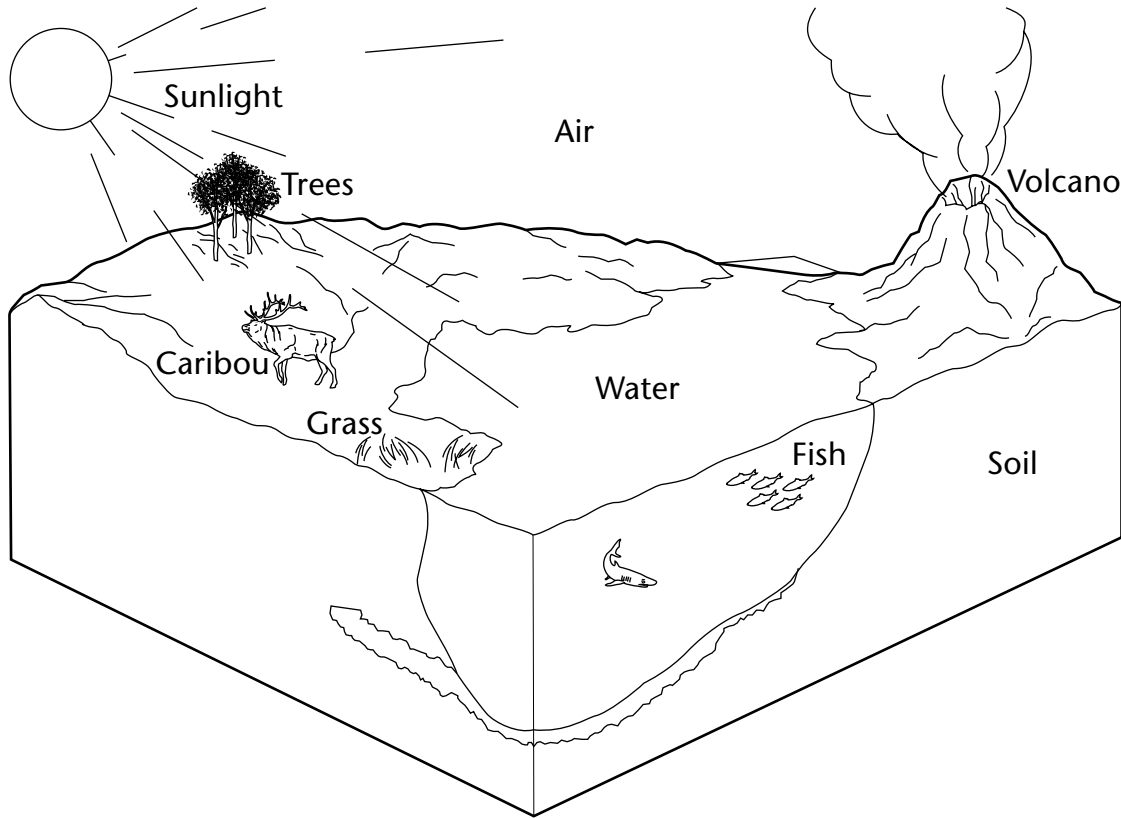


Biotic and Abiotic Factors in an Ecosystem

In an ecosystem, biotic factors are biological influences on organisms. Abiotic factors are nonliving (or physical) influences on organisms.

Circle each abiotic factor. Draw an X over each biotic factor.



Use the illustration to answer the questions.

