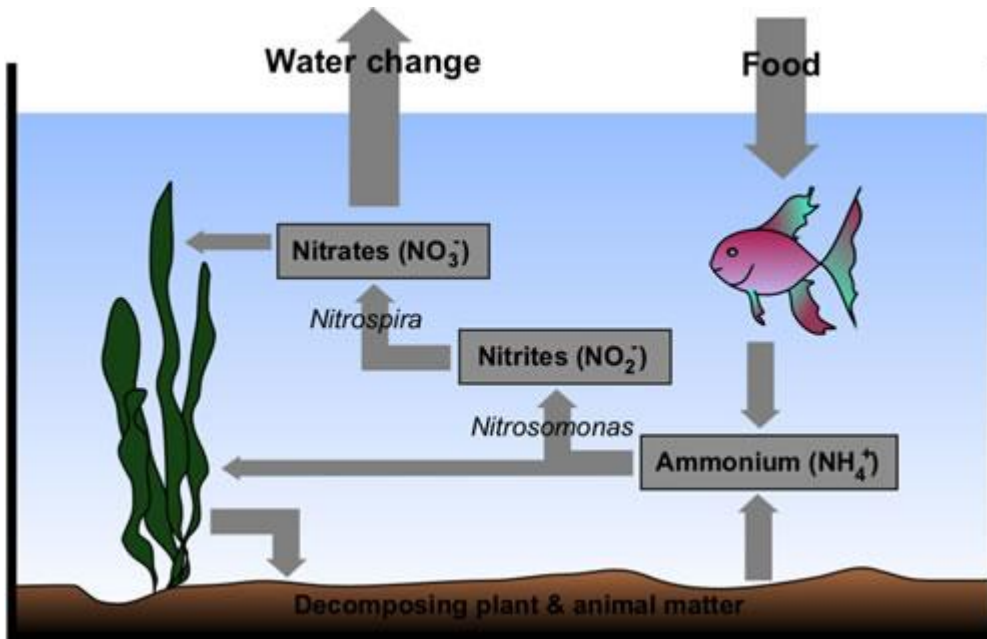


**Ecology Review Questions**



1. The food chain above shows  
(A) one autotroph and two heterotrophs  
(B) one producer, one autotroph, and one decomposer  
(C) one producer and two omnivores  
(D) one heterotroph and two autotrophs
2. Assume that a human can choose from any of the three organisms above as a source of nutrition. Which of the food sources provides the most efficient transfer of energy from the sun to us?  
(A) Eat the corn!                      (B) Eat the wolf!                      (C) Eat the steer!

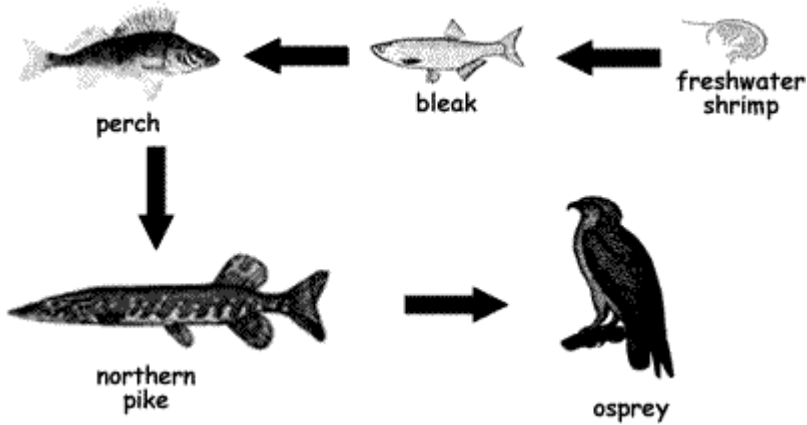
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3. When the fish is provided with so much food that it cannot eat all of it, the excess food  
(A) can be absorbed by the plant for photosynthesis  
(B) helps to remove nitrogenous wastes from the aquarium  
(C) adds to the nitrogenous wastes in the aquarium  
(D) kills bacteria
  4. In addition to helping to remove nitrogenous wastes, the plants in the aquarium provide the fish with  
(A) oxygen                      (B) bacteria                      (C) carbon dioxide                      (D) nitrogen
  5. Nitrospira and nitrosomonas are  
(A) fungi                      (B) bacteria                      (C) small fish                      (D) plants
- =====
6. A relationship between two organisms of different species in which one benefits, while the other neither benefits nor is harmed:  
(A) commensalism                      (B) symbiosis                      (C) mutualism                      (D) parasitism

Questions with a \* have more than one correct answer listed.

