Reef Connections

Trace how reef conditions and living populations affect one another.

SS.6.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 nonliving condition that affects a population, circle each population, and draw a numbered arrow to show what affects what.

Life Along a Coral Reef

1. Along the coast of Belize, a coral reef is an ecosystem, a community of living things and their surroundings. Reef-building corals grow best in warm, clear, shallow salt water. Their hard structures make hiding places for fish, crabs, and sea urchins. Algae use sunlight to grow, and parrotfish eat some algae. This food connection helps keep algae from covering corals. Each population depends on both other organisms and nonliving conditions such as water temperature and sunlight.

2. After unusually warm water lasts for weeks, corals can lose the tiny algae that live in their tissues. This stress is called bleaching, because many corals turn pale. Bleached corals may survive if cooler conditions return, but severe or repeated heat can kill them. When living coral declines, fish that shelter or feed among corals have fewer places to live and find food. Some fish populations decrease or move to another part of the reef. The reef then supports fewer predators and prey.

3. People also affect this ecosystem. Farmers, towns, and visitors can send soil, fertilizer, or trash into coastal water. Cloudy water blocks sunlight, while extra nutrients can cause algae to grow quickly. In Belize, protected areas and rules against damaging coral can reduce some pressure. Mangrove forests near reefs are also important. Their roots shelter young fish before the fish move to reefs. Protecting clear water, corals, and mangroves helps reef populations, including people who fish or guide visitors, continue to use the coast.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does parrotfish eating algae help corals?

2. Describe the chain of effects that can happen when reef water stays unusually warm.

3. How are mangrove forests connected to fish populations on the reef?

4. Why could soil washing into coastal water affect reef populations?

3 YOUR TURN

Your own words

Choose an ecosystem not named in the reading. Fill all three rows with different populations that live there, a resource or condition each needs, and one likely effect if that resource or condition changes.

ECOSYSTEM	POPULATION	NEEDED RESOURCE OR CONDITION	IF IT CHANGES

ANSWER KEY

Reef Connections

GRADE 6 · SS.6.G.3

PART 1 · READ AND MARK

Underline each nonliving condition that affects a population, circle each population, and draw a numbered arrow to show what affects what. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does parrotfish eating algae help corals?	**Parrotfish help keep algae from covering corals.**
2	Describe the chain of effects that can happen when reef water stays unusually warm.	**Warm water can cause corals to bleach and die. Fish then lose shelter and food, so some fish populations decrease or move. The reef supports fewer predators and prey.**
3	How are mangrove forests connected to fish populations on the reef?	**Mangrove roots shelter young fish before the fish move to reefs.**
4	Why could soil washing into coastal water affect reef populations?	**Soil can make the water cloudy and block sunlight. This can affect algae and the reef organisms that depend on sunlight and food connections.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

ECOSYSTEM	POPULATION	NEEDED RESOURCE OR CONDITION	IF IT CHANGES
Temperate forest	Gray squirrel	Acorns and tree cavities	If oak trees decline, squirrels have less food and fewer nesting places.
Temperate forest	Oak tree	Sunlight and soil water	If drought reduces water, fewer acorns grow.
Temperate forest	Red-tailed hawk	Squirrels and other prey	If squirrel numbers fall, hawks have less food.

Accept equivalent cause-and-effect explanations that accurately connect a nonliving condition or population to another population. For the table, accept any accurate ecosystem, population, need, and logical effect of change.