

Leap Frog

Ecology



1. Plants grow and position their roots, stems, and leaves in response to a variety of environmental stimuli. These responses are called tropisms. Which of these refers to the growth response of a plant towards light?
- a. gravitropism
 - b. thigmotropism
 - c. nastic movement
 - d. phototropism

Nitrogen (N) is used and reused by various organisms and processes as it cycles through the environment.

2. Study the statement above. Which of the following statements about the nitrogen cycle is *false*?

- a. Plants use nitrogen to make proteins and other molecules.
- b. Nitrogen-fixing bacteria play a minor role in the nitrogen cycle.
- c. Urine from animals returns nitrogen to the soil.
- d. Decomposers release nitrogen compounds into the soil.

Forest fires change ecosystems in many ways. Some changes are immediately apparent, while others are not.

3. Refer to the information above. How are **animal populations** affected by **fires**?

- a. Animal populations increase immediately after a fire.
- b. Animal populations decrease immediately after a fire.**
- c. Animal populations are not affected by forest fires.
- d. Animal populations show a dramatic increase, then decrease immediately after a fire.

Lava flowing from an erupting volcano destroys everything in its path. New land is formed, but it is barren, supporting no organisms.

4. Refer to the information above. How are **animal populations** affected by **volcanic activity**?

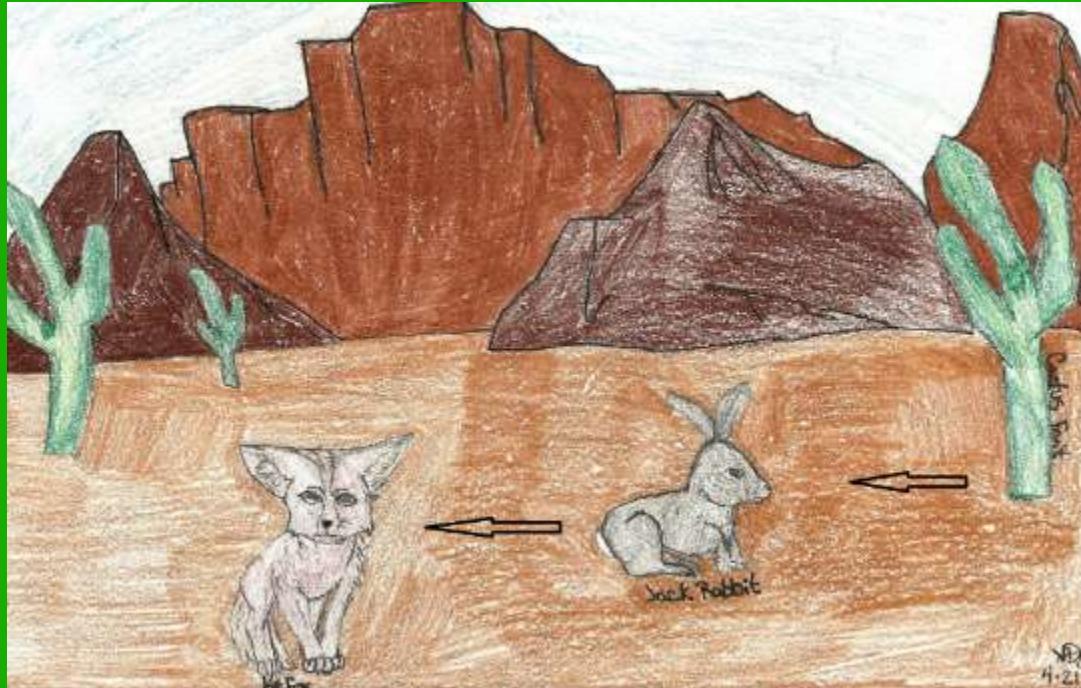


- a. Animal populations decrease after volcanic activity, but reestablish over time.
- b. Animals never return to an area affect by volcanic activity.
- c. Animal populations are not affected by volcanic activity.
- d. Animal populations are only slightly affected by volcanic activity.

Organisms within food webs are interdependent and often compete for resources.

