

Unit 3 *continued***Ecology**

18. Over time, selection pressure from predators will cause prey species to evolve

- A into parasites.
- B into a new niche.
- C secondary compounds.
- D ways to avoid predation.

19. Examine the drawing below.



In which of the following biomes are you MOST LIKELY to find this species?

- A tundra
- B savannah
- C temperate rain forest
- D boreal forest

20. Which of the following circumstances will allow a population to grow?

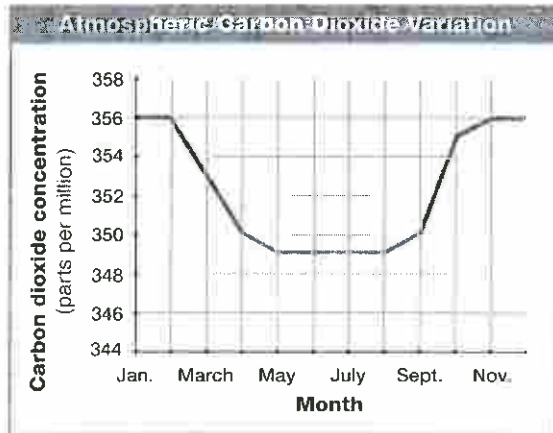
- A Emigration is greater than immigration.
- B The birth rate is equal to the death rate.
- C The death rate is higher than the birth rate.
- D The birth rate is greater than the death rate.

21. After fires destroyed 793,000 acres of aspen and pine forest in Yellowstone National Park in the unusually dry summer of 1988, biologists were able to study the long-term effects of fire on an ecosystem. The biologists found that the soil after the fire was more fertile and soon gave rise to small plants and new pine trees. What ecological process were the biologists observing?

- A biodiversity
- B equilibrium
- C succession
- D food web energy flow

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22. The graph below shows the average monthly values of atmospheric carbon dioxide.



How can the dip in carbon dioxide levels shown on the graph be related to the carbon cycle?

- A** Increased plant growth and photosynthesis during summer months remove more carbon dioxide from the atmosphere.
- B** Erosion of farmland removes carbon dioxide from the air.
- C** More carbon dioxide is dissolved in lake and ocean waters during the warm summer months.
- D** Fewer trees are cut for firewood during warmer months.
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23. A carbon sink is a part of Earth's ecosystem that stores carbon in one form or another for hundreds, thousands, and even millions of years. Forests and oceans are known to be carbon sinks. Which of the following marine organisms play a major role in making the ocean a carbon sink?
- A** whales, because they are large and can take up large amounts of carbon
- B** gelatinous zooplankton, because their biomass consists largely of water
- C** marine mammals, because they are high up on the food chain
- D** phytoplankton, because they are extremely numerous and they use carbon dioxide during photosynthesis
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24. Termites use the cellulose in wood as the main energy source in their diet. However, termites do not produce the enzymes necessary to break down the sugars in cellulose. Bacteria living in the digestive system of termites break down cellulose for the termites. Both the termites and the bacteria benefit from this relationship. This is an example of what type of relationship?
- A** commensalism
- B** mutualism
- C** parasitism
- D** predation
-

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25. Infer why certain types of fungi in a landfill might be helpful to the environment.

- A Fungi reduce unpleasant odors.
 - B Fungi give off less methane gas than other decomposers.
 - C Some fungi can break down tough plastics.
 - D Fungi remove carbon dioxide from the atmosphere.
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26. What characteristic of the earthworm's body represents a major evolutionary advancement?

- A the ability to regenerate lost parts
 - B an internal body cavity that enables the animal to eat and digest food
 - C segmentation, which allows for greater flexibility of movement and underlies the body organization of all animals that evolved later
 - D cephalization, which led to the development of nervous systems
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27. Which of the following is NOT an advantage of an exoskeleton for an insect?

- A An exoskeleton supports an insect's body.
 - B An exoskeleton protects organs and other structures inside the insect's body.
 - C An exoskeleton allows an insect to bend parts of its body that do not have joints.
 - D An exoskeleton holds moisture inside so that the insect can live on land without drying out.
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28. What is one advantage of a compound eye?

