Tidewater Ties

Classify relationships in a Florida mangrove shoreline

ENV.1.4 "Describe symbiotic relationships (e.g., mutualism, parasitism, and commensalism) and other co-evolutionary (e.g., predator-prey, cooperation, competition, and mimicry) relationships within specific environments."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each interaction between organisms, circle words that show who benefits, is harmed, or is unaffected, and label at least three interactions with their relationship types.

Life Along the Mangrove Roots

1. At a Florida mangrove shoreline, the tide rises around red mangrove roots while black mangroves grow slightly farther inland. A bee visits a black mangrove flower for nectar. As it brushes the flower, pollen sticks to its body and may reach another flower, helping the tree make seeds. The bee gains food, and the tree gains a way to move pollen. Below the waterline, an oyster fastens its shell to a red mangrove root. The root gives the oyster a firm place to live, while the tree is not noticeably helped or harmed by the attachment.

2. A female mosquito lands on a wading bird and draws blood. The mosquito gets a meal needed to produce eggs, while the bird loses blood and may suffer irritation. Nearby, a snowy egret spears a small fish and swallows it. The egret gains energy, but the fish dies. A great blue heron also hunts small fish in these shallow channels. When both birds hunt the same limited supply of fish, each may have fewer fish available. Unlike the mosquito, the egret does not keep taking meals from a living host; it kills and eats its prey.

3. At the edge of the roots, young fish gather in a school. When one fish senses an approaching hunter and turns suddenly, nearby fish turn with it. Moving together can make it harder for a hunter to single out one fish, although each fish still needs food for itself. Over many generations, inherited traits can become more common when they help organisms survive and reproduce. A quicker turn might help a fish escape; sharper vision might help a hunting bird catch fish. Seeing these interactions today does not prove that any particular pair of species changed in response to each other.

2 ANSWER WITH EVIDENCE

Use the passage

1. What type of relationship connects the bee and the black mangrove? Explain what each gains.

2. Classify the oyster's relationship with the red mangrove. What evidence supports your choice?

3. How does the mosquito's relationship with the bird differ from the egret's relationship with the fish? Name both types.

4. The two hunting birds and the schooling fish show different relationships. Name each relationship and explain how it works.

3 YOUR TURN

Your own words

Choose an environment other than a mangrove shoreline and describe a plausible interaction between two organisms there. In 4 to 5 sentences, name the relationship type, explain its effect on both organisms, and describe how an inherited trait of one could affect the other's survival over generations.

Tidewater Ties

PART 1 · READ AND MARK

Underline each interaction between organisms, circle words that show who benefits, is harmed, or is unaffected, and label at least three interactions with their relationship types. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What type of relationship connects the bee and the black mangrove? Explain what each gains.	**Mutualism. The bee gets nectar, and the tree gets help moving pollen between flowers.**
2	Classify the oyster's relationship with the red mangrove. What evidence supports your choice?	**Commensalism. The oyster gains a place to attach, while the tree is not noticeably helped or harmed.**
3	How does the mosquito's relationship with the bird differ from the egret's relationship with the fish? Name both types.	**The mosquito is a parasite: it takes blood from a living bird and harms it. The egret is a predator: it kills and eats the fish.**
4	The two hunting birds and the schooling fish show different relationships. Name each relationship and explain how it works.	**The birds compete for a limited supply of fish, so each may have fewer to catch. The young fish cooperate by turning together, which can make one fish harder for a hunter to single out.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

In a pond, a dragonfly nymph catches and eats a mosquito larva. This is a predator-prey relationship: the nymph gets food, and the larva dies. An inherited ability to detect movement quickly could help nymphs catch more larvae and survive to reproduce. Over generations, mosquito larvae with inherited traits that help them avoid detection might be more likely to survive.

Accept accurate relationship labels supported by effects on both organisms. For Part 3, accept a plausible interaction in another environment and a possible effect of an inherited trait, without requiring proof that the species coevolved.