

**Symbiosis** is: A close, long-term \_\_\_\_\_ among two or more species that live and interact together. There are 3 types of Symbiotic Relationships:

- 1) \_\_\_\_\_ → A special type of \_\_\_\_\_ relationship in which one organism feeds on and lives in or on another organism. Thus, the parasite \_\_\_\_\_ and the host organism is \_\_\_\_\_ → ( , )
- 2) \_\_\_\_\_ → A relationship in which both members \_\_\_\_\_ → ( , )
- 3) \_\_\_\_\_ → A relationship in which one member \_\_\_\_\_, but the other organism neither benefits nor is harmed... the effect is \_\_\_\_\_ → ( , )

Symbiosis Description	Symbol Summary + = benefits - = harm N = neutral	Symbiosis Term Parasitism Mutualism commensalism
1. Mycorrhizae are associations between fungi and the roots of plants. The fungi provide minerals to the plant, and the plant provides food the fungi.		
2. Egrets are beautiful white birds that roost on the back of cows. The cows are not affected.		
3. Tapeworms inhabit the intestines of dogs. They feed on food the dog is digesting. While the do not usually kill the dog, they can weaken the dog, making it susceptible to other illnesses.		
4. The stinging tentacles of the sea anemone do not affect the clownfish. Instead, the fish are protected from predators and feed on the sea anemone's leftovers as they swim among its tentacles. The anemone is not harmed by the fish.		
5. Athlete's foot is caused by a fungus that grows on the warm moist skin of the people, often around the toes of the feet. It my cause severe itching and cracking of the skin.		
6. The ramora is a small fish with a sucker on its head that attaches to the underside of a shark. It feeds on the sharks' leftovers. The shark is unaffected by the ramora.		
7. Lichens are a combination of an alga and a fungus. The alga produces food for the fungus; the fungus provides protection for the alga and supplies needed nutrients.		
8. A robin builds a nest in a tree. The tree provides protection for the nest, but is not harmed by the presence of the nest.		
9. A tick lands on a dog. It feeds on the dog's blood. Large infestations may weaken the dog and make it susceptible to other illnesses.		
10. In Africa there exists an unusual relationship between ants and the Acacia tree. The tree sap provides food for the ants, and the ants protect the tree from predators.		
11. There is a white bird that feeds on the particles of food left between the Hippopotamus' teeth. The hippo does not harm the bird and benefits from the teeth cleaning.		
12. Mosquitoes carry the larva of the heartworm. Their bite may infect a dog. The heartworm larvas infect the dogs' heart, where they may live for some time before killing the dog.		
13. Barnacles have no means of location and may reside on the skin of the whale. The whale is unaware that the barnacles are there, but the barnacles get a free ride from place to place.		
14. Ringworm is really a type of fungus that causes a ring shaped itchy place on the skin of humans. The fungus obtains food from human skin, and the human can become quite miserable.		
15. Bromeliads grow in the canopy of the tropical rainforest. They live in the tops of trees to obtain sunlight. They do not obtain nourishment from the tree or harm the tree.		

## Section 18-1: How Organisms Interact in Communities

Read the passage below, which is reproduced from page 384 of your textbook. Answer the questions that follow

In **symbiosis**, two or more species live together in a close, long term association. Symbiotic relationships can be beneficial to both organisms or may benefit one organism and leave the other harmed or unaffected. **Parasitism** is one type of symbiotic relationship that is detrimental to, or harms, the host organism. In this relationship, one organism feeds on and usually lives in another, typically larger, organism. **Mutualism** is a symbiotic relationship in which both participating species benefit. A well known instance of mutualism involves ants and aphids. The ants feed on fluid the aphids secrete, and in exchange, the ants protect the aphids from insect predators. A third form of symbiosis is **commensalism**, a symbiotic relationship in which one species benefits and the other is neither harmed nor helped. Among the best-known examples of commensalism are the feeding and protection relationships between certain small tropical fishes and sea anemones, marine animals that have stinging tentacles.

Write **P** if the phrase describes parasitism, **M** if it describes mutualism, or write **C** if it describes commensalism. Some responses will have more than one letter.

- \_\_\_\_\_ exists between certain tropical fish and sea anemones.
- \_\_\_\_\_ type of symbiotic relationship.
- \_\_\_\_\_ the host organism is harmed.
- \_\_\_\_\_ one species is neither harmed nor helped.
- \_\_\_\_\_ at least one species benefits.

Circle the letter of the phrase that best completes the statement.

- Mutualism is a symbiotic relationship in which
  - Both species are harmed
  - Neither species benefits
  - One species is harmed
  - Both species benefit