

Biology Keystone (PA Core) Quiz

Ecology - (BIO.B.4.1.1) Ecological Organization, (BIO.B.4.1.2) Ecosystem Characteristics, (BIO.B.4.2.1) Energy Flow

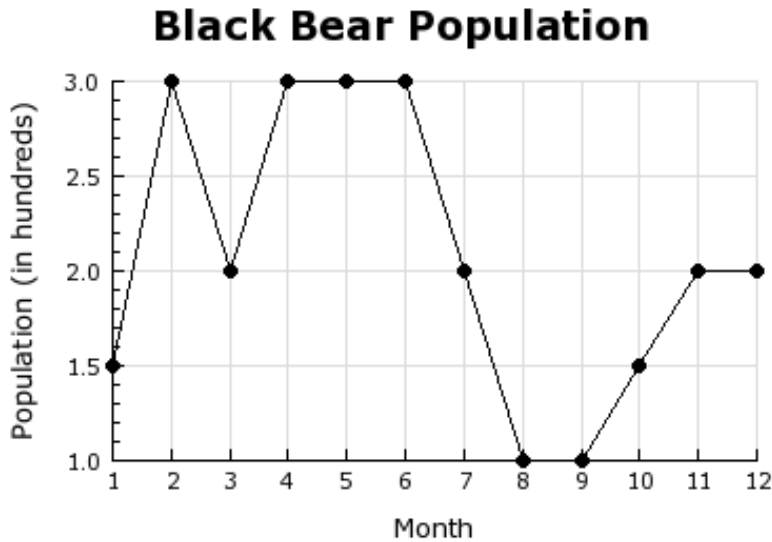
Student Name: _____

Date: _____

Teacher Name: Jared George

Score: _____

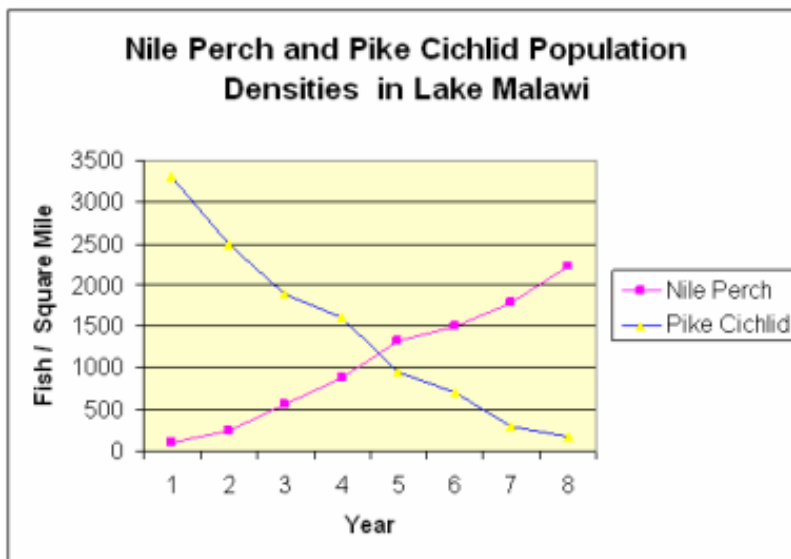
1)



The graph shows the changes in population of black bears in rural Michigan during a single year. Competition for food among the black bear population was most likely the greatest during the

- A) winter.
- B) late fall.
- C) late spring.
- D) month of June.

2)



