

SYMBIOSIS HW

Symbiosis literally means “living (biosis) together (sym)”. Symbiosis is an intimate association of two or more species.

There are three major categories of these associations.

- Mutualism is a symbiotic relationship where both organisms benefit from the association.
- Commensalism is a symbiotic relationship where one organism benefits from the association and the other organism is unaffected.
- Parasitism is a symbiotic relationship where one organism benefits and the other organism is harmed by the association. The parasite obtains its nutrients from its host. The host may become weakened and/or die from this association.

On the line to the left of each relationship, put the letter “M” for Mutualism, put a “C” for Commensalism, or put a “P” for Parasitism

_____ 1. **Barnacle and Whale**

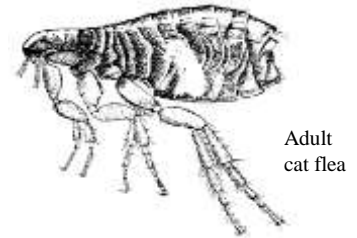
The barnacle attaches to the whale and is transported through the ocean. The barnacle is a filter feeder and obtains its food as it rides on the whale. The whale is not affected.

_____ 2. **Deer Tick and Human**

The deer tick feeds on the blood of the human (mammal) host and may inject bacteria that cause Lyme disease in humans.

_____ 3. **Flea and Cat**

The cat flea, *Ctenocephalides felis*, obtains nutrients by drawing the blood of the cat. Fleas can be vectors of disease.



_____ 4. **Honey Guide Bird and Badger**

The bird leads the badger to a bee hive. The badger rips open the hive and eats the honey, while the bird eats the bee larvae, wax, and leftover honey.

_____ 5. **Saguaro Cactus and Woodpecker**

The woodpecker eats the moths preying on the cactus. The cactus provides a protected habitat for the bird.

_____ 6. **Wrasse and Parrot Fish**

The wrasse is a small fish that feeds on the parasites on the parrot fish. The larger parrot fish protects the wrasse from predators.

_____ 7. **Tick Bird and African Rhinoceros**

The tick bird eats parasitic ticks off the rhinoceros and sounds a warning alarm if another animal approaches. The rhinoceros protects the bird from predators.

_____ 8. **Yucca Moth and Joshua Tree**

The yucca moth pollinates the flowers of the Joshua tree, enabling the tree to produce seeds. The Joshua tree provides the moth with protection, food, and a place to live.

_____ **9. Plover Bird and Crocodile**

The plover bird eat leeches off the gums of the crocodile and parasites from the crocodile's hide. The crocodile provides protection for the plover.

_____ **10. Epiphyte (Spanish Moss) and Tree**

The epiphyte s gain exposure to sunlight by growing on the branches of trees. The moss does not harm the trees

_____ **11. Mistletoe and Tree**

The mistletoe penetrates the tree host and obtains nutrients and water. Eventually, it out-competes and kills the host tree.

_____ **12. Algae and Sloth**

Green algae attach to the fur of the sloth and help to camouflage the sloth from predators. As the sloth moves around in the treetops of the shaded rainforest, the algae are exposed to sunlight, enabling them to carry out photosynthesis.

_____ **13. Termites and Protozoa**

Termites feed on cellulose, but cannot digest it. The protozoa (ciliates) in the termite's gut digest cellulose for the termite. The protozoa are protected in the termite's gut and are provided with cellulose (food).

_____ **14. Peanuts and Bacteria**

The bacteria obtain food and are protected in the roots of the peanuts. The bacteria change an unusable form of nitrogen (N_2) into the ammonia form of nitrogen (NH_3) that is absorbed by the plant and used as a nutrient.

_____ **15. Ants and Acacia Tree**

The ants protect the acacia tree from predators and herbivores. The acacia tree provides a home for the ants in its thorns.

