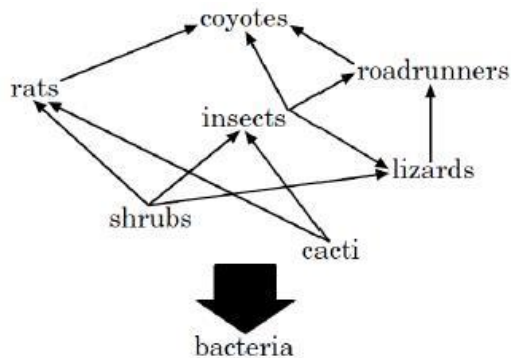


Ecology Unit Test Study Guide

1. A scientist is studying an estuary on the Georgia coast. What is an important characteristic of an estuary?

- A. It consists of cold rushing freshwater.
- B. It is an area with many living organisms where freshwater and saltwater mix together.
- C. It is an area where the water is frozen most of the year.
- D. It contains a very high concentration of saltwater with few living organisms.

2.

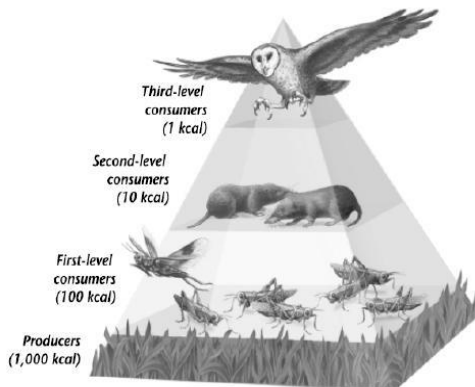


Using the food web, if these organisms were arranged in a food pyramid, which organism would have the least amount of total energy available?

- A. Coyote
- B. Insect
- C. Lizard
- D. Shrub

3.

An Energy Pyramid



If there was a fourth-level consumer in the energy pyramid above, how many kcal of energy would be transferred to that level?

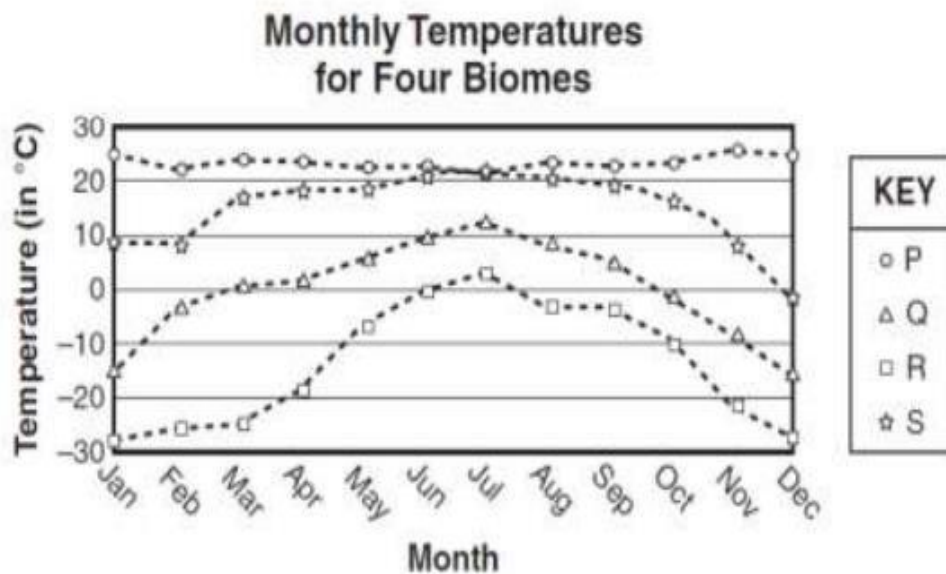
- A. 10 kcal
- B. 0.1 kcal
- C. 0.0001 kcal
- D. 100 kcal

4. In an energy pyramid, which level has the most available energy?
 - A. Producer level
 - B. First-level consumer
 - C. Second-level consumer
 - D. Third-level consumer

5. In which are you most likely to find plants that can tolerate water that has a constantly changing salt content?
 - A. a freshwater stream
 - B. an estuary
 - C. a pond
 - D. a coral reef

6. Which of the following is **NOT** a way that nitrogen cycles through the environment?
 - A. Decomposition releases nitrogen into the soil.
 - B. Plant roots take up nitrogen from the soil.
 - C. Bacteria in the soil convert nitrogen back to a gas.
 - D. Nitrogen is stored in fossil fuels.

