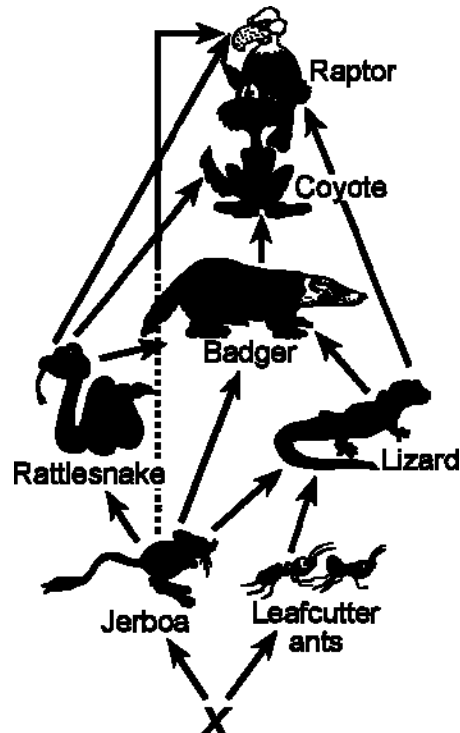


TEKS 11B investigate and analyze how organisms, populations, and communities respond to external factors

1. How does human development of land effect the carrying capacity in a given area for a species other than humans?

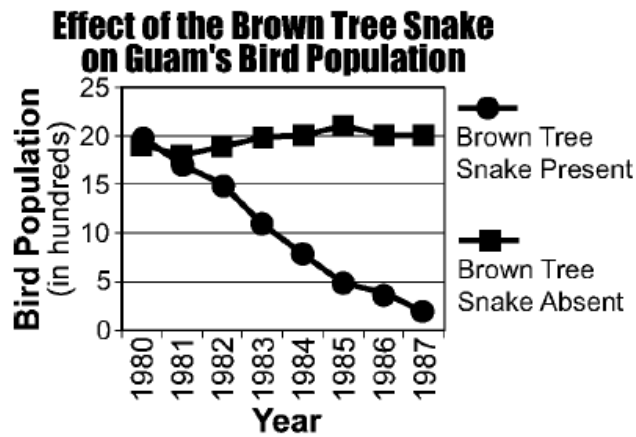
- A It is unaffected.
- B It increases but then quickly decreases.
- C It is decreased.
- D It is increased.



2. How would a disease that infects and kills jerboa most directly affect the given food web above?

- A Leafcutter ant populations would compete more for food.
- B The biomass of rattlesnakes and lizards would increase.
- C Rattlesnake, badger, and lizard populations would likely decrease.
- D Raptor and coyote populations would likely increase.

3. The graph below represents data collected after an exotic/nonnative species was introduced to Guam.



According to the graph shown, what effect did the brown tree snake have on the birds in Guam?

- A The snakes had no effect on the bird populations.
- B The snakes caused a decline in the number of bird populations.
- C The snakes formed a mutualistic relationship with the birds.
- D The snakes caused an increase in the number of bird populations.

4. How would an increase in prey effect the carrying capacity of a particular ecosystem?

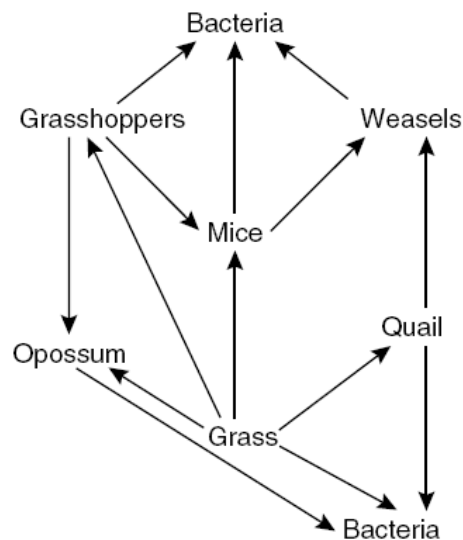
- A It would decrease.
- B It would have no effect.
- C It would decrease suddenly and then slowly increase.
- D It would increase.

5. How would a sudden increase in parasites, within a population, affect the population's growth?

- A The birth rate would increase.
- B The growth rate would continue at a steady pace.
- C The growth rate would be unaffected.
- D The death rate would increase.