5. Read the statement given above. Organisms that use **light energy stored in chemical compounds** to make energy-rich compounds are known as-
- a. heterotrophs
 - b. autotrophs
 - c. scavengers
 - d. decomposers

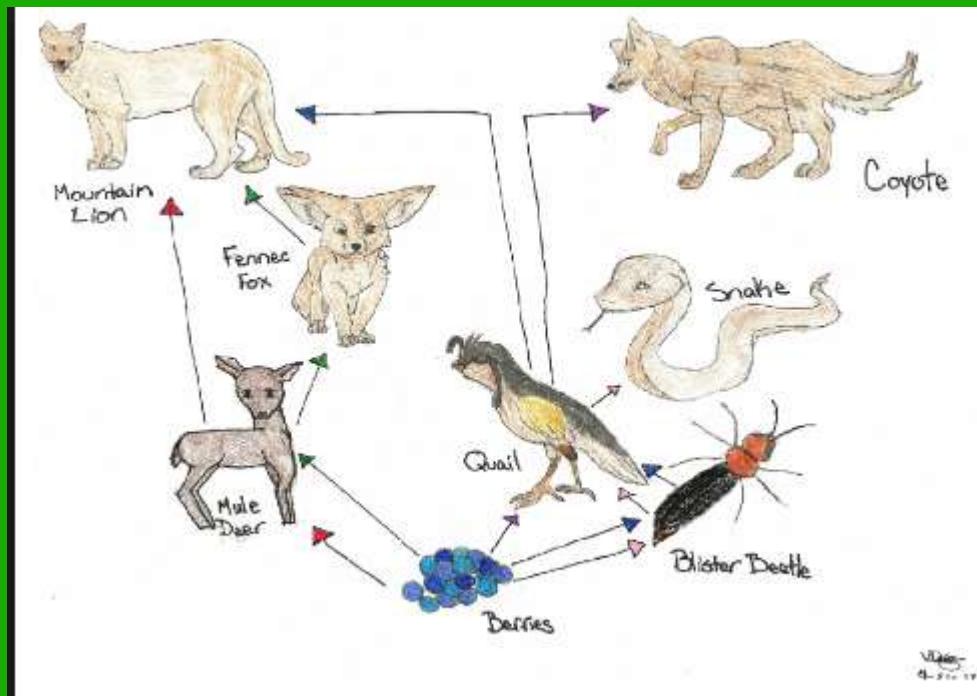
7. The coyote feeds on jackrabbits, which feed on plants.



Which of these best describes the **jackrabbit** in this desert community food web?

- a. The jackrabbit is an autotroph.
- b. The jackrabbit is a producer.
- c. The jackrabbit is prey for the coyote.
- d. The jackrabbit is a carnivore.

8. The diagram below shows a food web made up of a variety of organisms involved in different feeding relationships. Which term best describes the **role of crickets in the food web** shown?



- a. Blister beetles are predators of Mule deer
- b. Blister beetles are prey for quail and snakes.
- c. Berries are a second-order consumer of spiders.
- d. Mountain lions are producers of energy.

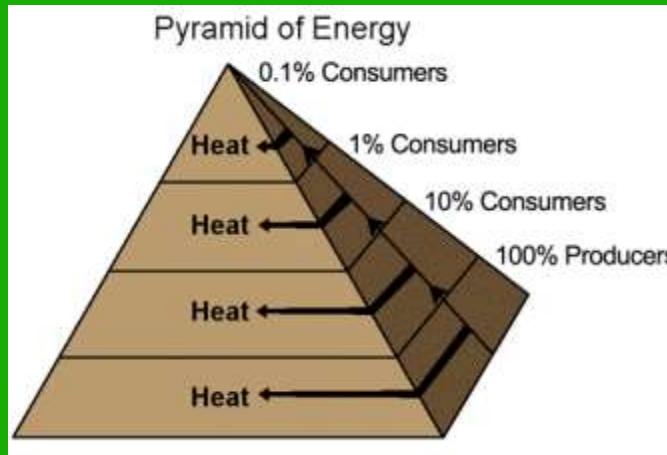
9. The pods from honey mesquite trees are a food source for beetles.