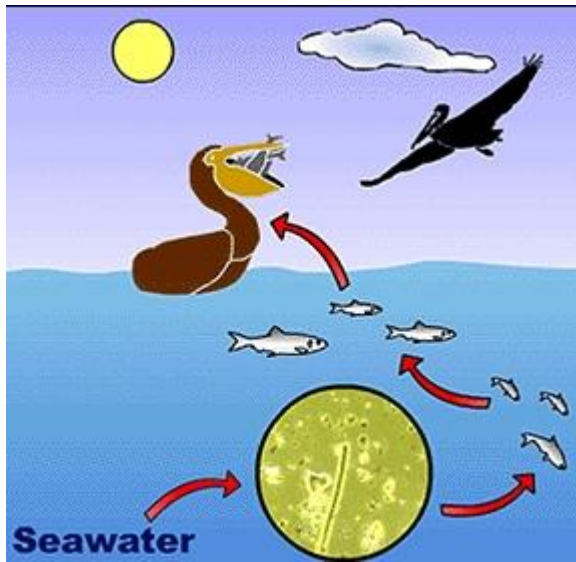
**Ecology Review Questions**



7. Of the organisms depicted above, the one that would likely be found in the smallest number within the ecosystem is the  
(A) northern pike                      **(B) osprey**                      (C) perch  
(D) bleak                                      (E) freshwater shrimp
8. Missing from this food chain are  
**(A) producers**                      (B) carnivores                      (C) heterotrophs                      (D) consumers
9. Wastes and dead organisms from this food chain will be fed upon by  
(A) tertiary consumers                      (B) autotrophs  
**(C) decomposers**                      (D) herbivores
10. According to the 10% rule, compared to the osprey, the perch has  
(A) 10x more energy available                      (B) 20x more energy available  
(C)  $\frac{1}{10}$  the energy available                      (D)  $\frac{1}{100}$  the energy available  
**(E) 100x more energy available**
- =====
11. The processes of photosynthesis and respiration are tied together in  
**(A) the carbon cycle and oxygen cycle**                      (B) the nitrogen cycle  
(C) the phosphorus cycle                      (D) the nitrogen cycle and water cycle
12. Most climate models predict that during this century, the average temperature  
(A) on land will increase, and the average ocean temperatures will decrease  
**(B) on land will increase, as will the average ocean temperatures**  
(C) on land will decrease, and the average ocean temperatures will increase  
(D) on land will decrease, as will the average ocean temperatures
13. Organisms that obtain energy directly from photosynthesis are known as  
(A) heterotrophs                      (B) herbivores  
(C) primary consumers                      **(D) autotrophs**
14. An organism whose removal from an ecosystem may cause the collapse of that ecosystem is known as a(n)  
(A) herbivore                      (B) dominant predator  
**(C) keystone species**                      (D) tertiary consumer

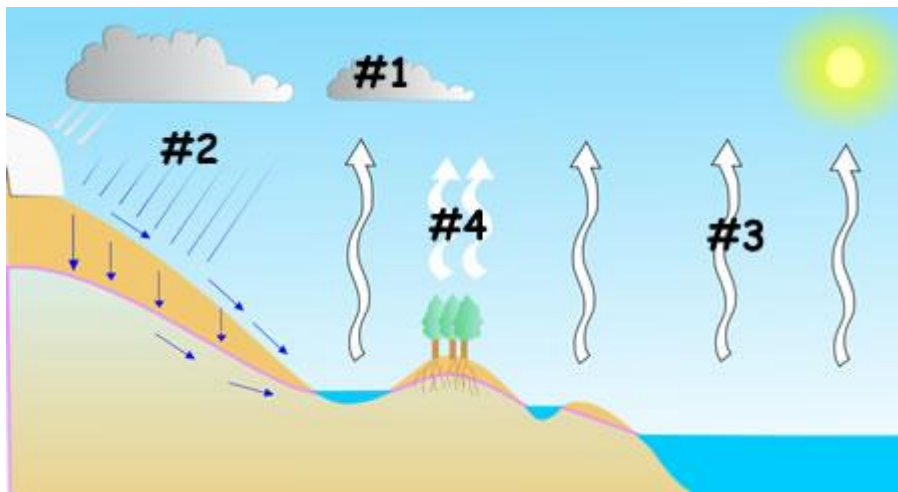
Questions with a \* have more than one correct answer listed.