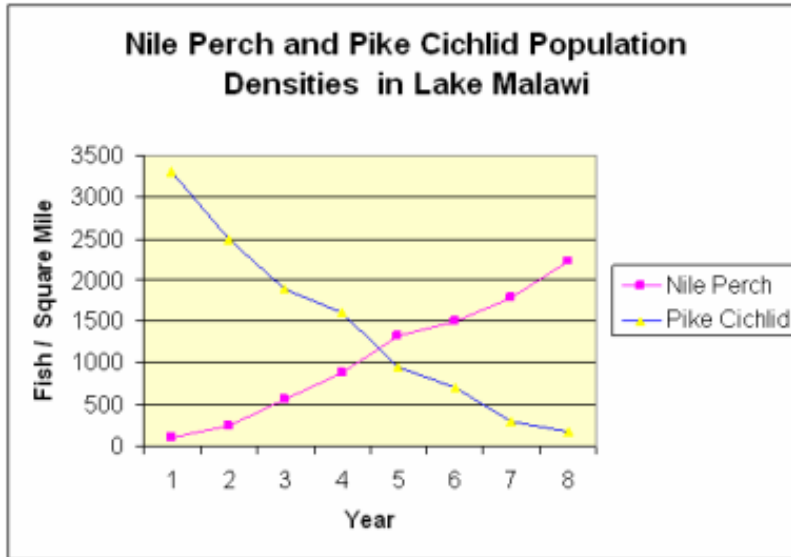
The graph represents what has happened over an 8 year period, when non-native Nile perch were introduced to Lake Malawi in Africa. Based on the data, which statement is true?

The Nile perch is competitively excluding the

There is probably commensalism between the Nile perch

- A) pike cichlid.
- B) The Nile perch and Pike cichlid probably do not compete for food.
- C) and the pike cichlid.
- D) The Nile perch and Pike cichlid probably occupy different ecological niches.

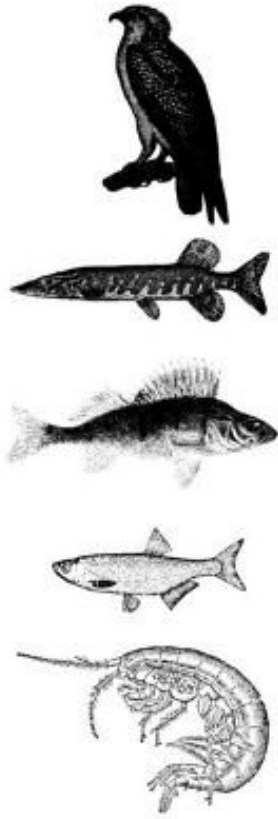
3)



The graph illustrates what has happened over an 8 year period, when non-native Nile perch were introduced to Lake Malawi in Africa. Based on the data, what recommendation would you make to African biologists?

- A) Remove or reduce the Nile perch as quickly as possible, as it is clearly out-competing the pike cichlid.
- B) Remove the remaining pike cichlids, as they are competing with the Nile perch.
- C) Reduce both fish populations, or they will starve one another out.
- D) There is not enough data to make a decision yet.

4)



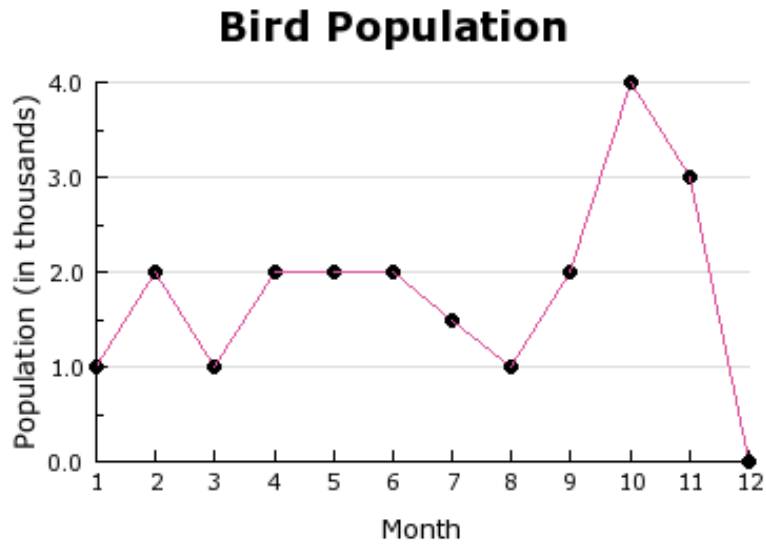
Guide to food chain (top to bottom): osprey, pike, perch, smelt, freshwater shrimp. Which population would show the quickest increase if perch were eliminated from the food chain ?

- A) pike
- B) smelt
- C) osprey
- D) freshwater shrimp

5) An animal with thick layers of blubber, dense fur, the tendency to hibernate, and light coloration is well-adapted to the _____ biome.