Which of these **best** describes the honey mesquite trees in this desert community food web?

- a. The honey mesquite tree is an omnivore.
- b. The honey mesquite tree is a predator of beetles.
- c. The honey mesquite tree is a consumer.
- d. The honey mesquite tree is a producer.

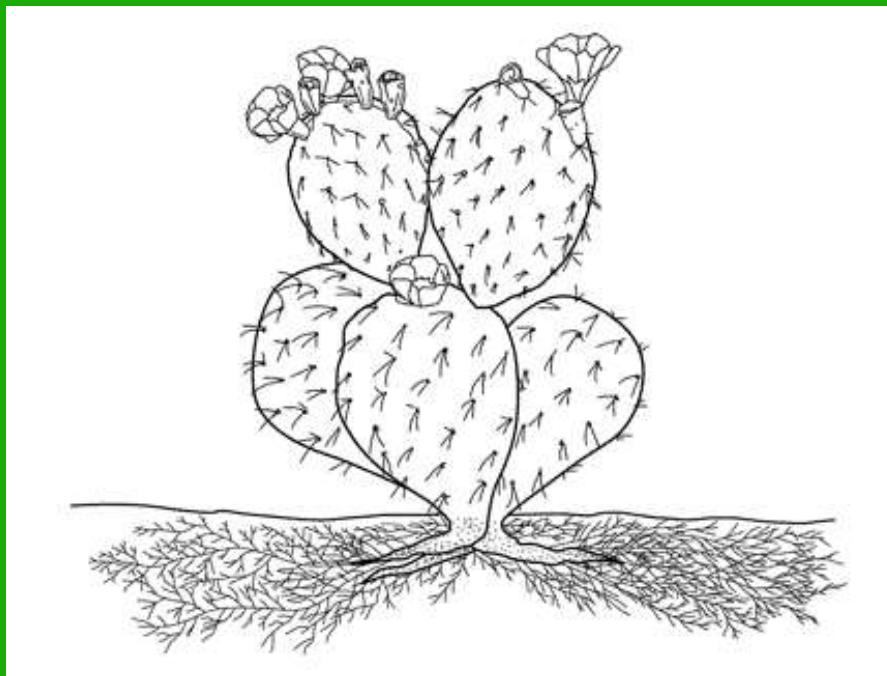
11. The diagram shows a pyramid of energy, with producers at the bottom and higher order consumers occupying successively higher levels. As energy is transferred from producers to first-order, second-order, and higher-order consumers, a large amount of energy is converted to thermal energy and given off as heat. Which statement is **true**?



- a. More useful energy is available to higher-order consumers than to first-order consumers.
- b. The amount of useful energy is no different at different levels of the pyramid.
- c. The amount of useful energy increases at each successively higher level in the pyramid.
- d. Less useful energy is available to higher-order consumers than to first-order consumers.

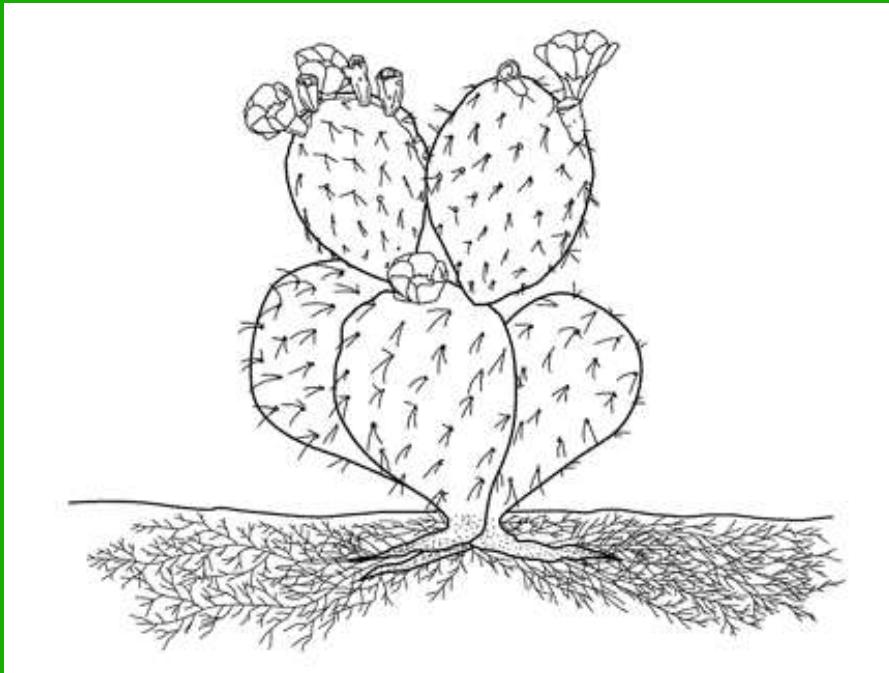
12. The prickly-pear cactus shown in the figure below has a **leaf adaptation** that