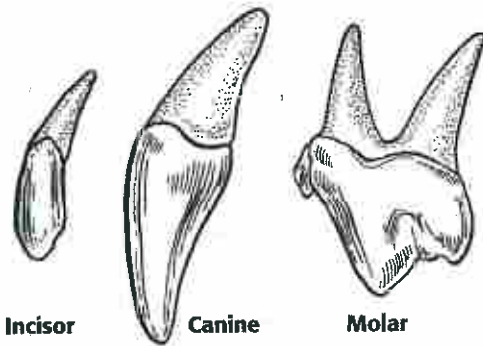
- A Compound eyes are very good at detecting light.
 - B Compound eyes are very good at distinguishing colors.
 - C Compound eyes are very good at detecting movement.
 - D Compound eyes have extra lenses to replace damaged ones.
-

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- 29.** The exoskeletons of arthropods provide a wonderful adaptation to life on land, and arthropods show a wide range of specialization in food sources and in habitat. What do these two observations explain?
- A** the aquatic nature of many arthropod species
 - B** the enormous evolutionary success of arthropods
 - C** the small number of arthropod species
 - D** the small size of many arthropod species
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- 30.** Kali's science lab has a saltwater aquarium with different kinds of invertebrates and fish in it. She has been investigating the structures that each creature uses for moving from place to place. Which of the following structures would Kali NOT observe being used for moving from place to place?
- A** a sea star's tube feet
 - B** a crab's jointed legs
 - C** a lobster's mandibles
 - D** a crayfish's swimmerets
-
- 31.** What is the specialized structure that allows most fish to control their vertical position in water?
- A** gill
 - B** swim bladder
 - C** cartilaginous fin
 - D** lateral line
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- 32.** What characteristic of amphibians makes a wet habitat necessary for their survival?
- A** Amphibians are ectotherms.
 - B** Amphibians eat small invertebrates.
 - C** Adult amphibians can breathe through their gills, their lungs, or their skin.
 - D** Amphibians have thin skin that absorbs or loses water depending on their surroundings.
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33. The teeth shown in the drawings below are special teeth found in carnivores.

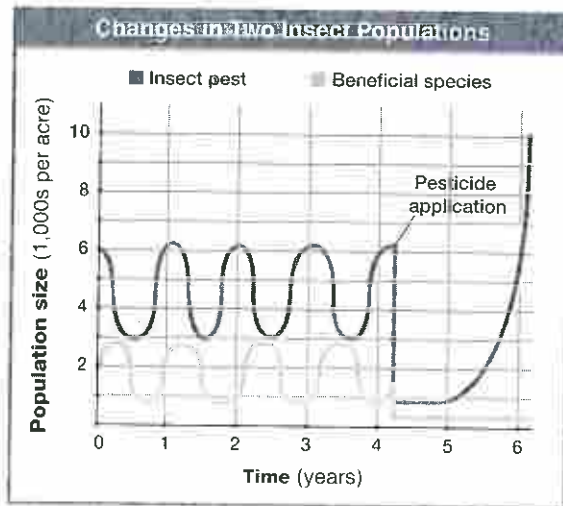
MAMMALIAN TEETH**Incisor****Canine****Molar**

Look at the drawing of the molar. Carnivores use this type of molar for slicing meat, and **this** type of molar is not very good for grinding or crushing. Herbivores, however, use their molars to grind plant material. How might herbivore molars differ from carnivore molars?

- A They would be larger and flatter.
- B They would be larger and sharper.
- C They would be smaller and flatter.
- D They would be smaller and sharper.

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34. A group of scientists studied the effects of pesticides on a local ecosystem. Over a number of years, they estimated the size of the populations of insect pests and beneficial species of insects in one area. Their findings from the first years of their study are illustrated below.



Which statement **BEST** describes the relationship between the two populations of insects before the introduction of pesticides?

- A. As the population of the beneficial insects increased, so did the population of the pests.
- B. As the population of the beneficial insects decreased, so did the population of the pests.
- C. As the population of the beneficial insects increased, the population of the pests decreased.
- D. The populations do not appear to have had an effect on each other.
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35. The Gila monster, a poisonous lizard, spends most of its life under rocks or burrowed in the ground. Which hypothesis **MOST LIKELY** explains the Gila monster's behavior?
- A. The Gila monster has very few defenses and must hide from predators.
- B. The Gila monster feeds exclusively on small insects that live in the ground or under rocks.
- C. The Gila monster must hide underground or under rocks to ambush passing prey.
- D. The Gila monster can only control its body temperature during hot desert days by seeking cooler places.

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36. Examine the physical characteristics of the birds shown below. Which of the birds is **LEAST LIKELY** to survive by eating plants or animals that live in shallow water?

**A****B****C****D**

- A** mallard duck
B common snipe
C red-tailed hawk
D great blue heron

37. The type of teeth a mammal has tells a great deal about the kind of food it eats. A wolf is a carnivore with sharp incisors and long canine teeth. It catches and eats other animals. A squirrel is a herbivore with chisel-shaped incisors. Use this information to determine which skull above is **MOST** like a squirrel skull and what foods a squirrel is **MOST LIKELY** to eat.

Skull A**Skull B**

- A.** Squirrels have a skull like skull A and eat carcasses.
B. Squirrels have a skull like skull B and chew nuts and seeds.
C. Squirrels have a skull like skull A and must break open tough seeds and nuts.
D. Squirrels have a skull like skull B and chew grass.