## Ecology Review Questions



15. If the ecosystem above was contaminated with the pesticide DDT, the highest concentration of DDT in fish and pelicans would be found in  
(A) fat tissue (B) muscle (C) bone tissue (D) blood
16. If the ecosystem above was contaminated with the pesticide DDT, the highest concentration of DDT would be found in  
(A) small fish (B) the sea water  
(C) microscopic organisms (D) pelicans
- =====
17. Ants are known to protect, or "tend" aphids from predators, and in return receive some nutrients from the aphids. This relationship is an example of  
(A) mutualism (B) commensalism  
(C) sexual selection (D) parasitism
18. Which of the following is an example of a population?  
(A) All of the raccoons in North America (B) All of the trees in a forest  
(C) All of the mammals in a forest (D) All of the raccoons in a forest
19. Ultimately, all of the energy in most food chains or food webs comes from  
(A) the sun (B) the producers  
(C) the oceans (D) the carnivores
20. Food webs differ from food chains in that they  
(A) show the actual movement of energy within the ecosystem  
(B) show the distribution of biomass within an ecosystem  
(C) identify the keystone species within an ecosystem  
(D) show more of the available feeding relationships in an ecosystem
21. An organism that feeds only on heterotrophs is a(n)  
(A) herbivore (B) carnivore (C) omnivore  
(D) autotroph (E) primary consumer

## Ecology Review Questions



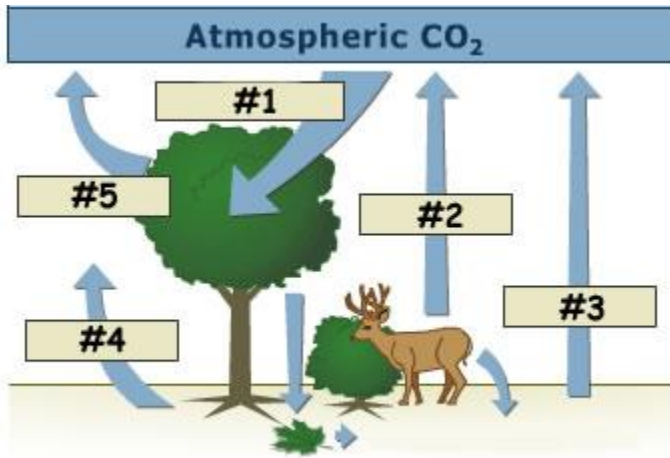
22. The water cycle process labeled #2 is  
(A) condensation  
(B) precipitation  
(C) evaporation  
(D) transpiration
23. The water cycle process labeled #4 is  
(A) precipitation  
(B) transpiration  
(C) condensation  
(D) evaporation

24. The water cycle process labeled #3 is  
(A) transpiration  
(B) evaporation  
(C) condensation  
(D) precipitation
25. As the air temperature increases, the rate of process #3 \_\_\_\_\_ and the rate of process #1 \_\_\_\_\_.  
(A) increases / increases  
(B) increases / decreases  
(C) decreases / increases  
(D) decreases / decreases
26. The water cycle process labeled #1 is  
(A) precipitation  
(B) evaporation  
(C) transpiration  
(D) condensation

27. After a forest fire, the first signs of ecological recovery occur with the appearance of  
(A) grasses and small shrubs  
(B) trees  
(C) large herbivores  
(D) predators
28. Which of the following is NOT a greenhouse gas?  
(A) methane, CH<sub>4</sub>  
(B) oxygen, O<sub>2</sub>  
(C) carbon dioxide, CO<sub>2</sub>  
(D) water vapor
29. Most people have pesticides and other environmental contaminants in their body. This is an example of  
(A) healthy eating  
(B) bioaccumulation  
(C) bioamplification  
(D) biomagnification
30. Organisms that can feed on autotrophs as well as on heterotrophs are known as  
(A) herbivores  
(B) primary consumers  
(C) carnivores  
(D) producers  
(E) omnivores
31. Most extinctions occurring on the planet today are due to  
(A) hunting  
(B) invasive species  
(C) loss of habitat  
(D) global warming
- \*32. Deforestation has the effect of  
(A) increasing soil loss through erosion  
(B) decreasing biodiversity  
(C) contributing to global warming  
(D) increasing atmospheric oxygen, O<sub>2</sub>  
(E) increasing atmospheric CO<sub>2</sub>

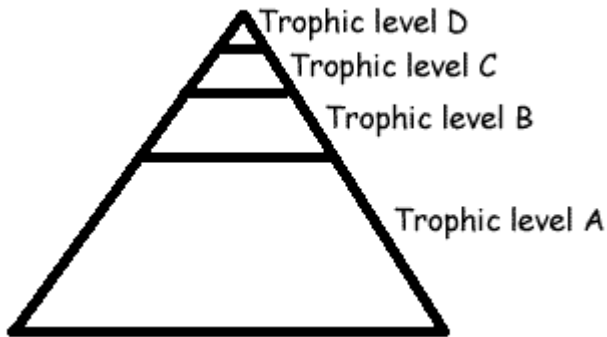
Questions with a \* have more than one correct answer listed.

