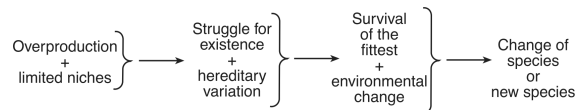


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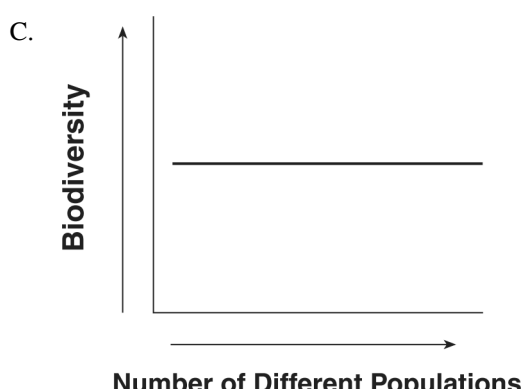
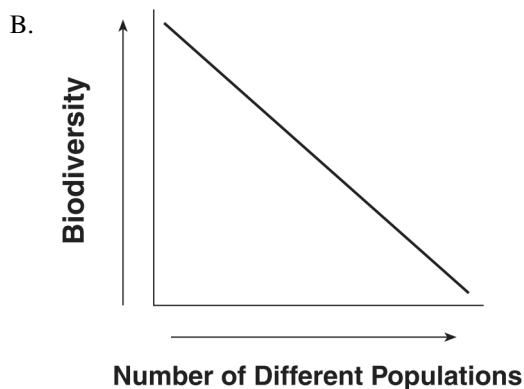
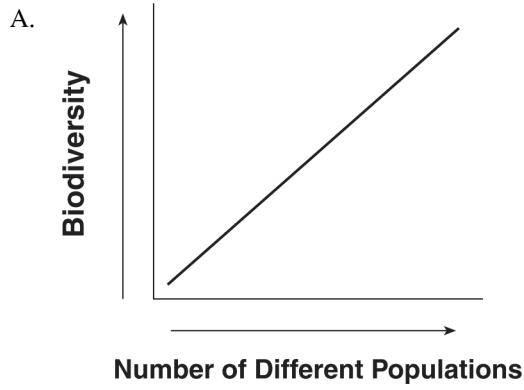
1. According to modern evolutionary theory, genes responsible for new traits that help a species survive in a particular environment will usually
  - A. not change in frequency
  - B. decrease gradually in frequency
  - C. decrease rapidly in frequency
  - D. increase in frequency
  
2. The first life-forms to appear on Earth were most likely
  - A. complex single-celled organisms
  - B. complex multicellular organisms
  - C. simple single-celled organisms
  - D. simple multicellular organisms
  
3. Ten breeding pairs of rabbits are introduced onto an island with no natural predators and a good supply of water and food. What will most likely happen to the rabbit population?
  - A. It will remain relatively constant due to equal birth and death rates.
  - B. It will die out due to an increase in the mutation rate.
  - C. It will increase until it exceeds carrying capacity.
  - D. It will decrease and then increase indefinitely.
  
4. Which statement is best supported by the theory of evolution?
  - A. Genetic alterations occur every time cell reproduction occurs.
  - B. The fossil record provides samples of every organism that ever lived.
  - C. Populations that have advantageous characteristics will increase in number.
  - D. Few organisms survive when the environment remains the same.
  
5. Evidence that best supports the theory of biological evolution was obtained from the
  - A. investigation of environmental niches
  - B. study of fossil records
  - C. comparison of the number of cells in organisms
  - D. analysis of food chains and food webs

6. The different tools used during the beaks of finches lab represented
  - A. feeding adaptations in finches
  - B. nest construction adaptations
  - C. variations in seed size
  - D. variations in ecosystems
  
7. Which concept is best illustrated in the flowchart below?



- A. natural selection
- B. genetic manipulation
- C. dynamic equilibrium
- D. material cycles