TEKS 11C summarize the role of microorganisms in both maintaining and disrupting the health of both organisms and ecosystems

6. Which of the following is the most crucial role of fungi in a balanced ecosystem?
- A** They act as autotrophs that turn energy from the Sun into glucose and oxygen.
 - B** They serve as decomposers and recycle nutrients.
 - C** They serve as tertiary consumers.
 - D** They serve as primary producers.



7. Analyze the food web above. What are two roles that bacteria have in the environment?

- A** Nitrogen fixation and decomposing dead matter
- B** Recycling nutrients and producing O_2 for atmosphere
- C** Photosynthesis and development of new antibiotics
- D** Nitrogen fixation and preserving dead matter

8. Some bacteria benefit mammals by helping with —

- A** growth
- B** defense
- C** digestion
- D** respiration

9. Some bacteria benefit mammals by helping with digestion. When a person becomes ill with a bacterial infection a doctor will prescribe antibiotics. Certain antibiotics cause patients to exhibit digestive side effects. These side effects are most often the result of —

- A** bacteria being killed in the digestive tract
- B** the antibiotics being converted into stomach acids
- C** too much water being drawn into the digestive tract
- D** the stomach wall being torn

10. In what manner do bacteria cause disease?

- A** They damage tissues and release toxins.
- B** They cause cracks in the skin, which allows dirt to enter.
- C** They generate heat that kills nearby cells.
- D** They integrate themselves into the host cell's DNA.

11. How do antibiotics work to destroy a bacterial cell?

- A** Antibiotics destroy the nucleus of bacterial cells.
- B** Antibiotics break down the endoplasmic reticulum of bacterial cells.
- C** Antibiotics break down the cell wall of the bacterial cell.
- D** Antibiotics invade the nucleus of bacterial cells and destroy the DNA.

12. Which response usually occurs after an individual receives a vaccination for influenza virus?

- A** Antigens from the vaccine deactivate the virus.
- B** Hormones in the blood inhibit reproduction of the virus.
- C** Enzymes released from platelets kill the virus.
- D** Antibodies against the virus form in the blood.

TEKS 11D describe how events and processes that occur during ecological succession can change populations and species diversity

13. Pioneer species are species which colonize previously uncolonized land, usually leading to ecological succession. They are the first organisms to start the chain of events leading to a livable biosphere or ecosystem. Why is a lichen most likely to be a pioneer species?

- A** The mutualistic relationship of species forming a lichen allows it to survive independently.
- B** The lichen is fast growing and provides a nutritious food source for many other species.
- C** The lichen does not require sunlight to survive.
- D** The lichen is a decomposer that digests rocks and forms soil.

14. In which of the following areas would secondary succession most likely occur?

- A** A lava flow
- B** An area with a well-balanced, well-established ecosystem
- C** A previously forested area devastated by fire
- D** A rock ledge exposed by the melting of the glacier that covered it

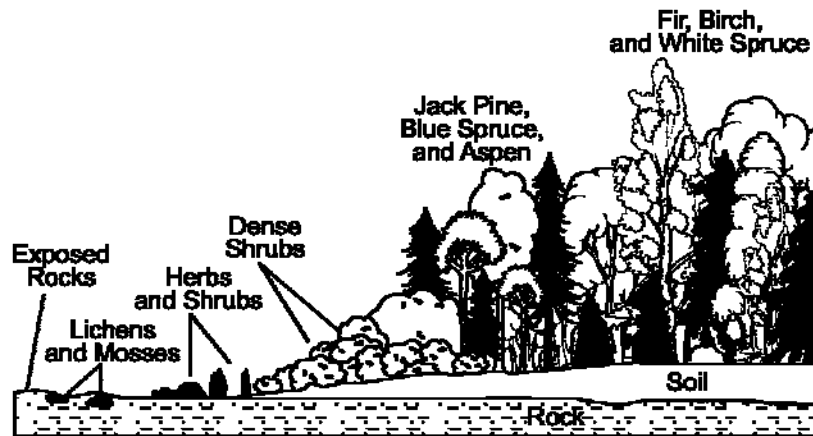
15. A new farmer purchases a large area of naturally occurring hayfield and immediately begins plowing the land and planting only wheat on the land. His actions will most likely

- A** had very little effect on the diversity of plant and animal life in that field.
- B** increased the diversity of plant and animal life in that field.
- C** decreased the diversity of plant and animal life in that field.
- D** none of the above.