- a. pumps out salt
- b. reduces water loss
- c. produces thick, green stems
- d. produces seeds when it rains



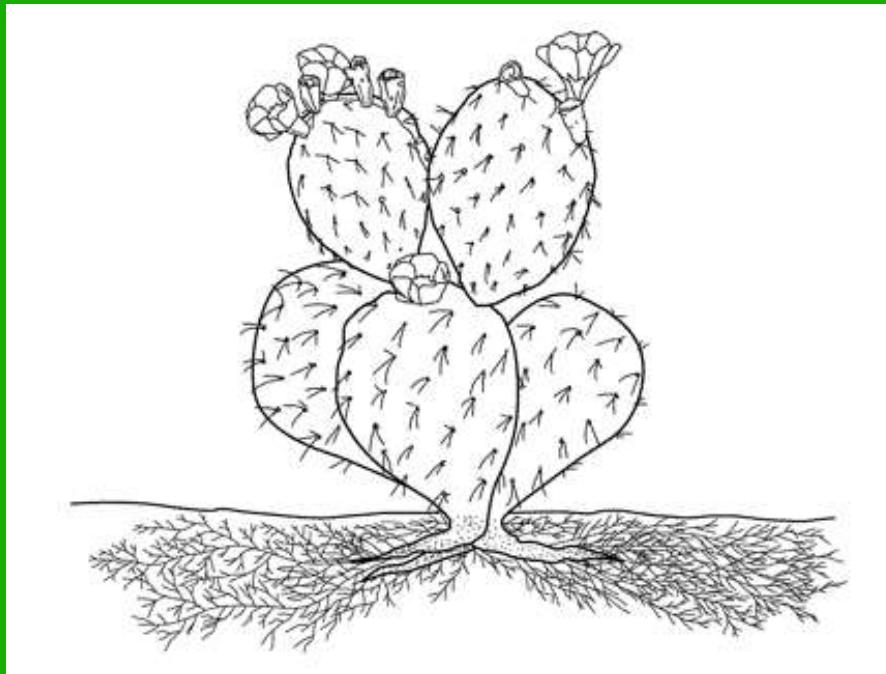
13. How is the cactus in the figure below **adapted** to soak up rare rainfall quickly?

- a. It has thin, sharp spines.
- b. It has stems that shrivel when it rains.
- c. It has wide stems that catch rainwater.
- d. It has an extensive shallow root system.



14. How is the cactus in the figure below **adapted** to survive long dry periods?

- a. Its stems swell and store water.
- b. It leaves drop off when it gets dry.
- c. Its root system holds water for later use.
- d. It remains dormant when there is no rain.



15. The crab *Lybia tessellate* carries a pair of sea anemones on its claws. The crab uses the sea anemone's stinging tentacles as protection and the sea anemone obtains small food particles released by the crab as it feeds. Which type of symbiotic relationship does this **best** illustrate?