- A) tundra
- B) grassland
- C) chapparal
- D) temperate forest

6)



If the bird population is directly proportional to the average monthly temperature, which month would have the LOWEST temperature?

- A) August
- B) December
- C) January
- D) October

7)



The biome pictured above is found in areas such as Kenya and South Africa. The land is grass-covered with very few trees and gazelles and other grazers are common here. Why does this biome have a low population of trees?

- A) Large grazing animals destroy the trees.
- B) It is a deforested rainforest with poor soil.
- C) It has high temperatures and low precipitation.
- D) It has a long rainy season followed by flooding.

8)



Source: from "Koehler's Medicinal-Plants" 1887

The aloe plant has thick, water-filled leaves covered with spikes. The flowers are high on a stalk, so that pollen can be quickly and easily released. What biome is the aloe BEST adapted for?

- A) tundra
- B) desert
- C) savanna
- D) tropical rainforest

9) Which is an accurate description of the growth of a natural animal population?

- A) It is limited by environmental factors.
- B) It continues to grow indefinitely.
- C) It is genetically determined.
- D) It never changes.

10) The greatest biodiversity on earth is found in the _____ biome.

- A) taiga
- B) grasslands
- C) deciduous forest
- D) tropical rainforest

11) A collection of interacting populations together with all abiotic components in the same area is a(n)

- A) community.
- B) ecosystem.
- C) population.
- D) species.

12) Which would be an abiotic factor in an African savanna ecosystem?

- A) lions
- B) acacia trees
- C) termite mounds
- D) seasonal rainfall

13) A(n) _____ is a collection of all of the abiotic factors and biotic factors in an entire region.

- A) habitat
- B) ecosystem
- C) community
- D) ecological niche

14)



What abiotic factor influences the color of the snowshoe rabbit's fur?

- A) snowfall
- B) food available
- C) available water
- D) number of predators

15) Seagrasses are flowering plants which grow in the photic zones of marine environments. Which factor would be a biotic limiting factor for seagrass growth?

- A) water temperature
- B) amount of available sunlight
- C) density of the animal population
- D) concentration of dissolved nutrients

16)



Many factors determine the health of an aquatic ecosystem. Which choice lists ONLY abiotic factors?

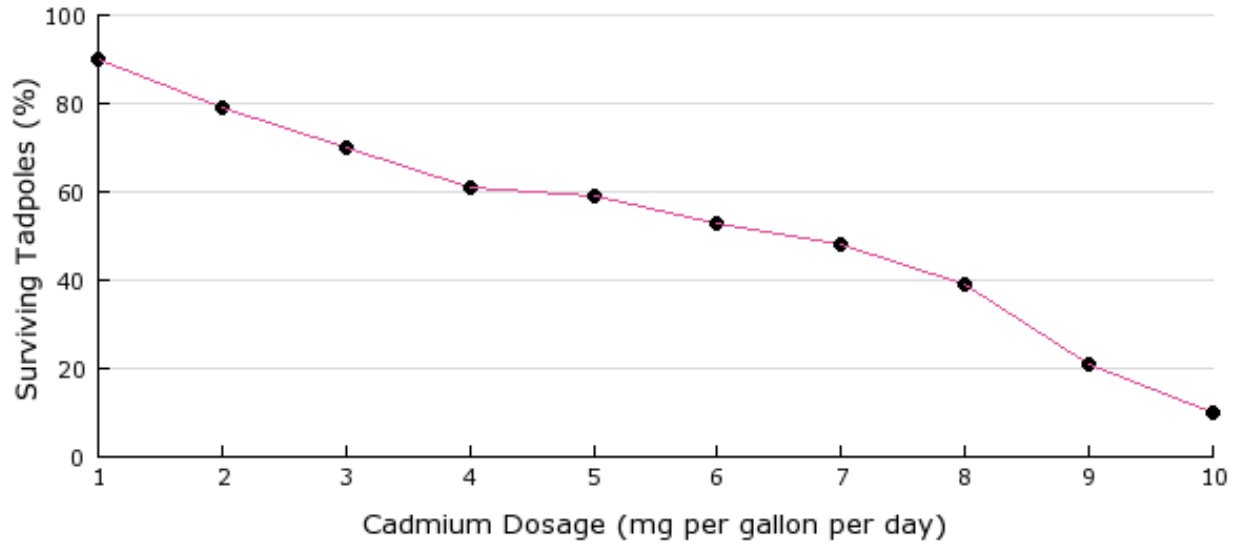
- A) the number of species of algae, fish, and water fowl present in the ecosystem
- B) the acidity of the water, the number of species of insects, and the air temperature
- C) the oxygen content of the water, the water temperature, and the chemical composition of the bottom mud
- D) the amount of sunlight penetrating the water, the phosphorus content of the water, and the number of species of fish

17) Which animal is native to the tundra?

