

Tide Pool Connections

Use evidence to examine how organisms and environmental conditions affect one another.

S7L4 "Obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each statement that shows one organism depending on another, circle each nonliving environmental factor, and number the pieces of evidence that support a claim. This helps you separate evidence from conclusions.

A Changing Tide Pool

- ① On a rocky Pacific shore, scientists watched a tide pool during low tide. Sea stars rested on rocks, mussels formed crowded beds, and small crabs hid among the shells. The pool's water became warmer and saltier as the sun shone and water evaporated. When waves returned, cooler seawater brought oxygen and food particles. Each change in the nonliving environment affected which organisms could feed, move, or avoid drying out. The scientists recorded the number of mussels in marked areas each week.
- ② In pools that stayed covered by water longer, sea stars had more time to eat mussels. Fewer mussels left more open rock, where algae could grow. Crabs used mussel beds for shelter, so a smaller bed gave them fewer hiding places. This evidence supports a food-and-shelter connection among sea stars, mussels, crabs, and algae. It does not prove that sea stars alone caused every change, because wave action, temperature, and other predators also could matter.
- ③ The scientists shared their findings with a coastal park staff member. They explained that protecting water quality near the shore could help keep tide-pool relationships stable. Their claim was based on observations of feeding, shelter, and environmental conditions, not on one observation alone. The staff member asked for more information about pollution entering the ocean after storms. Measuring that pollution and comparing several pools over time would help evaluate whether water quality changes affect the organisms. Clear claims need evidence and limits.

2 ANSWER WITH EVIDENCE _____ Use the passage

- 1** Name two nonliving conditions that changed in the tide pool. How did returning waves change the pool?

- 2** Use evidence from the passage to explain how sea stars could indirectly affect algae.

- 3** Why do the scientists say that sea stars alone did not necessarily cause every change in the pool?

- 4** What additional information did the park staff member want, and how would it help evaluate the water-quality claim?

3 YOUR TURN _____ Your own words

Choose a local habitat, such as a garden, pond, or schoolyard. Write three sentences: make a claim about one organism-environment relationship, describe evidence you would collect, and name one other factor that could affect your results.

PART 1 • READ AND MARK

Underline each statement that shows one organism depending on another, circle each nonliving environmental factor, and number the pieces of evidence that support a claim. This helps you separate evidence from conclusions. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Name two nonliving conditions that changed in the tide pool. How did returning waves change the pool?	The water became warmer and saltier as water evaporated. Returning waves brought cooler seawater, oxygen, and food particles.
2	Use evidence from the passage to explain how sea stars could indirectly affect algae.	Sea stars ate mussels. Fewer mussels left more open rock, where algae could grow.
3	Why do the scientists say that sea stars alone did not necessarily cause every change in the pool?	Other factors could affect the organisms, including wave action, temperature, and other predators.
4	What additional information did the park staff member want, and how would it help evaluate the water-quality claim?	The staff member wanted information about pollution entering the ocean after storms. Measuring pollution and comparing several pools over time could show whether water-quality changes are related to changes in organisms.

PART 3 • YOUR TURN (SAMPLE ANSWER)

In a school garden, fewer flowering plants could lead to fewer bees because bees use nectar and pollen for food. I would count bees at the same time in garden plots with different numbers of flowers. Rain, temperature, and nearby flowers could also affect the counts, so I would not claim flowers are the only cause.

Accept equivalent descriptions of the passage evidence and reasonable cause-and-effect explanations. For Part 3, accept any accurate claim, a relevant method of collecting evidence, and a realistic limiting factor.