**Ecology Review Questions**



33. Process #1 removes carbon dioxide from the atmosphere by means of  
 (A) deamination  
 (B) decomposition  
 (C) respiration  
**(D) photosynthesis**  
 (E) evapotranspiration
34. In addition to carbon dioxide, what chemical compound is released into the atmosphere as a result of processes #2 and #5  
 (A) evapotranspiration  
 (B) phosphate,  $PO_4^{3-}$   
**(C) oxygen,  $O_2$**   
 (D) ammonia,  $NH_3$   
 (E) water,  $H_2O$

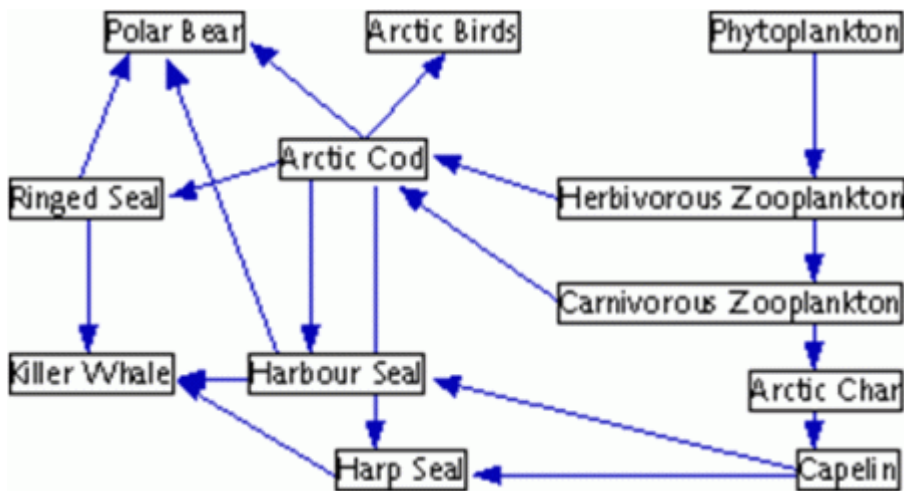
35. Processes #2 and #5 add carbon dioxide to the atmosphere by means of  
**(A) respiration** (B) deamination (C) evapotranspiration  
 (D) photosynthesis (E) decomposition



36. Based on the diagram, the greatest amount of energy (and biomass) in a healthy ecosystem will be found in the  
 (A) tertiary consumers  
**(B) producers**  
 (C) secondary consumers  
 (D) primary consumers

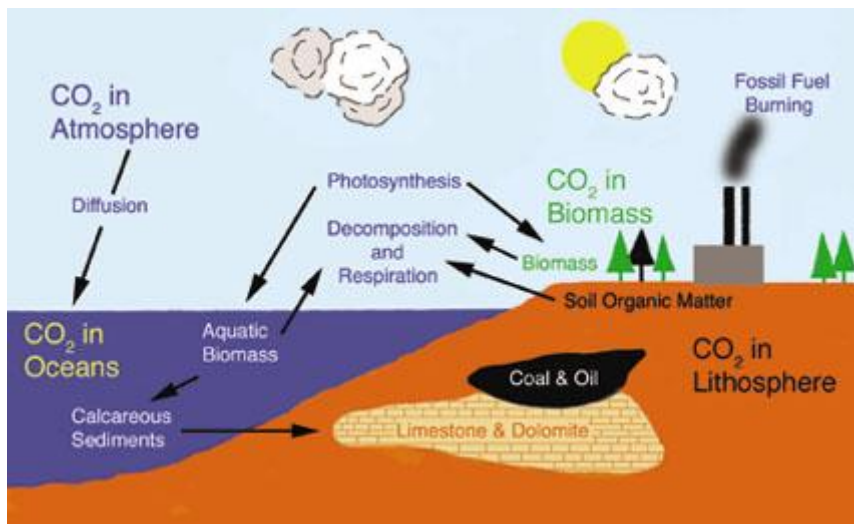
37. There is about 100x more energy stored in trophic level A than in  
 (A) trophic levels B, C, and D combined (B) trophic level B  
**(C) trophic level C** (D) trophic level D
38. On the African savanna, large herbivores such as elephant and giraffe would be found in  
 (A) Trophic level A **(B) Trophic level B**  
 (C) Trophic level C (D) Trophic level D
- \*39. In a healthy ecosystem, trophic level "A" will be composed of  
**(A) producers** (B) carnivores **(C) autotrophs**  
 (D) heterotrophs (E) herbivores