- A) koala bear
- B) polar bear
- C) black bear
- D) panda bear

18)

Cadmium Dosage & Survivorship in Bullfrog Tadpoles



According to the graph, what abiotic factor influences tadpole survival?

- A) size of pond
- B) cadmium dosage
- C) available food
- D) number of surviving tadpoles

19)



This aquarium exhibits biotic and abiotic factors in an aquatic environment. One of the abiotic factors is

- A) coral.
- B) fish.
- C) plants.
- D) water.

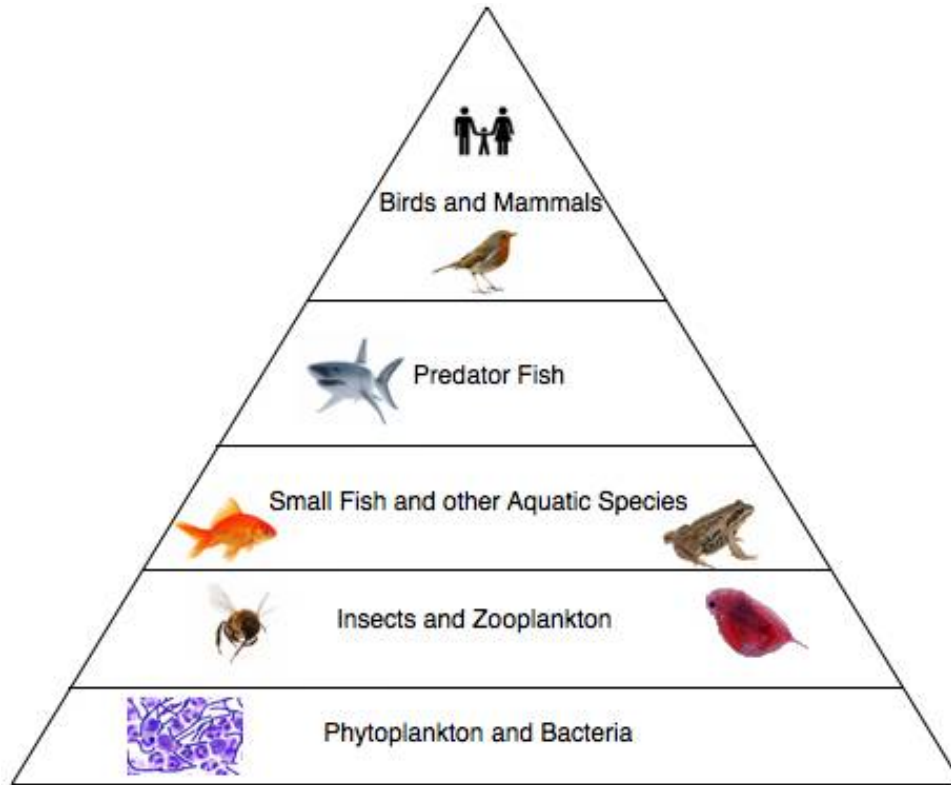
20) Which physical factors MOST influence the Antarctic ecosystem?

- A) climate, rain, erosion
- B) plants, wind, and air pressure
- C) weather, ice, and ocean currents
- D) salinity of water, polar bear population, and snow

21) What is an explanation of why producers are always found at the lowest trophic level?

- A) Producers are larger than consumers.
- B) Consumers are eaten by a variety of producers.
- C) Producers convert light energy into chemical energy.
- D) Producers are found in fewer numbers than consumers.

22)



Based on the pyramid, which organism(s) provide the MOST available energy?