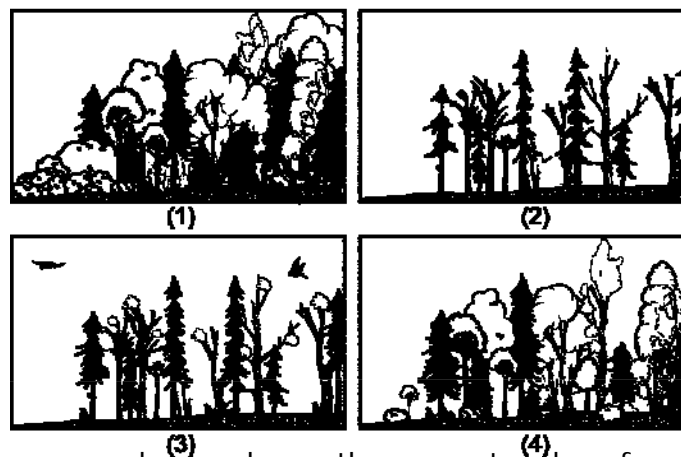
16. As ecological succession progresses forward in time,

- A** there is very little effect on the diversity of plant and animal life.
- B** the diversity of plant and animal life increases.
- C** the diversity of plant and animal life decreases.
- D** none of the above.

17. Using the diagram, why will the herbs and shrubs most likely replace the lichens and mosses?



- A Increased cultivation by humans will provide more fertile soil.
- B Dense shrubs are the climax community for this environment.
- C An increase in carbon dioxide in the soil will make it possible for taller plants to grow.
- D The lichens and mosses will modify the environment, making it more favorable for herbs and shrubs.



18. Which order of diagrams above shows the correct order of succession after a forest fire?

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

TEKS 12A interpret relationships, including predation, parasitism, commensalism, mutualism, and competition among organisms

19. Different species can share the same habitat, but competition among them is reduced if they –

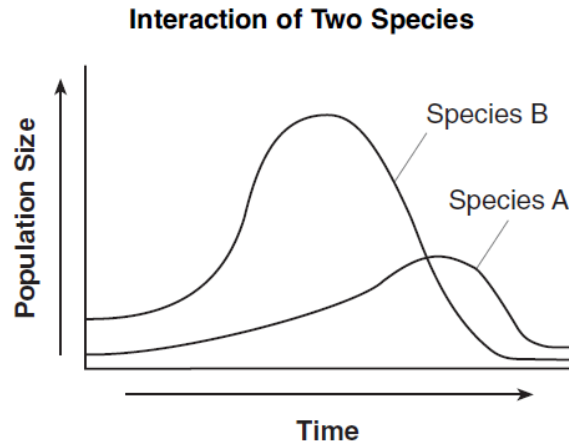
- A** reproduce at different times.
- B** eat less.
- C** move away.
- D** occupy different niches.

20. What type of relationship exists between the two animals in the cartoon below?



- A** Commensalism
- B** Mutualism
- C** Parasitism
- D** Predation

21. The graph below shows changes in the populations of two species that interact only with each other over a period of time.



Which statement best describes these two species?

- A** Species *A* is a producer and species *B* is its consumer.
- B** Species *A* is a host and species *B* is its parasite.
- C** Species *A* is a predator and species *B* is its prey.
- D** Species *A* is a scavenger and species *B* is its decomposer.

22. A tapeworm is a worm with no digestive tract. They live in the intestines of other animals and absorb food that has already been digested by their host. What type of nutritional relationship do tapeworms exhibit?

- A** Commensalistic
- B** Mutualistic
- C** Parasitic
- D** Predation

23. Orchids grow on large tropical trees. The orchids depend on the support offered by the trees, but do not harm the trees. Which term is most closely associated with this relationship?

