Lesson 12.1: Critical Reading

Read these passages from the text and answer the questions that follow.

Symbiotic Relationships

Symbiosis is a close relationship between two species in which at least one species benefits. For the other species, the relationship may be positive, negative, or neutral. There are three basic types of symbiosis: mutualism, commensalism, and parasitism.

Mutualism

Mutualism is a symbiotic relationship in which both species benefit. An example of mutualism involves goby fish and shrimp (see figure below). The nearly blind shrimp and the fish spend most of their time together. The shrimp maintains a burrow in the sand in which both the fish and shrimp live. When a predator comes near, the fish touches the shrimp with its tail as a warning. Then, both fish and shrimp retreat to the burrow until the predator is gone. From their relationship, the shrimp gets a warning of approaching danger. The fish gets a safe retreat and a place to lay its eggs.

The multicolored shrimp in the front and the green goby fish behind it have a mutualistic relationship. (Image courtesy of Haplochromis and under the Creative Commons license CC-BY-SA 3.0.)

Commensalism

Commensalism is a symbiotic relationship in which one species benefits while the other species is not affected. One species typically uses the other for a purpose other than food. For example, mites attach themselves to larger flying insects to get a “free ride.” Hermit crabs use the shells of dead snails for homes.

Parasitism

Parasitism is a symbiotic relationship in which one species (the parasite) benefits, while the other species (the host) is harmed. Many species of animals are parasites, at least during some stage of their life. Most species are also hosts to one or more parasites. Some parasites live on the surface of their host. Others live inside their host. They may enter the host through a break in the skin or in food or water. For example, roundworms are parasites of mammals, including humans, cats, and dogs. The worms produce huge numbers of eggs, which are passed in the host’s feces to the environment. Other individuals may be infected by swallowing the eggs in contaminated food or water.

Some parasites kill their host, but most do not. It’s easy to see why. If a parasite kills its host, the parasite is also likely to die. Instead, parasites usually cause relatively minor damage to their host.
Questions

1. What is symbiosis?

2. What is mutualism? Give an example.

3. What is commensalism? Give an example.

4. What is parasitism? Give an example.

5. Why don’t most parasites kill their host?

Parasite dies w/ host
12.1 Community Interactions

Lesson 12.1: True or False

Name_________________________ Class_________________________ Date__________

Write true if the statement is true or false if the statement is false.

FALSE 1. All biomes, except a desert, have populations of interacting species.
TRUE 2. Camouflage is an adaptation that has evolved through natural selection.
FALSE 3. Predation is a relationship in which the prey consumes the predator.
FALSE 4. Interspecific competition occurs between members of the same species.
TRUE 5. Interspecific competition often leads to extinction, or it may lead to greater specialization.
TRUE 6. A keystone species is one that plays an especially important role in its population.
TRUE 7. Rock that hardens from lava is an example of primary succession.
TRUE 8. Mutualism is a symbiotic relationship in which both species benefit.
FALSE 9. The first species to colonize a disturbed area such as this are called primary species.
TRUE 10. If a parasite kills its host, the parasite may also die.
TRUE 11. Intraspecific competition leads to the evolution of better adaptations within a species.
TRUE 12. Secondary succession may occur after a forest fire.
FALSE 13. A population consists of all the communities of all the species in the same area.
FALSE 14. There are three major types of community interactions: predation, competition, and selection.
TRUE 15. Lichens that can live on bare rock may be pioneer species after a flood.
Lesson 12.1: Multiple Choice

Circle the letter of the correct choice.

1. Which of the following would NOT be a community?
   (a) All the plants, insects, and soil in your back yard.
   (b) All the many varieties of dogs in your neighborhood.
   (c) All the fish in an aquarium.
   (d) none of the above

2. Community interactions include
   (a) predation.
   (b) competition.
   (c) symbiosis.
   (d) all of the above.

3. Which is an example of a predator-prey relationship?
   (a) The relationship between a duck and a pond of water.
   (b) The relationship between a lion and a zebra.
   (c) The relationship between a bee and a flower.
   (d) The relationship between a hen and a rooster.

4. The main difference among the types of symbiotic relationships is
   (a) how many species either benefit or are harmed.
   (b) how many species are eaten.
   (c) how many species are protected.
   (d) all of the above.

5. An example of interspecific competition is
   (a) two male birds competing for the same female.
   (b) two male lions competing to lead the same pride.
   (c) two species of big cats competing for the same antelope.
   (d) all of the above.

6. Which of the following is a parasite?
   (a) the goby fish
   (b) the hermit crab
   (c) the shrimp
   (d) the roundworm

7. Which could possibly be a pioneer species during primary succession?
   (a) the first grass on new soil
   (b) the first lichen on new rock
   (c) the first layer of grass in a new park
   (d) the first trees to grow in a new forest

8. Camouflage is
   (a) an adaptation that evolved through natural selection.
   (b) a necessary trait for commensalism.
   (c) part of a well-adapted pioneer species traits.
   (d) all of the above.
Lesson 12.1: Critical Writing

Thoroughly answer the question below. Use appropriate academic vocabulary and clear and complete sentences.

Compare and contrast mutualism, commensalism, and parasitism.

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