- A) predator fish
- B) birds and mammals
- C) insects and zooplankton
- D) phytoplankton and bacteria

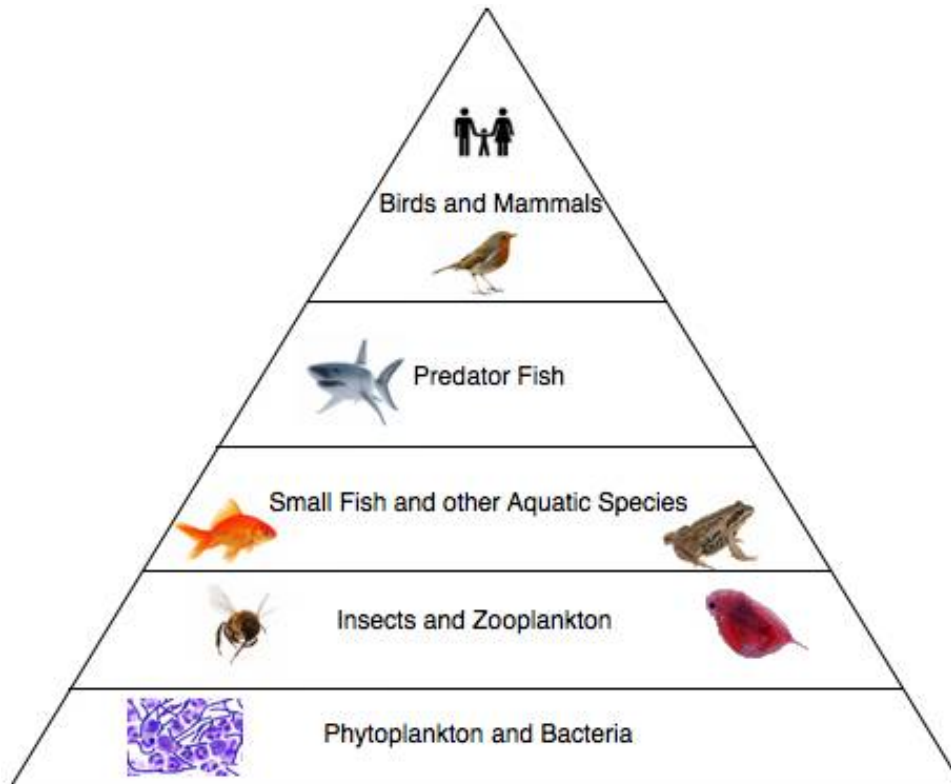
23) What is the source of nearly all of the energy for producers and consumers?

- A) oxygen
- B) plants
- C) sunlight
- D) water

24) Photosynthesis involves the transformation of light energy into

- A) kinetic energy.
- B) chemical energy.
- C) mechanical energy.
- D) hydroelectric energy.

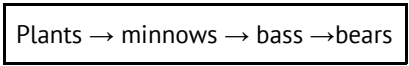
25)



Organisms at the bottom of the pyramid produce enough usable chemical energy to support the entire ecosystem through

- A) predation.
- B) photosynthesis.
- C) cell respiration.
- D) anaerobic respiration.

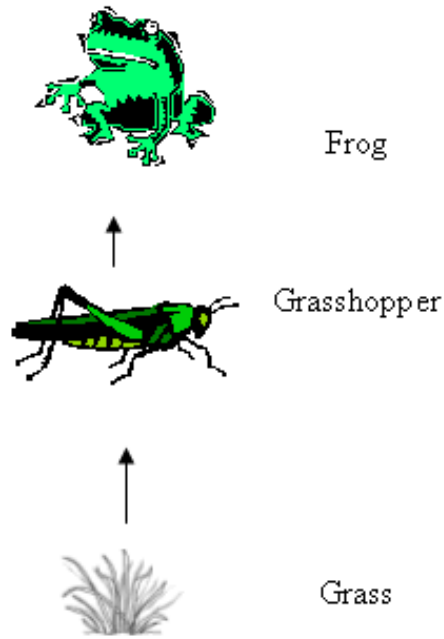
26)



Consider the food chain. What would MOST LIKELY happen if the bass started to disappear because too many of them had been caught during fishing season?