7. The graph shows the monthly temperatures for four biomes: a taiga, a temperate forest, a rain forest, and a tundra.

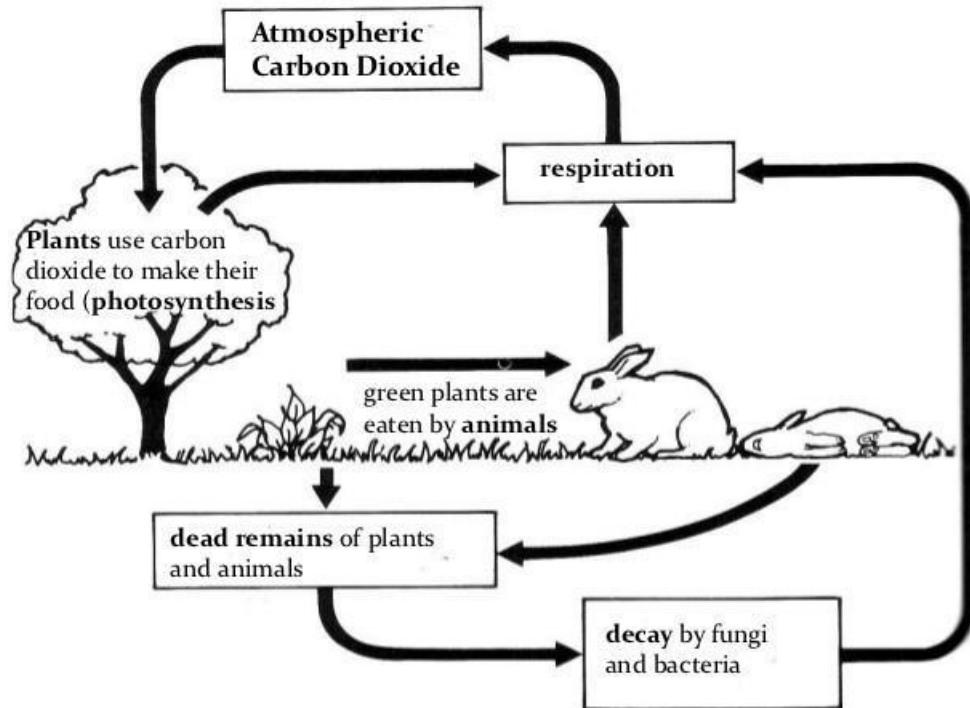


Based on the graph, which biome is represented by the letter R?

- A. taiga
- B. tundra
- C. temperate forest
- D. tropical rain forest

8. A local gardener found small green aphids sucking the juices from a clover bush. This causes the clover bush to lose nutrients. What type of ecological relationship exists between the aphids and the clover bush?
- A. Mutualism
 - B. Parasitism
 - C. Commensalism
 - D. Predation

9.

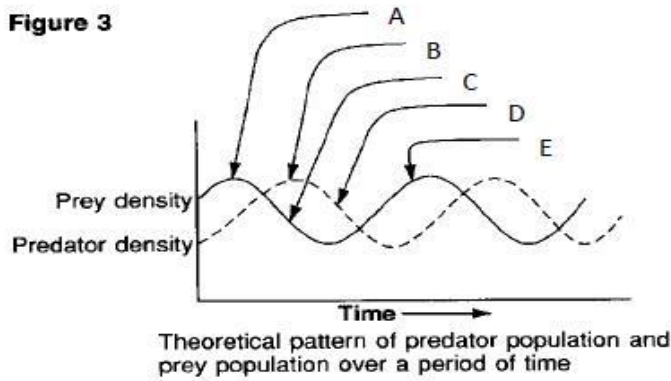


The diagram shows the carbon cycle. Which of the following processes is primarily involved in releasing carbon into the soil?

- A. Combustion
- B. Decomposition
- C. Photosynthesis
- D. Respiration

10.