- A** Mutualism
- B** Parasitism
- C** Commensalism
- D** Predation

24. The symbiotic relationship between a flower and the insect that feeds on its nectar is an example of –

- A** mutualism because the flower provides the insect with food, and the insect pollinates the flower.
- B** parasitism because the insect lives off the nectar from the flower.
- C** commensalism because the insect doesn't harm the flower and the flower doesn't benefit from the relationship.
- D** predation because the insect feeds on the flower.

25. Upon digging up a clover plant, the student observed an average of 8 nodules on the roots of each clover plant (Nodules contain bacteria which have the ability to convert atmospheric nitrogen into nitrates and release them into the soil. Plants utilize nitrates to manufacture proteins.) Which of the following best describes the ecological relationship that exists between the bacteria and the clover plant?

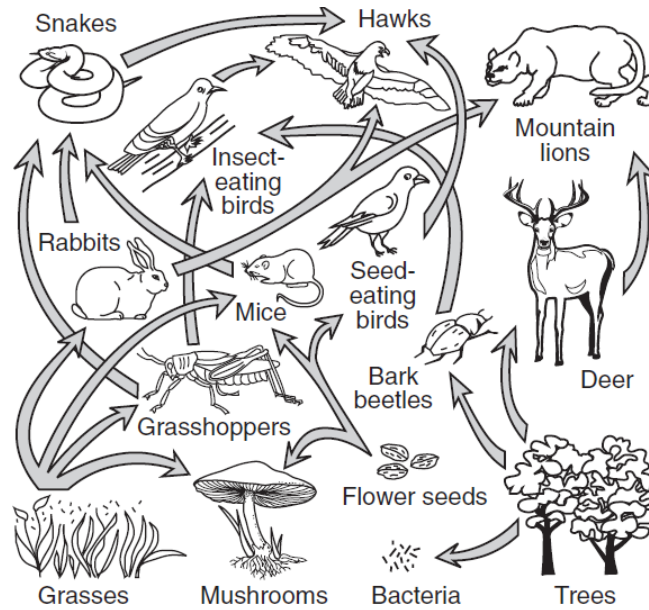
- A** mutualism
- B** parasitism
- C** commensalism
- D** predation

TEKS 12C analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids

26. Which type of organism can obtain energy directly from any of the other organisms in an ecosystem?

- A** herbivore
- B** decomposer
- C** producer
- D** carnivore

27. The diagram below represents a food web.

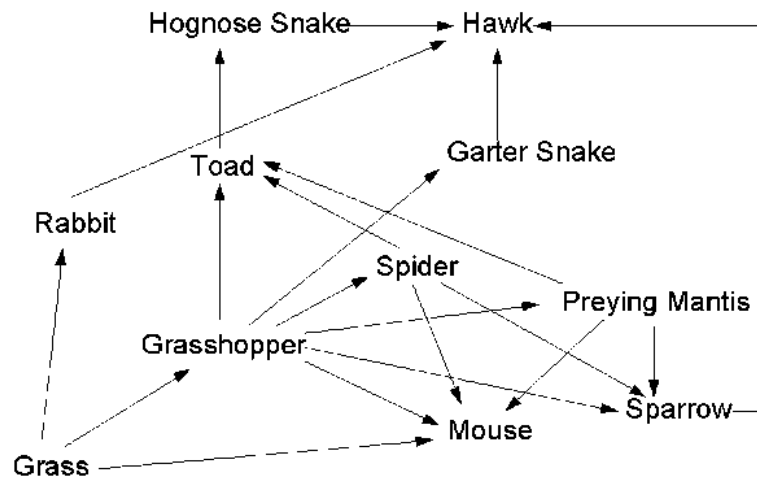


Which organisms are correctly paired with their nutritional roles?

- A hawk—decomposer; insect-eating bird—parasite
- B mouse—autotroph; flower seed—heterotroph
- C mountain lion—predator; bark beetle—herbivore
- D grasshopper—carnivore; grass—autotroph

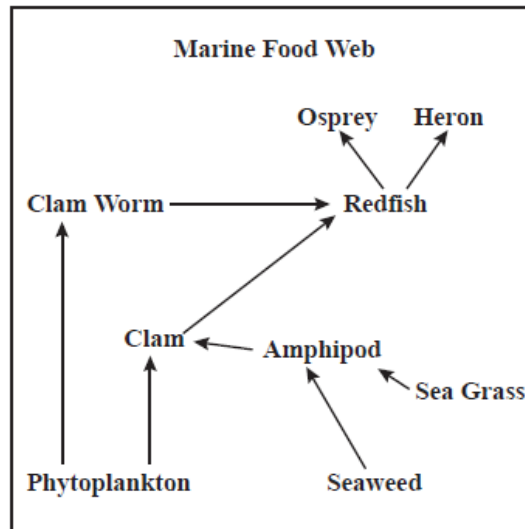
28. Which organism in the food web to the right would be considered both a primary consumer and a secondary consumer?