**Ecology Review Questions**



40. Missing from this food web are  
 (A) primary consumers  
 (B) producers  
 (C) decomposers  
 (D) carnivores
41. The producer in this food web is the  
 (A) phytoplankton  
 (B) herbivorous zooplankton  
 (C) capelin  
 (D) polar bear

42. The most efficient transfer of energy to the arctic cod occurs when it feeds on  
 (A) harbour seals  
 (B) harp seals  
 (C) herbivorous zooplankton  
 (D) carnivorous zooplankton
- \*43. Which of the following has only ONE food source depicted in this web?  
 (A) arctic char  
 (B) ringed seal  
 (C) harp seal  
 (D) killer whale  
 (E) polar bear



44. The source of the carbon in fossil fuels is  
 (A) limestone deposits  
 (B) ammonia from proteins  
 (C) ocean water  
 (D) dead plant and animal matter
45. The burning of fossil fuels  
 (A) requires O<sub>2</sub> and CO<sub>2</sub>  
 (B) requires O<sub>2</sub> and releases CO<sub>2</sub>  
 (C) releases O<sub>2</sub> and requires CO<sub>2</sub>  
 (D) releases O<sub>2</sub> and CO<sub>2</sub>

Questions with a \* have more than one correct answer listed.



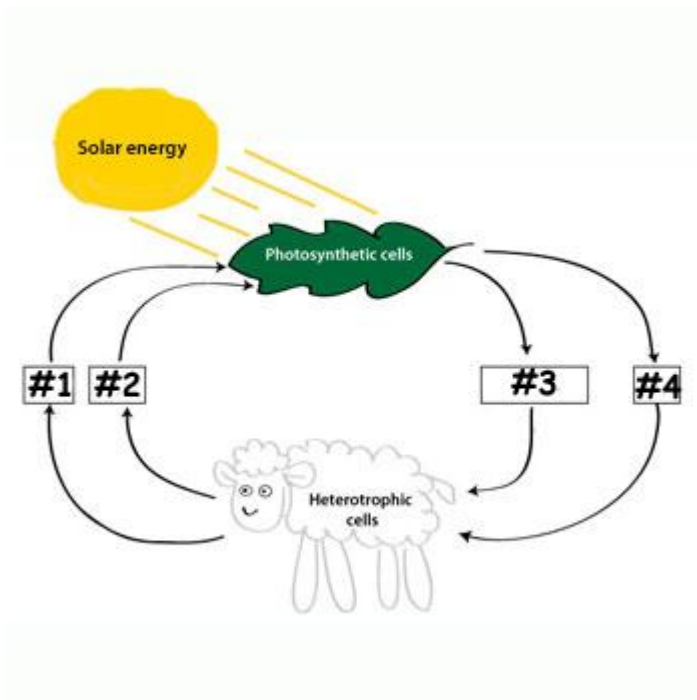
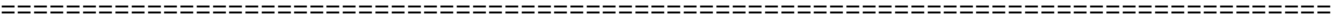
**Ecology Review Questions**



(From Reuters)  
A golden eagle picks the carcass of a wild boar that was killed by wolves in the 30 km (18 miles) exclusion zone around the Chernobyl nuclear reactor near the village of Babchin some 370 km (217 miles) southeast of Minsk February 3, 2008.

Wildlife in the exclusion zone has been teeming despite radiation.

46. If one were to study organisms in the area, which of these indicates the probable order of increasing concentrations of radiation in living tissue?
- (A) wolves ---> plants ---> wild boar
  - (B) wild boar ---> plants ---> wolves
  - (C) plants ---> wild boar ---> wolves
  - (D) wolves ---> wild boar ---> plants



- \*47. Substances #1 and #2 are
- (A) carbon dioxide
  - (B) oxygen
  - (C) glucose
  - (D) water
- \*48. Substances #3 and #4 are
- (A) carbon dioxide
  - (B) oxygen
  - (C) water
  - (D) glucose

Questions with a \* have more than one correct answer listed.