1. Are factors related to climate, such as rainfall and temperature, biotic, or abiotic factors?

2. Which factors make up an organism's niche? Circle the best answer.

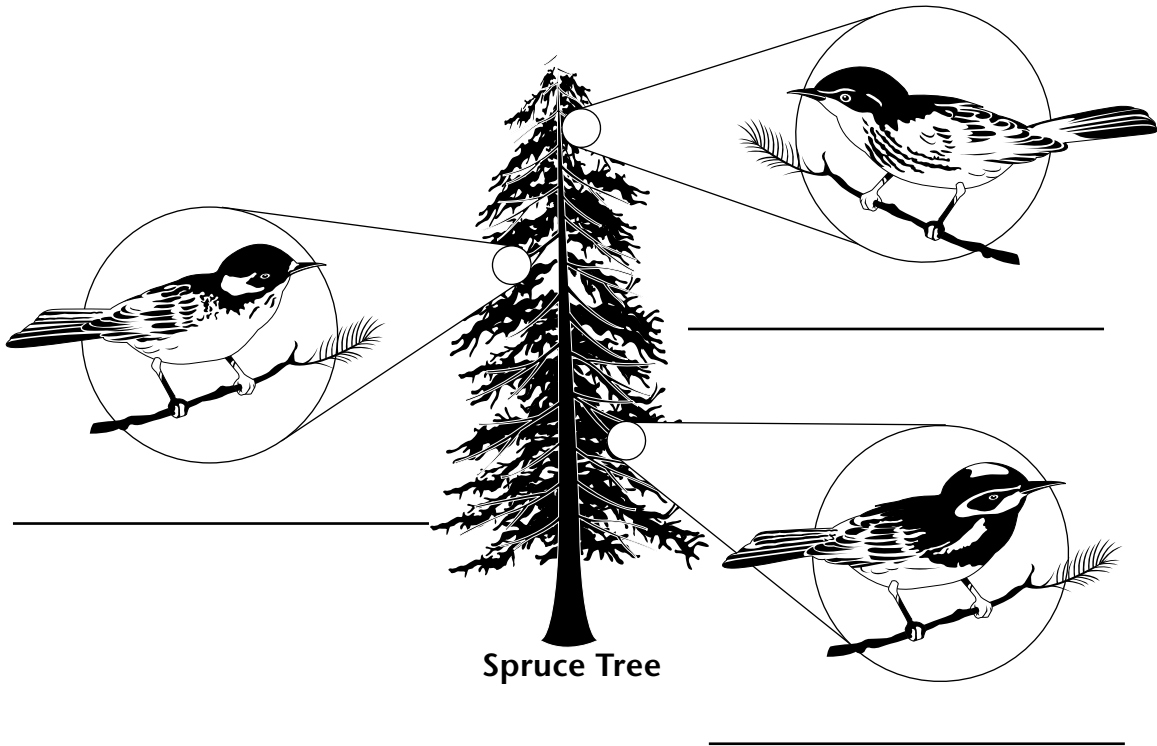
abiotic factors only both biotic and abiotic factors

The Niche

A niche is the range of physical and biological conditions in which an organism lives and the way that the organism uses those conditions.

The prompts describe the niches of three bird species. Use the prompts to help you label the birds in the diagram.

- Bay-Breasted Warbler: feeds in the middle part of a spruce tree
- Cape May Warbler: feeds at the tips of branches near the top of a spruce tree
- Yellow-Rumped Warbler: feeds in the lower part of a spruce tree and at the bases of the middle branches



Use the illustration to answer the question.

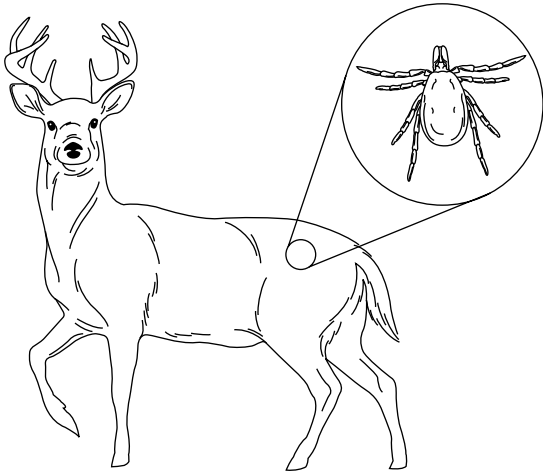
1. Why can all three species of warbler live in the same spruce tree?

2. Do all three species of warbler share the same niche?

Symbiosis

Symbiosis is a close relationship between two species. A symbiotic relationship can help both species, help one species while harming the other, or help one species while the other is unaffected.

Write how the deer, flower, and whale are affected by the symbiotic relationship shown. Write benefits, harmed, or unaffected.



