

Ecosystem Detectives

Identify living and nonliving factors in three ecosystem types.

LS.7.a "biotic and abiotic factors define land, marine, and freshwater ecosystems; and"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each abiotic factor and circle each biotic factor in the passage. Number the paragraphs 1, 2, and 3 with L, M, or F to show whether each ecosystem is land, marine, or freshwater.

Three Places, Many Factors

- ① An ecosystem includes living things, called biotic factors, and nonliving conditions, called abiotic factors. Together, these factors shape which organisms can survive in a place. On a rocky hillside, sunlight, thin soil, wind, and limited rainfall are abiotic factors. Grasses, shrubs, insects, lizards, and fungi are biotic factors. A shrub's deep roots help it reach water below the dry soil. The hillside is a land ecosystem because its organisms live on land, even though they depend on water and air.
- ② Near the ocean, a tide pool is a marine ecosystem. Its water is salty, and waves cover the pool at high tide before exposing rocks at low tide. Saltwater, changing water level, sunlight, and rock surfaces are abiotic factors. Sea anemones, algae, crabs, and small fish are biotic factors. During low tide, a crab may hide in a moist crack. This behavior helps it avoid drying out and reduces its exposure to predators. The tide pool's organisms must tolerate salt and repeated changes.
- ③ A stream is a freshwater ecosystem because it contains water with very little dissolved salt. Its current, water temperature, dissolved oxygen, gravel, and shade are abiotic factors. Mayfly larvae cling to stones, trout swim in deeper water, and moss grows along the bank. These are biotic factors. After heavy rain, faster water can move gravel and lower the number of safe places for larvae to hold on. Changes in an abiotic factor can therefore change where organisms live and how well they survive.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What makes the rocky hillside a land ecosystem? Use information from the passage.

2 Name two abiotic factors and two biotic factors in the tide pool.

3 Why is the stream classified as freshwater rather than marine?

4 How can heavy rain affect mayfly larvae in the stream? Explain which abiotic factor changes.

3 YOUR TURN _____ Your own words

Complete the table for two different ecosystem types. For each one, name two biotic factors, two abiotic factors, and explain how one abiotic factor affects one organism.

ECOSYSTEM TYPE AND PLACE	TWO ABIOTIC FACTORS	TWO BIOTIC FACTORS	HOW ONE ABIOTIC FACTOR AFFECTS ONE ORGANISM

PART 1 • READ AND MARK

Underline each abiotic factor and circle each biotic factor in the passage. Number the paragraphs 1, 2, and 3 with L, M, or F to show whether each ecosystem is land, marine, or freshwater. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What makes the rocky hillside a land ecosystem? Use information from the passage.	Its organisms live on land.
2	Name two abiotic factors and two biotic factors in the tide pool.	Abiotic factors include saltwater, changing water level, sunlight, or rock surfaces. Biotic factors include sea anemones, algae, crabs, or small fish.
3	Why is the stream classified as freshwater rather than marine?	It contains water with very little dissolved salt.
4	How can heavy rain affect mayfly larvae in the stream? Explain which abiotic factor changes.	Heavy rain can make the water current faster. Faster water can move gravel and reduce the safe places where larvae can hold on.

PART 3 • YOUR TURN (SAMPLE ANSWER)

ECOSYSTEM TYPE AND PLACE	TWO ABIOTIC FACTORS	TWO BIOTIC FACTORS	HOW ONE ABIOTIC FACTOR AFFECTS ONE ORGANISM
Land, prairie	sunlight; periodic fire	grasses; bison	Periodic fire removes some dead plant material and can help prairie grasses grow.
Marine, coral reef	warm saltwater; sunlight	coral; parrotfish	Sunlight allows algae that live with coral to make food.

Accept any correctly classified living and nonliving factors that fit the named ecosystem. In the table, accept reasonable cause-and-effect explanations showing that an abiotic factor can affect an organism's survival, growth, behavior, or location.