- A Rabbit
- B Grasshopper
- C Mouse
- D Spider



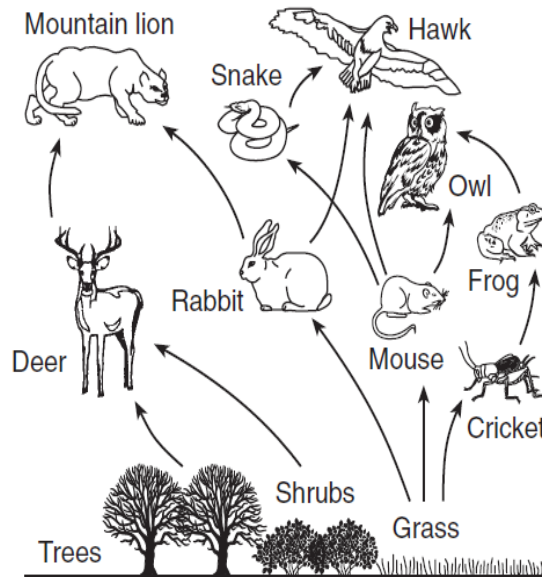
29. Only 10 percent of the energy stored in an organism can be passed on to the next trophic level. Of the remaining energy, some is used for the organism's life processes, and the rest is –

- A** used in reproduction.
- B** stored as body tissue.
- C** stored as fat.
- D** eliminated as heat.



30. Which of the following is a long-term effect on the removal of the redfish from the ecosystem represented by the food web above?

- A** The osprey population will increase.
- B** The amphipod population will increase.
- C** The clam worm population will increase.
- D** The phytoplankton population will increase.

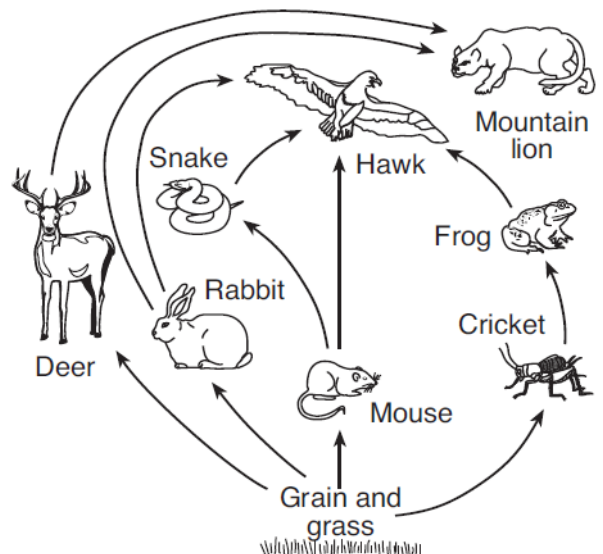


31. A food web is represented above. A continuous decrease in the size of the rabbit population would most likely cause a decrease in which other population?

- A frog
- B cricket
- C grass
- D mountain lion

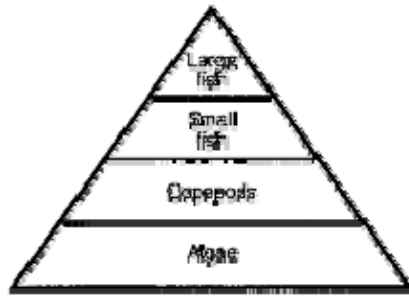
32. The organisms in the food web to the right live near large cattle ranches. Over many years, mountain lions occasionally killed a few cattle. One year, a few ranchers hunted and killed many mountain lions to prevent future loss of their cattle. Later, ranchers noticed that animals from this food web were eating large amounts of grain from their fields.

Identify two specific populations that most likely increased in number after the mountain lion population decreased.

