Roots, Waves, Neighbors

Trace how a coastal ecosystem and its populations affect one another.

SS.8.G.3 "Understand the relationships between the Earth's ecosystems and the populations that dwell within them."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each mangrove condition or service, circle each population that relies on it, and write the same number beside evidence that connects them.

A Mangrove Coast

1 Along the coast of southern Florida, mangrove forests grow where salt water meets land. Their tangled roots slow waves, trap sediment, and create sheltered water. Small fish, crabs, and shrimp use these spaces as nurseries before moving into open water. Herons hunt along the shallows, while raccoons and insects feed on fallen leaves and other organisms. Each population depends on conditions the mangroves provide, including brackish water, food, and places to hide from predators nearby.

2 People living near these forests also rely on the ecosystem. Fish that grew safely among mangrove roots can later support local fishing businesses and family meals. Mangroves reduce some storm surge and erosion by absorbing wave energy, helping protect homes and roads. In return, human choices can change the habitat. Clearing trees for development removes root shelter and can lower young fish survival. Fertilizer runoff may add excess nutrients, which can harm water quality and alter the populations living there.

3 Community groups sometimes restore damaged shorelines by planting native mangroves and limiting polluted runoff. As roots become established, they can hold soil in place and create cover for young animals. A larger fish population may then provide more prey for herons and more fish for people to catch, if fishing is managed carefully. Restoration does not guarantee every population will increase. Hurricanes, water temperature, disease, and the amount of available food also affect whether organisms can survive and reproduce.

2 ANSWER WITH EVIDENCE

Use the passage

1. How do mangrove roots help the young fish population survive?

2. What are two ways the mangrove ecosystem benefits people living nearby?

3. Identify two human actions in the passage that can harm the mangrove habitat. Explain one effect of each action.

4. Why might restoration not cause every population to increase? Name two other factors that affect populations.

3 YOUR TURN

Your own words

Choose a different ecosystem, such as a prairie, coral reef, or river. In 4 to 5 sentences, explain how one ecosystem condition supports two populations, then explain how one human action could change both populations.

ANSWER KEY # Roots, Waves, Neighbors

GRADE 8 · SS.8.G.3

PART 1 · READ AND MARK

Underline each mangrove condition or service, circle each population that relies on it, and write the same number beside evidence that connects them. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How do mangrove roots help the young fish population survive?	**The roots create sheltered nursery spaces and places for young fish to hide from predators.**
2	What are two ways the mangrove ecosystem benefits people living nearby?	**It supports fish for local businesses and family meals, and it reduces some storm surge and erosion that can damage homes and roads.**
3	Identify two human actions in the passage that can harm the mangrove habitat. Explain one effect of each action.	**Clearing trees for development removes root shelter and can lower young fish survival. Fertilizer runoff adds excess nutrients, which can harm water quality and alter populations.**
4	Why might restoration not cause every population to increase? Name two other factors that affect populations.	**Other factors also affect survival and reproduction, including hurricanes, water temperature, disease, available food, and fishing management.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

In a prairie, grasses provide food and cover. Bison eat the grasses, and prairie dogs use the plants and soil for shelter. If farmers plow much of the prairie, both populations lose habitat or food. Fewer bison and prairie dogs can also leave less prey for predators.

Accept accurate cause-and-effect explanations that connect ecosystem conditions, populations, and human actions. For the open response, accept any different ecosystem if it clearly explains support for two populations and a likely effect of one human action.