

Living Together

What are the types of symbiotic relationships?

A close long-term relationship between different species in a community is called **symbiosis** (sim•bee•OH•sis). In symbiosis, the organisms in the relationship can benefit from, be unaffected by, or be harmed by the relationship. Often, one organism lives in or on the other organism. Symbiotic relationships are classified as mutualism, commensalism, or parasitism.

Active Reading 9 Identify As you read, underline examples of symbiotic relationships.

Mutualism

A symbiotic relationship in which both organisms benefit is called **mutualism**. For example, when the bee in the photo drinks nectar from a flower, it gets pollen on its hind legs. When the bee visits another flower, it transfers pollen from the first flower to the second flower. In this *interaction*, the bee is fed and the second flower is pollinated for reproduction. So, both organisms benefit from the relationship. In this example, the mutualism benefits the bee and the two parent plants that are reproducing.



Bees pollinate flowers. This is an example of mutualism.

Commensalism

A symbiotic relationship in which one organism benefits while the other is unaffected is called **commensalism**. For example, orchids and other plants that often live in the branches of trees gain better access to sunlight without affecting the trees. In addition, the tree trunk shown here provides a living space for lichens, which do not affect the tree in any way. Some examples of commensalism involve protection. For example, certain shrimp live among the spines of the fire urchin. The fire urchin's spines are poisonous but not to the shrimp. By living among the urchin's spines, the shrimp are protected from predators. In this relationship, the shrimp benefits and the fire urchin is unaffected.



Lichens can live on tree bark.

10 Compare How does commensalism differ from mutualism?

Parasitism

A symbiotic relationship in which one organism benefits and another is harmed is called **parasitism** (PAR•uh•suh•tiz•uhm). The organism that benefits is the *parasite*. The organism that is harmed is the *host*. The parasite gets food from its host, which weakens the host. Some parasites, such as ticks, live on the host's surface and feed on its blood. These parasites can cause diseases such as Lyme disease. Other parasites, such as tapeworms, live within the host's body. They can weaken their host so much that the host dies.

11 Summarize Using the key, complete the table to show how organisms are affected by symbiotic relationships.

| Symbiosis | Species 1 | Species 2 |
|------------|-----------|-----------|
| Mutualism | + | |
| | + | 0 |
| Parasitism | | |

Key + organism benefits
0 organism not affected
- organism harmed

Think Outside the Book Inquiry

12 Predict Observe and take notes about how the organisms in your area interact with one another. Imagine what would happen if one of these organisms disappeared. Write down three effects that you can think of.