- a. commensalism
- b. mutualism**
- c. parasitism
- d. predation

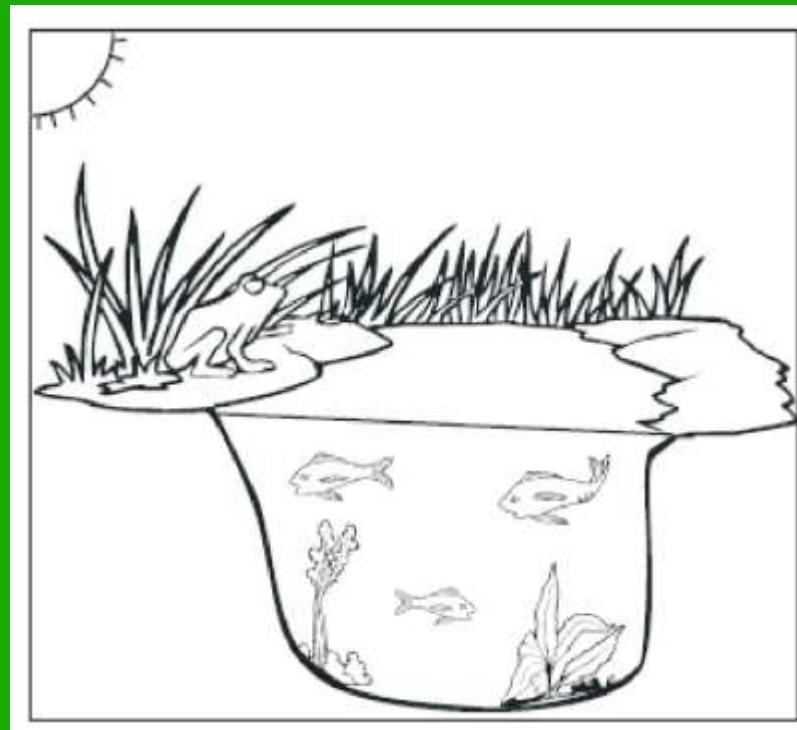


16. What is the main ***difference*** between primary succession and secondary succession?

- a. Primary succession happens slowly, and secondary succession happens rapidly.
- b. Small plants grow first during primary succession, while large trees grow first during secondary succession.
- c. Primary succession occurs after a natural disaster, and secondary succession occurs before a natural disaster.
- d. Primary succession is the colonization of new sites, and secondary succession is colonization of previously inhabited sites.

17. An example of a **biotic factor** in the ecosystem shown to the right is

- a. the Sun
- b. the soil
- c. the water
- d. the plants



18. The symbiotic relationship between a tick and the dog it is biting is called

- a. predation
- b. parasitism**
- c. mutualism
- d. commensalism

19. A **person sweating** on a hot day would most likely be an example of what biological process?

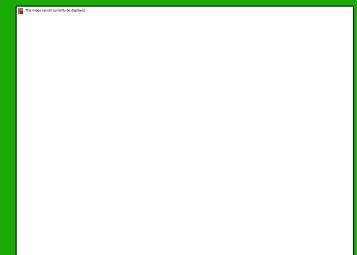
- a. digestion
- b. respiration
- c. homeostasis
- d. gametogenesis

20. Why do **leaves** tend to be **flat**?

- a. so that water can easily be absorbed and carried to the rest of the plant
- b. so that sunlight can easily penetrate to the leaf's photosynthetic tissues
- c. so that nutrients can easily enter the plant and be used for structure and support.
- d. so that plants can easily find balance due to the symmetrical nature of their branches

22. Moss often grows on trees. The tree is not affected, while the moss has the nutrients it needs to grow. What type of **symbiotic relationship** is this?