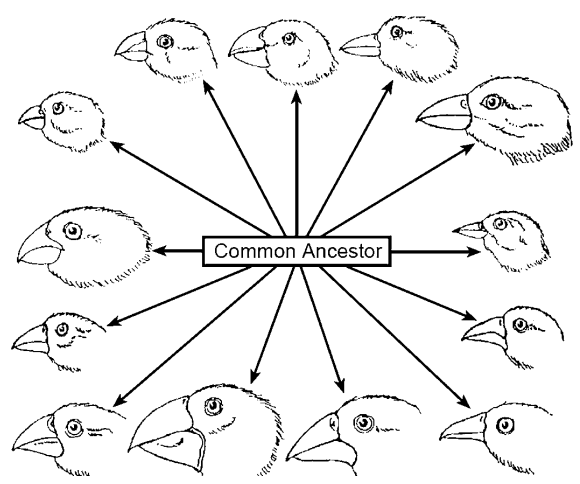
8. Which graph best shows the relationship between the amount of biodiversity and the number of different populations in an ecosystem?



9. According to the theory of natural selection, why are some individuals more likely than others to survive and reproduce?

- A. Some individuals pass on to their offspring new characteristics they have acquired during their lifetimes.
- B. Some individuals are better adapted to exist in their environment than others are.
- C. Some individuals do not pass on to their offspring new characteristics they have acquired during their lifetimes.
- D. Some individuals tend to produce fewer offspring than others in the same environment.

10. The diversity within the wild bird species in the accompanying diagram can best be explained by which process?



- A. natural selection
- B. asexual reproduction
- C. ecological succession
- D. mitotic cell division

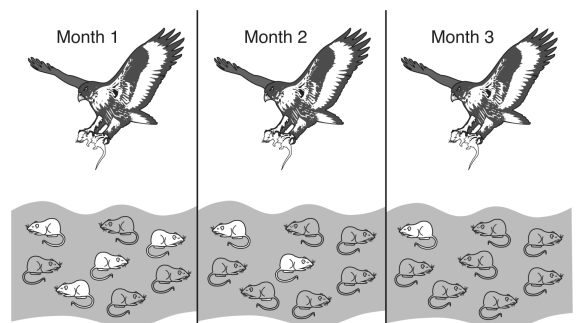
11. The diversity of organisms present on Earth is the result of

- A. ecosystem stability
- B. homeostasis
- C. natural selection
- D. direct harvesting

12. Which characteristic is necessary for natural selection to occur in a species?

- A. stability
- B. variation
- C. complex cellular organization
- D. a very low mutation rate

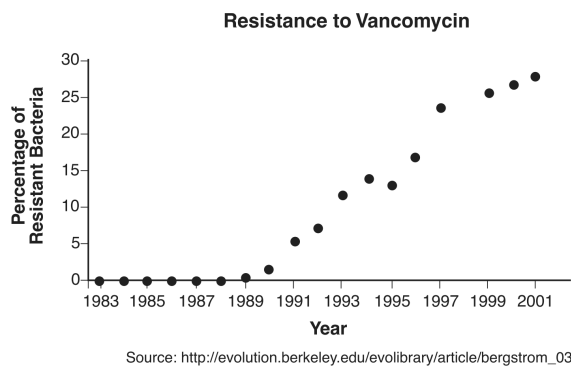
13. The diagram below represents the same field of mice hunted by a hawk over a period of three months.



The overall changes in the population of mice can be explained best by

- A. natural selection
- B. succession
- C. reproduction
- D. mouse extinction

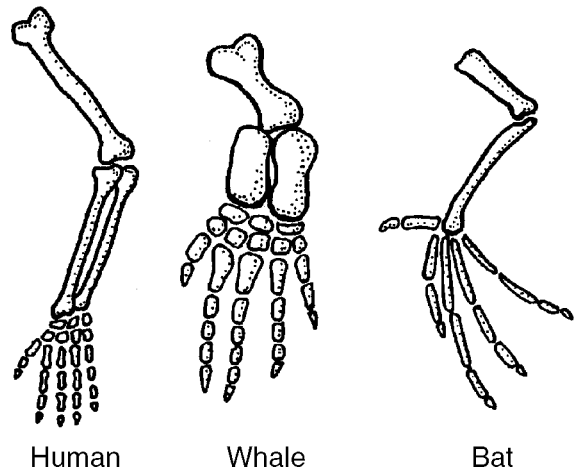
14. Base your answer(s) to the following question(s) on the scatter-plot graph below and on your knowledge of biology. The graph shows changes in the percentage of vancomycin-resistant bacteria in a population between the years 1983 and 2001.



