Tide Pool Neighbors

Use evidence to investigate how organisms affect one another.

L.6.3.4 "Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Read the passage, then underline details that show what each organism gains or loses in each paragraph. Circle the names of the organisms involved so you can compare their relationships.

Life on a Crowded Rock

1. At low tide, a rocky pool looks quiet, but a sea star is moving toward a mussel. The sea star grips the mussel's two shells with its tube feet and slowly pulls. When a small gap opens, the sea star pushes part of its stomach inside and digests the mussel. The sea star gains a meal, while the mussel is killed. If fewer mussels survive, more bare rock may be left for other animals to settle on. One meal can change who has room in the pool.

2. A patch of bare rock is valuable to both mussels and barnacles. A young barnacle settles on rock and stays fixed there as it grows. A mussel holds on with strong threads. Both animals strain tiny food from the water, and both need firm places to anchor. After a wave washes away some mussels, barnacles may settle in the open spots. If barnacles fill those spots first, fewer new mussels can fasten there. The animals do not have to fight to affect each other's chances of finding space.

3. Near the edge of the pool, a hermit crab carries a sea anemone on its empty snail shell. The anemone has stinging tentacles that may drive away a fish trying to eat the crab. As the crab travels and feeds, the anemone can catch bits of food stirred up nearby. The crab gets some protection, and the anemone gains access to food. This partnership does not mean either animal always helps the other on purpose. When the crab moves to a new feeding spot, its passenger travels with it.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does the sea star's action affect both the sea star and the mussel? Name this kind of interaction.

2. Why might fewer new mussels settle where barnacles have filled the open spots? Name this kind of interaction.

3. What does each animal gain when a sea anemone rides on a hermit crab's shell? Name this kind of interaction.

4. How is the sea star's effect on the mussel different from the sea anemone's effect on the hermit crab?

3 YOUR TURN

Your own words

Imagine a storm clears a wide patch of mussels from the rock. In three or four sentences, predict how this change might affect barnacles and sea stars, using evidence from the passage and naming the kinds of interactions involved.

ANSWER KEY

Tide Pool Neighbors

GRADE 6 · L.6.3.4

PART 1 · READ AND MARK

Read the passage, then underline details that show what each organism gains or loses in each paragraph. Circle the names of the organisms involved so you can compare their relationships. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does the sea star's action affect both the sea star and the mussel? Name this kind of interaction.	**The sea star gains food, and the mussel is killed. This is predation.**
2	Why might fewer new mussels settle where barnacles have filled the open spots? Name this kind of interaction.	**Barnacles take up firm attachment space that mussels also need. This is competition.**
3	What does each animal gain when a sea anemone rides on a hermit crab's shell? Name this kind of interaction.	**The crab gains some protection from predators, and the anemone gains access to food. This is a mutually beneficial relationship.**
4	How is the sea star's effect on the mussel different from the sea anemone's effect on the hermit crab?	**The sea star benefits by killing and eating the mussel. The anemone may protect the crab, while the anemone also benefits.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Barnacles could settle on the newly bare rock because fewer mussels cover it. Barnacles and mussels compete for attachment space. Sea stars might find fewer mussels to eat on that patch, so they may need to search elsewhere. Sea stars eating mussels is predation.

Accept predictions that barnacles may gain attachment space and sea stars may find fewer mussels on the cleared patch. Students should connect those predictions to competition for space and predation.