Figure 3



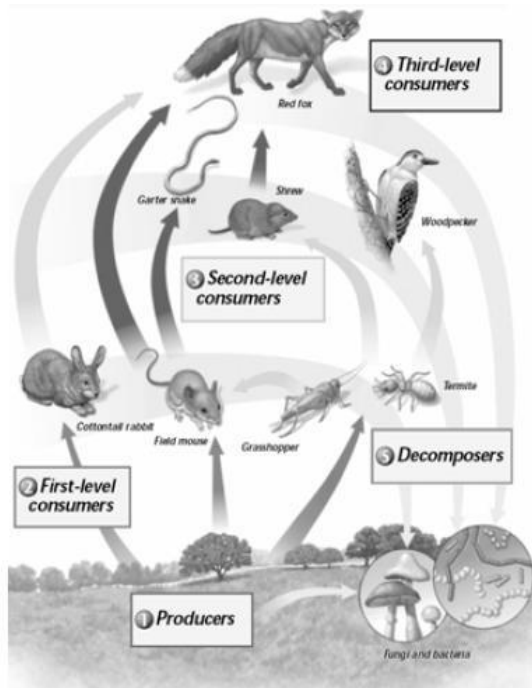
According to the predator-prey graph (Fig. 3), which letter represents a decrease in the prey population due to an increase in the predator population?

- A. C.
- B. D.

11. Most animals get nitrogen from

- A. the atmosphere.
- B. the soil.
- C. performing nitrogen fixation.
- D. eating plants or other animals.

12.

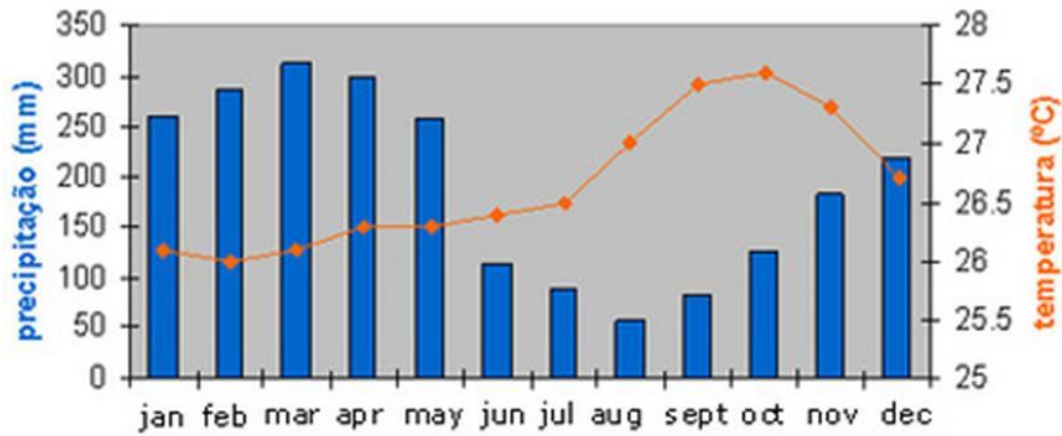


Which organism in the food web above would be best described as a *recycler*?

- A. Cottontail rabbit
- B. Termite
- C. Fungi and Bacteria
- D. Red Fox

13.

Temperature and Precipitation Chart (Yearly)

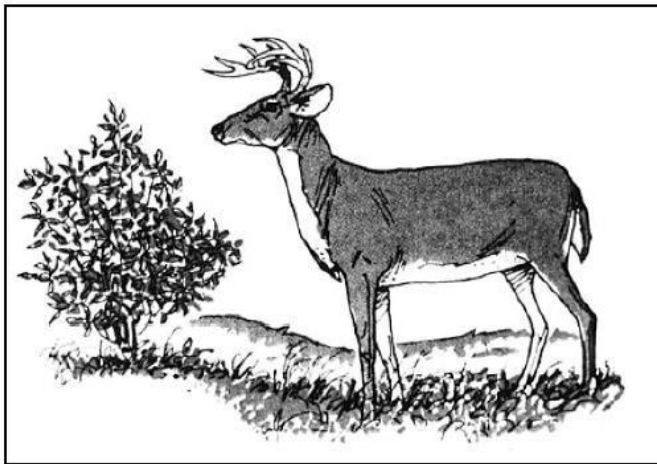


What biome is represented by the climate graph?

- A. Tundra
- B. Taiga
- C. Tropical Rainforest
- D. Desert

14.

