

SEEKING SURVIVAL

STUDENT WORKBOOK

ACCELERATE



ORGANISM RELATIONSHIPS

Do organisms help different organisms survive, or do they work alone?

I THE RELATIONSHIP GAME

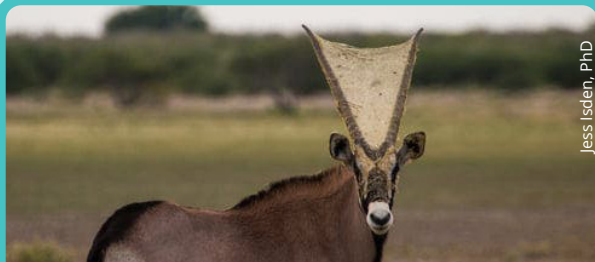
POSITIVE IMPACT ON SURVIVAL



Cleaner Shrimp and Moray Eel



Ant and fungus on ground



Gemsbok and Spider

Jess Isden, PhD

NEGATIVE IMPACT ON SURVIVAL



Moray Eel and Parrot Fish



Ant and fungus coming from thorax

Istock



Gemsbok and Gazelle

Over time, plants developed different smells and colors to attract the correct pollinators. Without the correct pollinators, the plants would not have as much reproductive success.



The hummingbird hawkmoth has a proboscis designed to reach down into tiny flowers to access pollen.

Plants are also important for pollinators to reproduce. Most pollinators eat the pollen or nectar the plants produce. Over time, pollinators with traits that matched the shapes of plants were more successful at obtaining this food source.

Think about the hummingbird model. The beak was thin enough to fit into the green flower, but not quite long enough to reach the pollen. If this happened in nature, the bird would not get a meal. Over time, the bird would not be healthy enough to survive and reproduce. If this happened a lot, the bird's species could eventually die out or go extinct.

Instead, the mutualistic relationship between the hummingbird and the plants allow the hummingbird to get a meal, survive, and reproduce. Similar situations occur for the other pollinators as well. The beetle even uses the plant as a location to reproduce. Often, when searching for a meal, multiple beetles find themselves on the same flower. They will then choose to mate, which leads to reproduction. The plant provides a safe place for meeting, which leads to more beetles.



? Pollinators are a good example of mutualism, but there are many other examples in nature. In Activity 1, which two examples do you think were mutualism? Why?



REFLECT

1. What is the effect of caterpillar color on the rates of predation?
2. What types of predators exist for caterpillars in your area? How do you know?

8 POWER OF PREDATION

Predation

Not all relationships in nature are symbiotic. One type of relationship, like parasitism, but not a symbiotic, is **predation**. Predation is an ecological interaction in which one organism (the predator) survives by killing and eating the other organism (the prey).

Predation is not a symbiotic relationship because it does not develop over a long period of time. For example, a hungry bird will attempt to prey on a caterpillar even if it has never seen one before, while a parasite feeding on a host requires it to develop the characteristics that match the host.

Additionally, parasitism doesn't always result in the host being killed. However, predation always results in one of the organisms being killed and eaten.

- Which picture in Activity 1 do you think was an example of predation? Why?

The image of the Moray Eel and Parrot Fish is an example of predation. The Parrot Fish is captured and eaten by the Moray Eel to keep the eel healthy. The Parrot Fish isn't kept healthy because it is eaten.

You may remember that there was a second image of a Moray Eel, but the animal in its mouth was a Cleaner Shrimp. The shrimp was part of a mutualistic relationship with the eel and is not prey.



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Kit	SU-SEKSURV
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