to survive? Name which factor is biotic and which is abiotic.	**Algae are biotic and provide food. Seawater is abiotic and keeps the snail moist.**
2	A pool still has plenty of algae, but much of its water evaporates. Why might a snail have trouble surviving?	**The snail may dry out without enough seawater, even though its food is available.**
3	How could too little sunlight leave the snails with less food? Explain the steps.	**Sunlight is an abiotic factor that helps algae make food and grow. With too little light, less algae may grow for the snails to eat.**
4	A wave refills the pool and brings in shrimp. Explain how it helps the anemone through one biotic factor and one abiotic factor.	**The shrimp are a biotic food source for the anemone. The seawater is an abiotic factor that keeps the pool from drying out.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Earthworms are a biotic factor because they are living food for the robin. Moist soil is an abiotic factor that helps earthworms stay near the surface where the robin can find them. If the soil dries, earthworms may move deeper underground, so the robin may need to search elsewhere for food.

Accept explanations that correctly distinguish living from nonliving factors and connect each factor to an organism's survival. For Part 3, a prediction about the robin finding less food must include a reasonable link to drying soil.