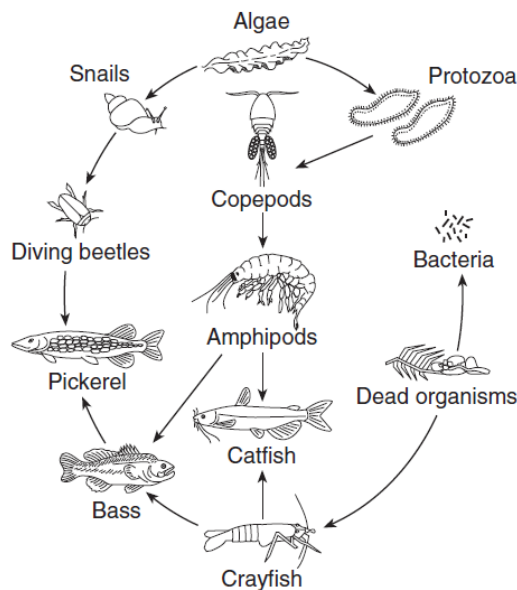


- A Rabbit and deer
- B Rabbit and snake
- C Mouse and deer
- D Mouse and hawk

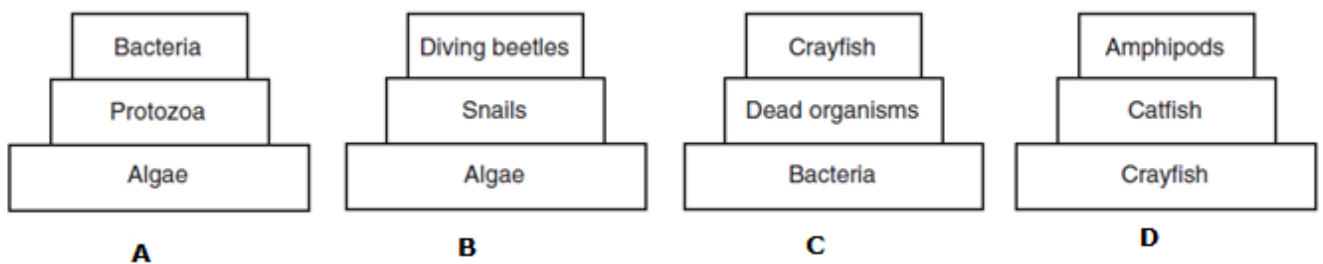
33. The diagram represents a pyramid of biomass in an aquatic environment. Which statement best explains why mass decreases from one level to the next in this pyramid?



- A** Organisms decay at each level, and thus less mass can be supported at higher levels.
- B** Energy is lost to the environment at each level, so less mass can be supported at higher levels.
- C** When organisms die at higher levels, their remains sink to lower levels, increasing the mass at lower levels.
- D** More organisms die at higher levels than at lower levels, resulting in less mass at higher levels.



34. Which energy pyramid most accurately shows the energy relationships between three organisms in this food web above?



35. What percentage of energy is passed from the producers to the secondary consumers?

- A 0.001%
- B 1%
- C 10%
- D 100%

TEKS 12D recognize that long-term survival of species is dependent on changing resource bases that are limited

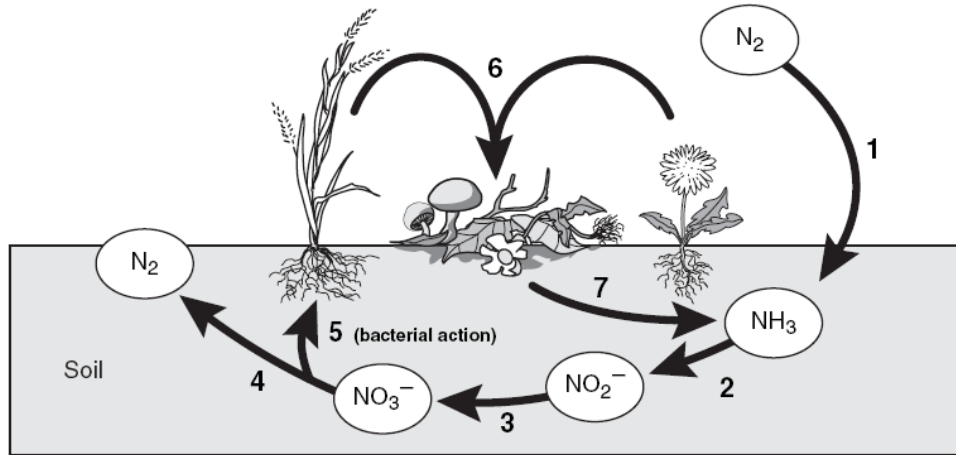
36. The long-term survival of species is dependent on -

- A its ability to absorb sunlight to stay warm.
- B changing resource bases that are limited.
- C its ability to move.
- D its ability to perform photosynthesis.