The diagram below shows a deer and green plants.



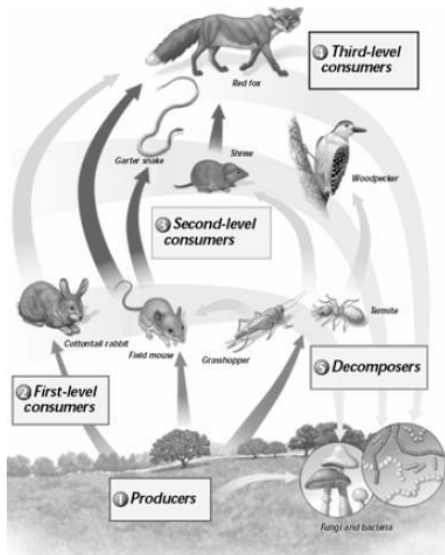
Which statement best describes the relationship between the deer and the plants?

- A. The deer supplies food and oxygen to the green plants.
- B. The deer supplies food and carbon dioxide to the green plants.
- C. The green plants supply food and carbon dioxide to the deer.
- D. The green plants supply food and oxygen to the deer.

15. How is carbon dioxide (CO₂) used in plants?

- A. As a raw material for photosynthesis.
- B. To store energy in animals.
- C. As a source of energy
- D. For protection from excessive sunlight

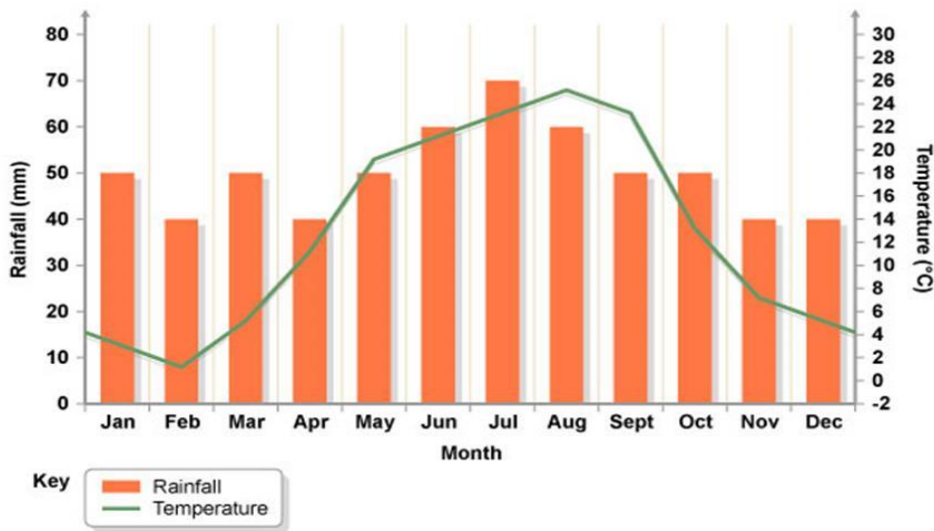
16.



If there was a change in the population of field mouse in the food web above, which of the following may occur?

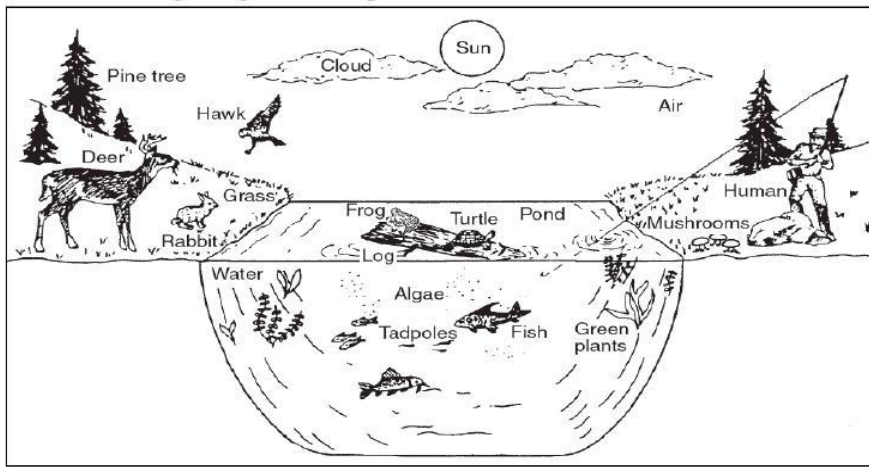
- A. Only the fox population would increase.
- B. There would be a decrease in decomposers, but other organisms would remain unaffected.
- C. The woodpecker population would be unaffected.
- D. All organisms within the food web above would be impacted to some degree.

