4Symbiosis WS
_____/4

Name: ANSWERS
Date:_____ Period:_____

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

1) parasitic – A special type of symbiotic relationship in which one organism feeds on and lives in or on another organism. Thus, the parasite benefits and the host organism is harmed → (+, −)

2) mutualistic – A relationship in which both members benefit → (+, +)

3) commensalistic – A relationship in which one member benefits but the other organism neither benefits nor is harmed… the effect is neutral (+, 0)

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.	+, +	M
2. Egrets are beautiful white birds that roost on the back of cows. The cows are not affected.	+, 0	C
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.	+, −	P
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.	+, +	M
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.	+, −	P
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.	+, 0	C
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.	+, +	M
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.	+, 0	C
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.	+, −	P
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.	+, +	M
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.	+, +	M
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.	+, −	P
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.	+, 0	C
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.	+, −	P
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.	+, 0	C

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 from 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.

1. M exists between certain tropical fish and sea anemones.
2. P, M, C type of symbiotic relationship.
3. P the host organism is harmed.
4. C one species is neither harmed nor helped.
5. M, C at least one species benefits.

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

6. Mutualism is a symbiotic relationship in which
   a. Both species are harmed
   b. Neither species benefits
   c. One species is harmed
   d. Both species benefit

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Symbiotic Relationships Worksheet—Good Buddies

Organisms:	Symbiotic Relationship [parasitic, commensalistic, or mutualistic]	Brief Overview of Relationship:
Barnacle/Whale	C	Barnacles create home sites by attaching themselves to whales. As the barnacle is a filter feeder, it also gets access to more water (and more food) due to the relationship. Whale is unaffected.
Cuckoo/Warbler	P	A cuckoo lays its eggs in the nest of the warbler. The cuckoo's eggs hatch first and the young kick the warbler eggs out of the nest. The warbler raises the cuckoo babies and the warbler babies aren't hatched.
Remora/Shark	C	Remoras attach themselves to a shark's body. They travel with the shark and feed on the leftover food scraps after the shark has finished its meal. The shark is unaffected as it's done eating anyway.
Ostrich/Gazelle	M	Ostriches and gazelles feed next to each other. They both watch for predators. Because the visual abilities of the two species are different, they can each identify threats that the other animal may not see as readily. Both species benefit.
Mistletoe/Spruce	P	Mistletoe extracts water and nutrients from the spruce tree to the detriment (ill effect) to the spruce.
Silverfish/Army Ant	C	Silverfish live and hunt with army ants and share the prey. They neither help nor harm the ants.
Oxpecker/Rhinoceros	M	Oxpeckers (bird) feed on the ticks found on a rhinoceros. Both species benefit…the oxpecker gets food and the rhino gets rid of a parasite.
Mouse/Flea	P	A flea feeds on a mouse's blood to the mouse's detriment
Honey Guide Bird/Badger	M	Honey guide birds alert and direct badgers to bee hives. The badgers then expose the hives and feed on the honey first. Next the honey guide birds eat. Both benefit
Cowbird/Bison	C	As bison walk through grass, insects become active and are seen and eaten by cowbirds. This relationship neither harms nor benefits the bison.
Human/Tapeworm	P	Tapeworms reside in human intestine and take nutrients from the human.
Yucca Plant/Yucca Moth	M	Yucca flowers are pollinated by yucca moths. The moths lay their eggs in the flowers where the larvae hatch and eat some of the developing seeds. Both benefit.
Wrasse Fish/Black Sea Bass	M	Wrasse fish feed on the parasites found on the black sea bass's body (usually in the mouth). Dental floss for fish—both species benefit
Clown Fish/Sea Anemone	M	Clown fish live among anemones acting as a lure for the sea anemone's prey. The clown fish gets protection and shelter from the anemone.
Human/E. coli	M	E. Coli is a bacteria that lives in the gut of humans. The human provides the ideal habitat for e coli reproduction and the e coli provides the extra vitamin K that we use.
Ant/Aphid	M	Ants offer protection for the aphids who (have no protective features of their own) would otherwise would be food for all sorts of organisms. The aphids "repay" the ants by providing honeydew (a liquid they secrete) for the ants to use as food.
Trees/Epiphytes	C	Epiphytes are a class of plants that grow in the crooks of tree branches. They simply use the tree branches as a way to be higher—closer to the sunlight needed for photosynthesis. The trees aren't affected by this relationship.
Deer/Tick	P	The tick feeds off the blood of the deer. The deer is negatively affected.
Maribou Stork/Bee	C	The stork uses its saw-like bill to cut up the dead animals it eats. As a result, the dead animal carcass is accessible to some bees for food and egg layers. The stork is neither harmed nor helped by this relationship.
Hermit Crab/Shell	C	Hermit crabs will move into an old abandoned shell when their shell is no longer big enough to contain them. As the shell is inanimate (not living) it is not affected by this relationship.