- a. predatory
- b. parasitism
- c. mutualism
- d. commensalism

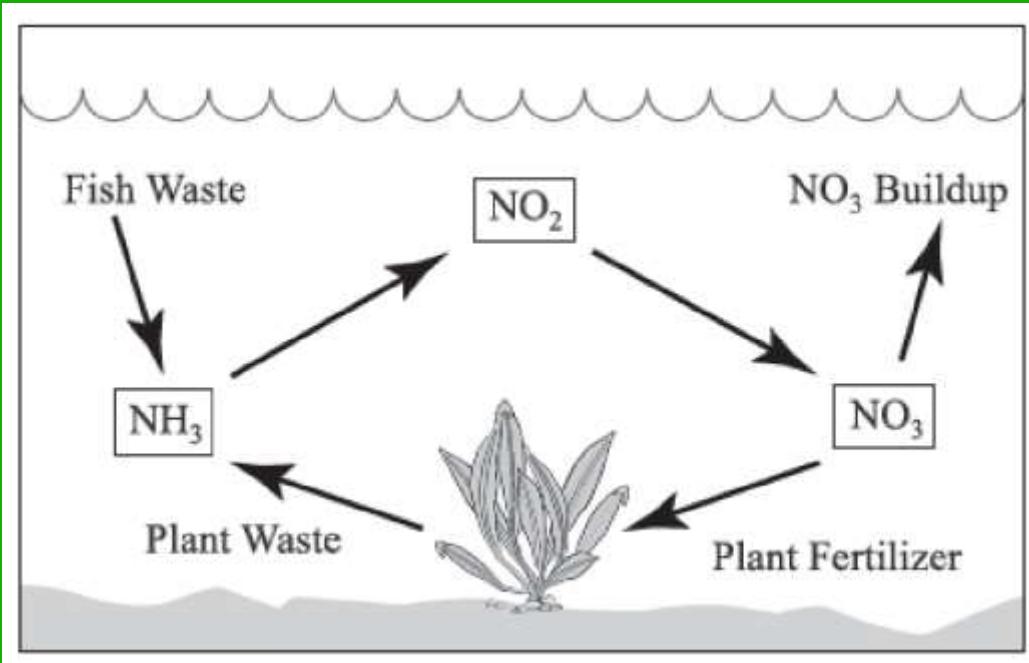


23. Which **best** describes the interaction between **autotrophs** and **heterotrophs**?

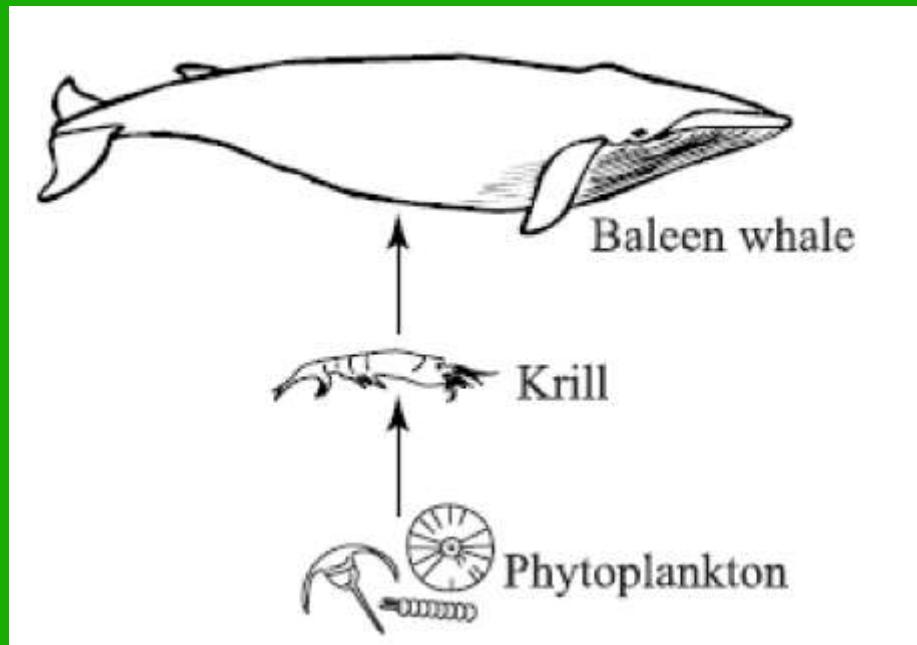
- a. One competes with the other for access to sunlight and soil.
- b. One decomposes the other to release nutrients back into the soil.
- c. One helps produce the other in a mutually beneficial relationship.
- d. One consumes the other to use energy that originally came from the sun.

24. The diagram to the below of an aquatic ecosystem represents what elemental cycle on Earth?

- a. water
- b. carbon
- c. nitrogen
- d. phosphorus



26. Which organism in the aquatic food web to the right gets energy directly from the Sun?



- a. krill
- b. baleen whale
- c. phytoplankton
- d. both krill and the baleen whale