17.



- A. Desert
- B. Deciduous Forest
- C. Tundra
- D. Tropical Rainforest

18.



(Not drawn to scale)

What is the original source of energy for this ecosystem?

- A. Clouds
 - B. Human
 - C. Pine Tree
 - D. Sun
19. What is a type of an organism that converts solar energy to chemical energy?
- A. Consumer
 - B. Producer
 - C. Scavenger
 - D. Decomposer
20. In an energy pyramid, which level has the most available energy?
- A. Producer level
 - B. First-level consumer
 - C. Second-level consumer
 - D. Third-level consumer

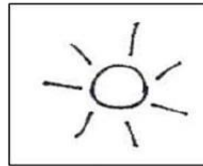
21.



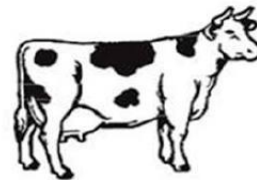
Corn



Student drinking milk



Sun

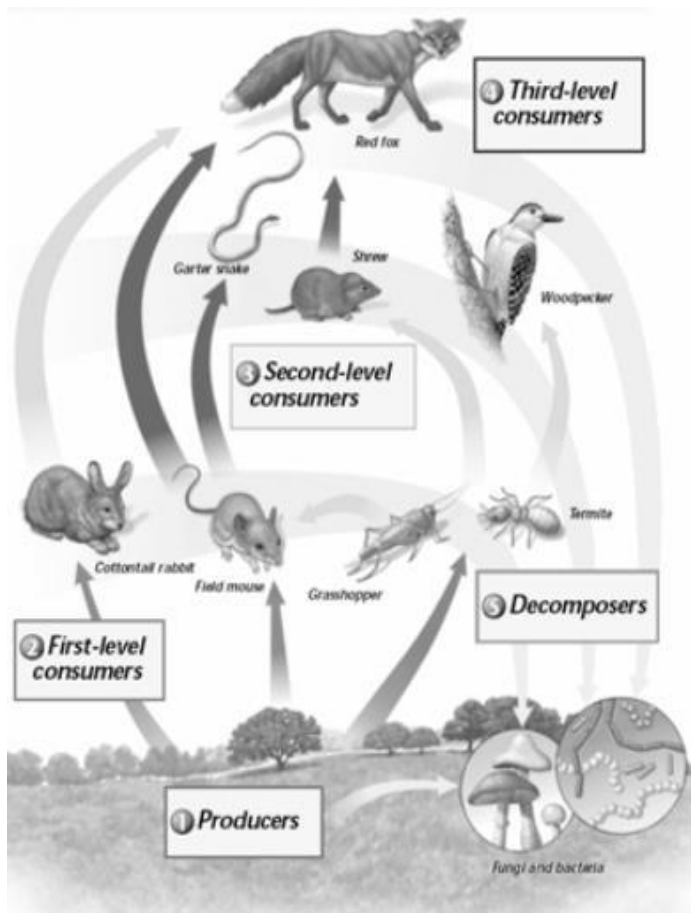


Cow

What is the correct sequence that energy flows through the food chain?

- A. Sun → Corn → Cow → Student drinking milk
- B. Corn → Student drinking milk → Sun → Cow
- C. Corn → Cow → Student drinking milk → Sun
- D. Sun → Cow → Student drinking milk → Corn

22.



Which organism(s) in the food web would be best described as a *recycler*?

- A. Cottontail rabbit
 - B. Termite
 - C. Fungi and bacteria
 - D. Red fox
23. A fish attaches to the back of a manta ray and gets a free ride. This does not bother the manta ray, but the fish saves energy. What type of symbiotic relationship is demonstrated?
- A. Predation
 - B. Mutualism
 - C. Competition
 - D. Commensalism
24. An example of a symbiotic relationship is found between the clown fish and the sea anemone. The sea anemone provides protection for the fish and the fish provides food for the sea anemone. What category best describes this relationship?
- A. Mutualism
 - B. Commensalisms
 - C. Parasitisms
 - D. Predator/prey

25. **Oak Tree/Maple Tree**

An oak and a maple tree grow larger to absorb the sunlight.
What type of relationship is occurring?