- A) The number of bear will increase.
- B) The plant population will increase.
- C) The number of minnows would increase.
- D) The number of minnows would decrease.

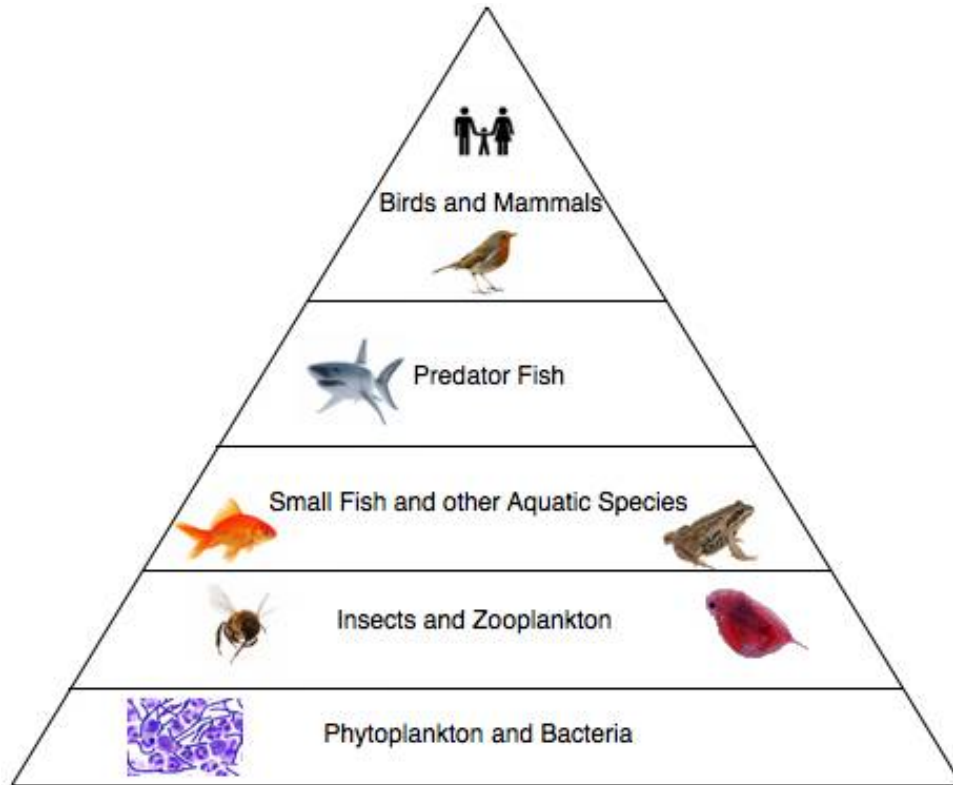
27)



In food chains, the flow of energy is ALWAYS _____.

- A) one-way.
- B) reversable.
- C) two-way.
- D) uncontrolled.

28)



In the pyramid, only about 10 percent of the _____ available within one trophic level is transferred to organisms at the next trophic level.

- A) energy
- B) heat
- C) mass
- D) matter

29) Which population of organisms would begin the flow of energy through a desert food web?

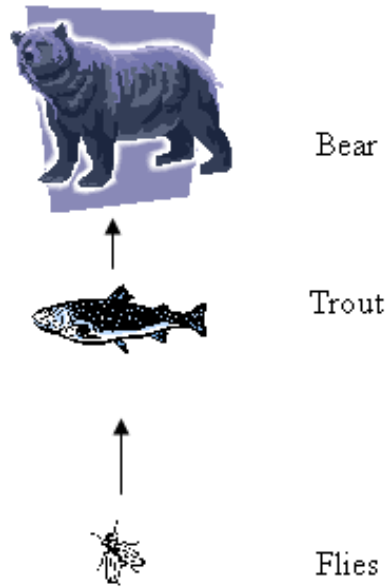
A) coyotes

C) beaded lizards

B) cactus finch

D) mesquite shrubs

30)



A forest ecosystem can support a limited number of bears. This is because

- A) bears hibernate during the winter.
- B) the base of the food chain is seasonal.
- C) available energy is lost from one trophic level to the next.
- D) light that supports photosynthesis is limited during certain times of the year.