Reef Roles

How animal adaptations shape life on an oyster reef

MAQ.6.7 "Using key morphological and physiological adaptations found within animal taxa, assess how animals interact with their environment to determine their ecological roles."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one body structure and circle one body process for each animal in the passage. Beside each pair, write the ecological role those traits help the animal perform.

Three Lives on an Oyster Reef

1. At low tide, an oyster reef looks like a heap of rough shells, but it is a living neighborhood. Eastern oysters are bivalves: two hard valves protect each soft body. When submerged, an oyster opens its valves and pumps water across its gills. Tiny hairs on the gills trap plankton and other suspended food. This filtering can remove particles from the water, while the piled shells create hiding places for other animals. Young oysters settle on exposed shells and add new layers to the reef. Closing its valves also helps an oyster survive brief exposure to air at low tide.

2. Blue crabs patrol the edges of the reef when the tide covers it. Their jointed walking legs carry them over uneven bottom, and strong claws can break small shellfish or seize other prey. A crab also scavenges dead animals, so it transfers food from several sources into its own body. Unlike an oyster fixed in place, a crab can follow a moving meal. After heavy rain lowers the water's salinity, blue crabs use their gills to regulate salts in their bodies. This internal process helps them keep hunting in estuaries where fresh and salt water mix.

3. Small mummichogs weave through the shell gaps as the tide rises. Their fins allow quick turns, and their small mouths pick up insect larvae and tiny crustaceans among the shells. Like blue crabs, mummichogs can regulate salts in their bodies when estuary water becomes more or less salty. They often feed where the reef offers cover from larger fish. When a larger fish catches a mummichog, energy from its small prey moves up the food web. The oyster, crab, and mummichog share one reef, but their different traits let them filter food, hunt, or forage in different ways.

2 ANSWER WITH EVIDENCE

Use the passage

1. How do an oyster's valves and gills work together to support its role as a filter feeder?

2. How do a blue crab's legs and claws make its feeding role different from an oyster's?

3. After heavy rain, why can blue crabs continue hunting in the estuary? Connect a body process to their ecological role.

4. How do a mummichog's fins and mouth help it use the reef, and how can its presence affect larger fish?

3 YOUR TURN

Your own words

Invent an animal that could live on this reef. Describe one body structure and one internal process that help it get food, name its ecological role, and predict one effect it could have on an animal in the passage.

Reef Roles

PART 1 · READ AND MARK

Underline one body structure and circle one body process for each animal in the passage. Beside each pair, write the ecological role those traits help the animal perform. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How do an oyster's valves and gills work together to support its role as a filter feeder?	**The oyster opens its valves underwater and pumps water across its gills, which trap plankton and other suspended food.**
2	How do a blue crab's legs and claws make its feeding role different from an oyster's?	**Its legs let it move toward prey, and its claws break shellfish or seize other animals. An oyster stays in place and filters food from water.**
3	After heavy rain, why can blue crabs continue hunting in the estuary? Connect a body process to their ecological role.	**Their gills regulate salts in their bodies when rain lowers salinity, allowing them to keep hunting.**
4	How do a mummichog's fins and mouth help it use the reef, and how can its presence affect larger fish?	**Its fins help it turn among the shells, and its small mouth lets it pick up tiny prey there. Larger fish may eat the mummichog.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

My reef snail has a rough tongue that scrapes algae from oyster shells. Its digestive system produces enzymes that break down the algae, so the snail is a grazer. By removing algae, it could leave more exposed shell where young oysters can settle.

For the marking job, accept any accurate structure, process, and role pairing supported by the passage. For Your Turn, accept plausible invented adaptations when the response explains how both traits support feeding and gives a reasonable effect on a passage animal.