- A. commensalism
- B. mutualism
- C. parasitism
- D. competition
- E. predator/prey

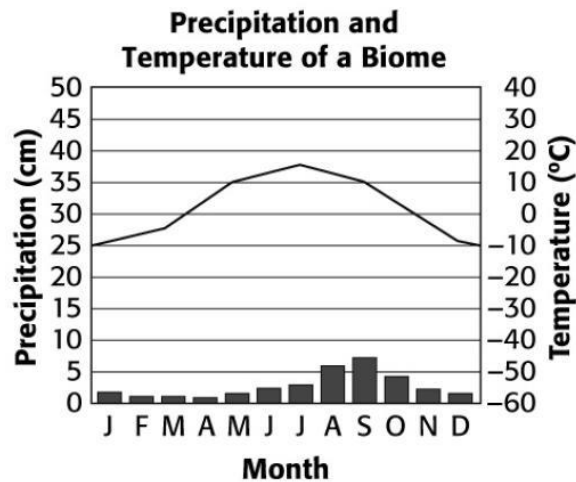
26.



Fat Dormouse: The fat dormouse can adapt and thrive in many types of woodland but does not do well in evergreen forests. The dormouse finds shelter in hollow trees, rock crevices or even woodpecker holes. The large bushy tail helps the dormouse keep its balance while climbing on tree branches.

- A. Taiga
- B. Desert
- C. Savanna
- D. Temperate Forest

27.

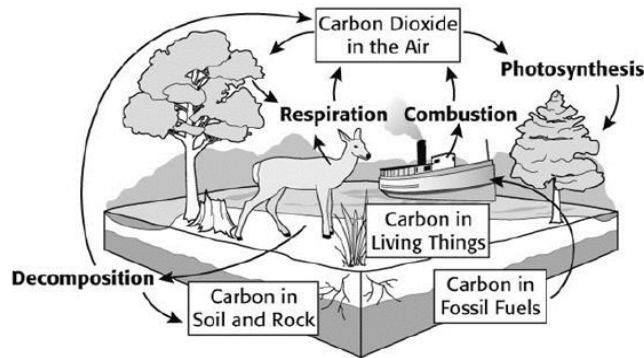


Scientists involved in a field study of a biome produced the graph above. The line represents temperature and the bars represent precipitation. Which of the following is a valid conclusion about the biome?

- A. The biome is a rainforest
- B. The annual variation in temperature (from high to low) is about 25°C.
- C. The biome receives the same amount of rainfall each month.
- D. The biome has little plant life.

28. A team of marine scientists is studying biotic and abiotic factors that affect the stability of a deep-sea ecosystem. The scientists discovered a species of fish that eats other fish and decaying matter. Which of these does not describe the newly discovered fish?
- Consumer
 - Predator
 - Scavenger
 - Producer

29.



The diagram shows the carbon cycle. Which of the following processes is primarily involved in releasing carbon into the air?

- combustion and respiration
 - decomposition and photosynthesis
 - photosynthesis alone
 - respiration and photosynthesis
30. Which of the following answer choices correctly arranges the levels of environmental organization in order of smallest to largest?
- organism, population, community, ecosystem, biosphere
 - organism, population, community, biosphere, ecosystem
 - organism, community, population, ecosystem, biosphere
 - biosphere, ecosystem, community, population, organism
31. In an ecosystem, water
- is not used for many functions in the environment.
 - is constantly being reduced in the atmosphere.
 - is constantly being recycled in to one form or another.
 - causes global warming .

