Warm-Up: Ecology Concepts Review **Name _____**

Instruction: Circle your answers.

1. Aphids are insects that feed on fluids from the stems of plants. After the aphids ingest the plant fluids, they excrete a liquid called honeydew.

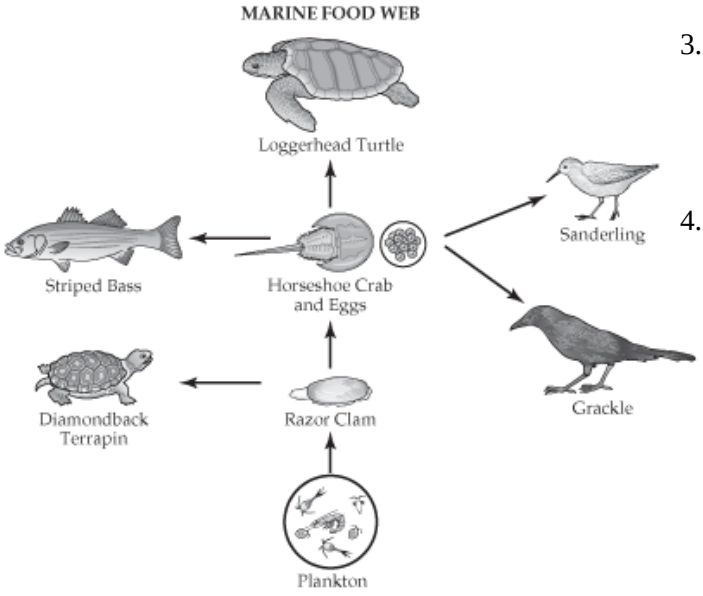
   Ladybugs eat aphids, which are a source of protein for the ladybugs. Which of these terms best describes the relationship between the ladybugs and the aphids?

   A mutualism **B** parasite-host **C** predator-prey **D** commensalism

2. Some species of ants protect aphids from predators. The ants benefit by feeding on the honeydew produced by the aphids. Which of these terms best describes the relationship between the aphids and the ants?

   A mutualism **B** parasite-host **C** predator-prey **D** commensalism

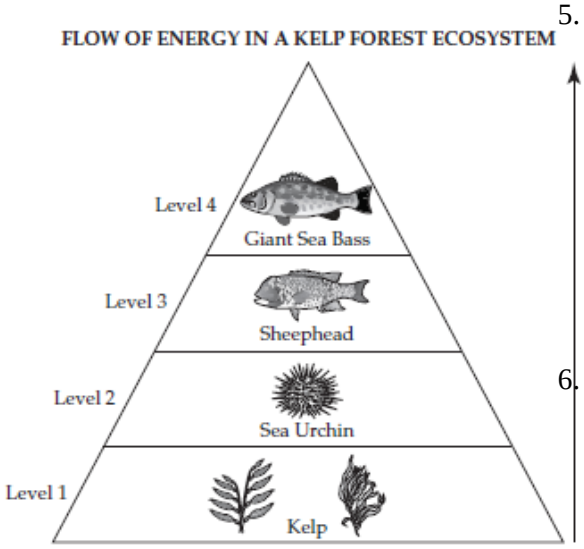
A marine environment provides a habitat for a variety of plants and animals. A small part of a marine food web is shown below.



3. **Which of these describes the role of the sanderling in the marine food web**?
   A producer **B** herbivore **C** carnivore **D** omnivore

4. Horseshoe crabs are used by fisherman for bait. If the horseshoe crab population were reduced by overfishing, which of these groups of organisms would most likely decrease in number?
   A plankton, razor clams, and loggerhead turtles **B** sanderlings, loggerhead turtles, and striped bass **C** grackles, plankton, and diamondback terrapin **D** striped bass, sanderlings, and razor clams

The energy pyramid below shows the flow of energy through the organisms in a kelp forest ecosystem in the Pacific Ocean. Use the energy pyramid to answer the following questions.



5. How would the populations of other organisms in the energy pyramid be affected if the population of sea urchins suddenly decreased?
A Both the kelp and the sheephead populations would increase. **B** Both the kelp and the sheephead populations would decrease. **C** The kelp population would decrease, and the sheephead population would increase. **D** The kelp population would increase, and the sheephead population would decrease.