37. An axolote is a reptile similar to an iguana. It is found only in the canals of a small area in Mexico and numbers are diminishing at an alarming rate. Unfortunately, the axolote is in danger of extinction. Which of the following factors could be affecting the long-term survival of the axolote species?

- A Cod and tilapia, invasive species, are eating the limited food source of the axolote.
- B The canals where the axolote live are being polluted.
- C Carp and other fish eat the plants the axolote lays its eggs on and eat the eggs at the same time.
- D All of the above.

TEKS 12E describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles



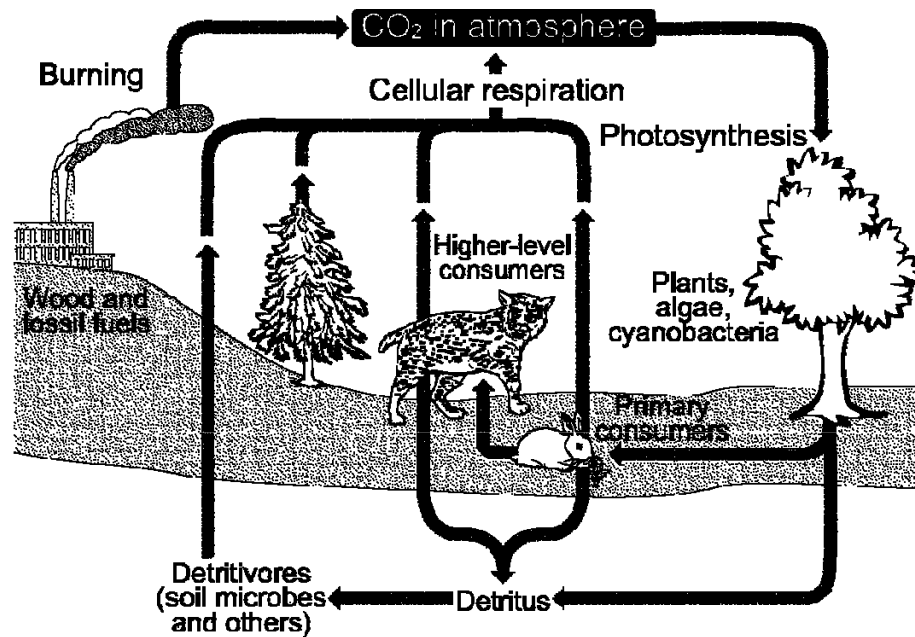
38. The diagram shows several phases of the nitrogen cycle. Which of the following describes the most likely effect of removing some plants from the area by using chemical herbicides?

- A** The rate of erosion of rocks on the ground would be slowed.
- B** The flow of necessary nutrients would be disrupted.
- C** The ability of plants to complete photosynthesis would be increased.
- D** The infiltration of water into the ground would be halted.

39. The nitrogen cycle is most directly dependent upon the -

- A** evaporation of water from Earth's surface.
- B** nitrogen-fixing bacteria and lightning.
- C** ability of consumers to move from place to place.
- D** process of transpiration in autotrophs.

The following diagram refers to questions 40 & 41.