32. Rank the biomes in the order of lowest average annual precipitation to highest average annual precipitation.

- 1: Tropical rainforest
- 2: Temperate forest
- 3: Desert
- 4: Tundra

- A. 3, 4, 2, 1
- B. 3, 4, 1, 2
- C. 4, 3, 1, 2
- D. 4, 3, 2, 1

33. Which of the following is an example of an abiotic factor changing an area?

- A. water flooding an area
- B. introducing a new type of grass
- C. two species of birds competing
- D. algae growing on crabgrass

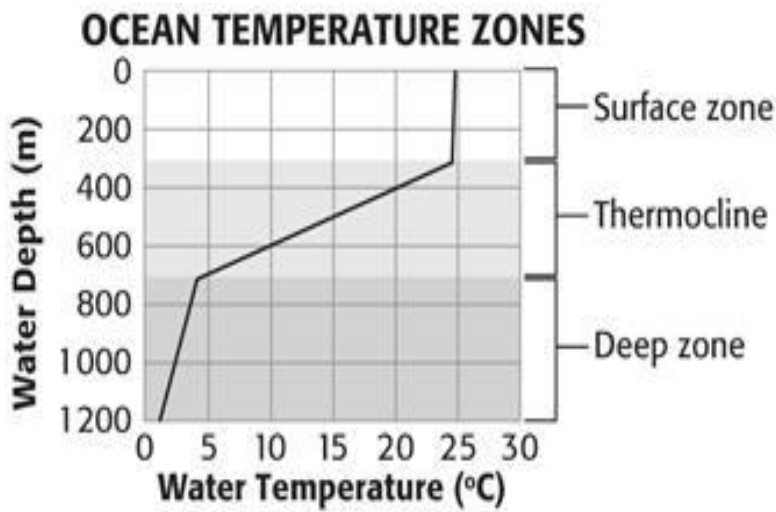
34. How do the characteristics of taigas compare to the characteristics of deciduous forests?

- A. Taigas are located near the equator whereas the deciduous forests are located near the poles.
- B. The dominant trees found in a deciduous forest lose their leaves in the winter whereas the dominant trees in the taiga retain their leaves year round.
- C. The dominant trees found in a taiga lose their leaves in the winter whereas the dominant trees in the deciduous forest retain their leaves year round.
- D. The rainfall in a taiga is plentiful whereas the rainfall in a deciduous forest is very dry.

35. **A wildlife ranger is observing a piece of pine forest. He observes rabbits, foxes, trees, squirrels, and several species of insect. He also records temperature and rainfall amounts. What level of environmental organization is he observing?**

- A. Ecosystem
- B. Community
- C. Population
- D. Biosphere

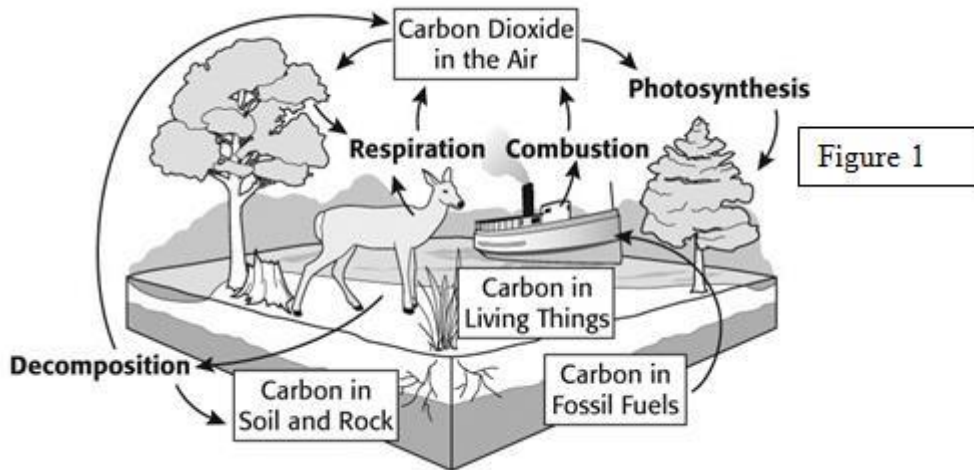
36.



The graph shows the temperature zones of the ocean. Wei-lin is studying the role of sardines in ocean ecosystems. She learns that sardines survive only in water that is between 14°C and 20°C. At what depth are sardines most likely found?

- A. between the surface and 300 m below the surface of the ocean
- B. between 5 and 25 m below the surface of the ocean
- C. between 400 and 600 m below the surface of the ocean
- D. between 700 and 1,200 m below the surface of the ocean

37.



Which process does ***NOT*** release carbon dioxide? (Use the diagram above.)

- A. Combustion
- B. Respiration
- C. Photosynthesis
- D. Decomposition