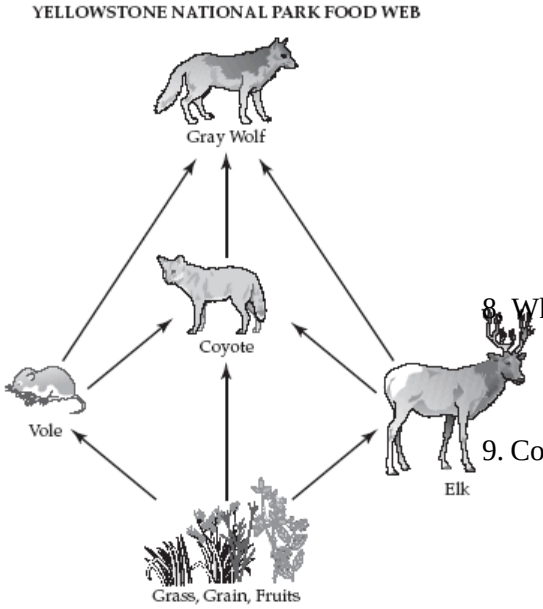
6. What is the lowest level of the energy pyramid that contains carnivores?
A level 1 **B** level 2 **C** level 3 **D** level 4

7. **A team of marine scientists is studying biotic and abiotic factors that affect the stability of a deep-sea ecosystem.**

The deep-sea ecosystem is a stable ecosystem. Which of these is a characteristic of most stable ecosystems?

A They contain a wide variety of organisms. **B** They contain very few organisms. **C** Organic nutrients are in short supply. **D** Sunlight is not used to make food.

Part of the food web in Yellowstone National Park is shown below.



Gray wolves were reintroduced into Yellowstone National Park in 1995. Two years later, the population of coyotes had decreased by 50%. Coyotes were found in all habitats of the park before the gray wolves were reintroduced. Now, coyotes are most often found in the hills and mountains.

8. Which of these describes the role of the vole in the Yellowstone ecosystem?
A decomposer **B** producer **C** herbivore **D** carnivore

9. Coyotes and gray wolves have a high degree of relatedness. Which of these best describes why the two species are closely related?
A They have similar behaviors. **B** They have a common ancestor. **C** They feed on the same types of food. **D** They are found in the same habitat.

10. Scientists estimate that 200 non-native organisms have been introduced into Chesapeake Bay. Which of these statements is not true about non-native organisms?

A They often form mutualistic relationships with native organisms. **B** They can deplete the food sources of native organisms. **C** They are often aggressive at acquiring and maintaining territory. **D** They can prey on native organisms causing them to go extinct.

Black skimmers are water birds that live along coastal beaches, bays, estuaries, and marshes. They fly just above the surface of the water using their lower jaw to catch small fish, shrimp, and other small crustaceans.

These birds nest in simple, unlined depressions in the sand. Scientists have observed a decline in the number of nests. Some causes of this decline include a lack of suitable nesting sites, beach erosion, and human disturbances.

When people approach their nests, the birds become aggressive and chase away intruders. Other animals, like crows, will take advantage of the unprotected nests and feed on the eggs.

11. Which of these best describes the effects of human disturbance on the black skimmer's eggs?
A a biotic factor **B** an allele **C** a niche **D** an abiotic factor

12. Which of these terms best describes the relationship between the crows and the black skimmers?
A mutualism **B** commensalism **C** parasite-host **D** predator-prey

13. A continued decrease in black skimmer's population will most likely lead to
A a decrease in scavenger populations **B** an increase in producer populations **C** a decrease in decomposer populations **D** an increase in prey animal populations

Use the information below to answer the following questions.

A scientist wanted to find out if low numbers of fish found in a nearby lake were related to acid rain. During his three-year study, he analyzed rainwater and lake water samples. By gathering samples of fish, he estimated the number of fish in the lake.

Each year he found that both the rainwater and lake water became more acidic, and the number of fish decreased.

His data suggested that acid rain may be responsible for the decrease in the number of fish found in the lake.

14. The lake ecosystem includes frogs, freshwater algae, and inorganic sediment. Which of these is an abiotic factor contained within the lake ecosystem?
A frogs **B** algae **C** fish **D** sediment

15. What most likely led to the rainwater's increasing acidity?
A ultraviolet radiation **B** sedimentation **C** burning fossil fuels **D** global warming