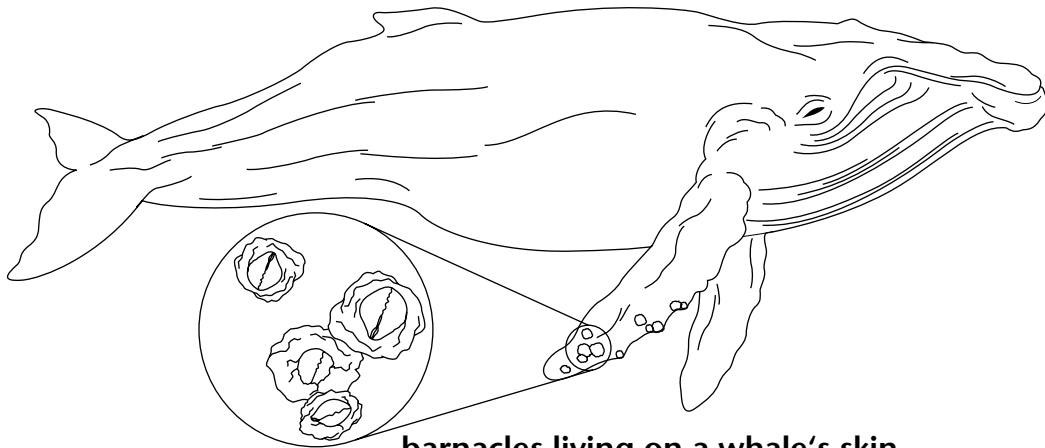
a tick living on the body of a deer

Deer: _____



a bee and a flower

Flower: _____



barnacles living on a whale's skin

Whale: _____

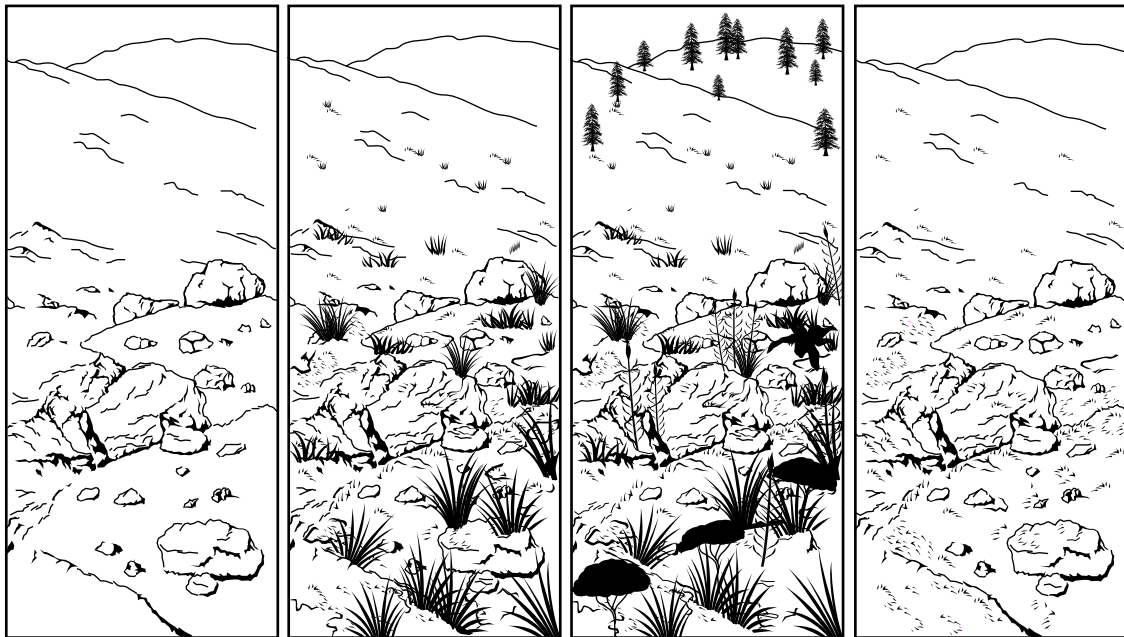
Use the illustrations to answer the question.

1. What, if anything, does the bee get from its relationship with the flower?

Ecological Succession

The first panel below shows an area covered with rock and ash from a volcanic eruption. When organisms begin to colonize an area such as this, they appear in a predictable order. This is called ecological succession. The first species to colonize this area are called pioneer species.

The panels following the first panel show different stages of succession. Number these panels in the order that they occur.



1 _____ _____ _____

Use the illustrations to answer the questions. Circle the correct answer.

1. Look at the panels you have numbered 2–4. At what stage would you expect to see large mammals moving back to the area?

panel 2 panel 4

2. What type of succession is shown in the illustrations above?

primary succession secondary succession

3. Suppose a fire disturbed the community shown in the panel you numbered 4. What type of succession will likely follow this fire?

primary succession secondary succession