40. How does the burning of fossil fuels affect the cycle shown?

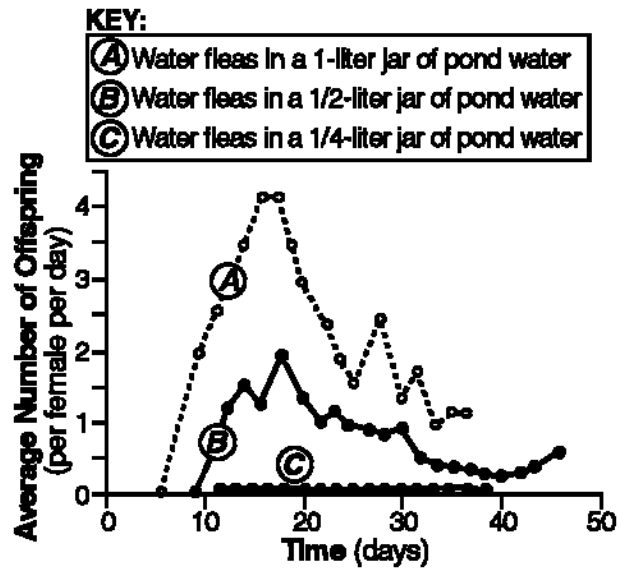
- A It releases ozone into the atmosphere.
- B It removes carbon from the atmosphere.
- C It both releases and removes carbon from the atmosphere.
- D It releases carbon into the atmosphere.

41. How do plants affect the given cycle above?

- A They only release carbon into the atmosphere.
- B They both release and remove carbon from the atmosphere.
- C They do not contribute to this cycle.
- D They only remove carbon from the atmosphere.

TEKS 12F describe how environmental change can impact ecosystem stability

42. A group of 100 female water fleas was placed in each of three culture jars of different sizes. The graph below shows the average number of offspring produced per female each day in each jar.

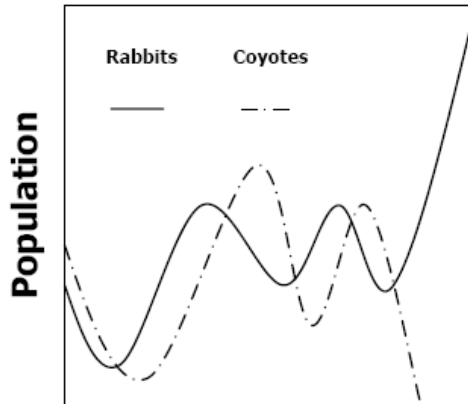


The information in the graph suggests that -

- A the ability of a water flea to produce offspring is affected by population density.
- B water fleas produce more offspring when they are crowded together.
- C water fleas have fewer offspring when they are thinly populated.
- D the reproduction rate of water fleas increases steadily after 20 day.

43. How would an exotic/nonnative species, such as a water plant bred for home aquariums, likely interrupt the balance in a freshwater pond ecosystem?

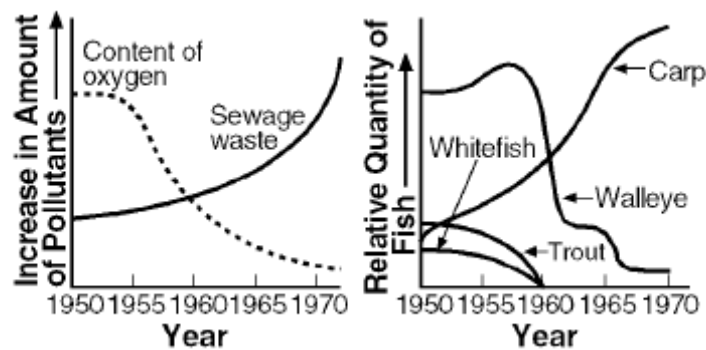
- A It would compete for space and light with the plants native to the pond.
- B It would attract more animals to the pond than can be sustained.
- C It would become a home for many insects.
- D It would cause an overproduction of oxygen in the pond and kill many fish.



44. Coyotes are killing sheep in West Texas, and ranchers decide the coyote population is out of control. The graph above represents the effect of the ranchers' decision to hunt the coyotes. Which statement best represents the data above?

- A Rabbits reproduce faster than sheep.
- B Predation maintains homeostasis in an ecosystem.
- C Sheep and rabbits compete for the same food source.
- D The rabbit population decreases as a result of the ranchers hunting the coyotes.

45. The graphs below show data on some environmental factors acting in a large lake.



Which relationship can be correctly inferred from the data presented in the given graphs?

- A As sewage waste increases, walleye population increases.
- B As sewage waste increases, carp population increases.
- C As sewage waste increases, trout population increases.
- D As oxygen content decreases, carp population decreases.