Explain why the percentage of resistant bacteria increased over time.

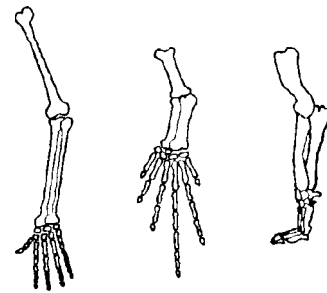
15. Galapagos finches evolved partly due to
- cloning and recombination
  - migration and selective breeding
  - mutation and asexual reproduction
  - variation and competition
16. Which factor most likely contributed to the evolution of Galapagos Islands finches with different beak shapes?
- similar climates on the different islands
  - competition between the finches for food
  - cloning experiments carried out by native people on the islands
  - increased rate of asexual reproduction
17. In order for a species to evolve, it must be able to
- consume a large quantity of food
  - reproduce successfully
  - maintain a constant body temperature
  - be domesticated

18. The accompanying diagrams show the bones in the forelimbs of three different organisms.



Differences in the bone arrangements support the hypothesis that these organisms

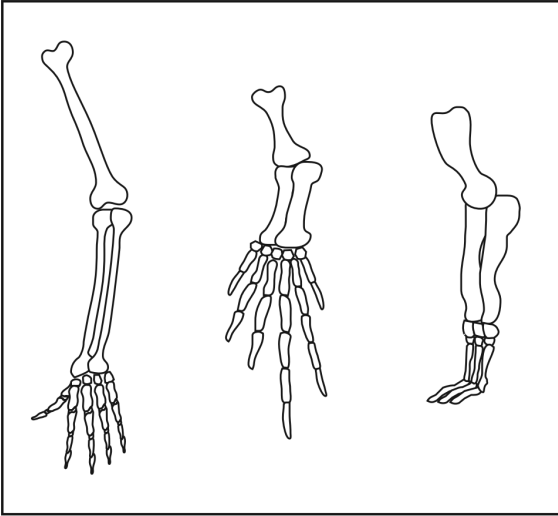
- are members of the same species
  - may have descended from the same ancestor
  - have adaptations to survive in different environments
  - all contain the same genetic information
19. The bones in the forelimbs of three mammals are shown below.



For these mammals, the number, position, and shape of the bones most likely indicates that they may have

- developed in a common environment
- developed from the same earlier species
- identical genetic makeup
- identical methods of obtaining food

20. The diagram below represents the bone arrangements in the front limbs of three different species of mammals.



The similarities and differences in these limbs suggest that all three species developed from the same ancestor, but

- A. produced different numbers of offspring
  - B. lived in different time periods
  - C. adapted to different habitats
  - D. migrated to similar habitats
21. Certain chemicals, such as cytochrome C, are found within cells of all living organisms. The biochemical structure of cytochrome C in ground finches and in tree finches is very similar. This suggests that tree finches and ground finches have
- A. identical DNA
  - B. a common ancestor
  - C. evolved at the same time
  - D. the same nesting site

22. Which statement is best supported by fossil records?
- A. Many organisms that lived in the past are now extinct.
  - B. Species occupying the same habitat have identical environmental needs.
  - C. The struggle for existence between organisms results in changes in populations.
  - D. Structures such as leg bones and wing bones can originate from the same type of tissue found in embryos.
23. Which factor contributed most to the extinction of many species?
- A. changes in the environment
  - B. lethal mutations
  - C. inability to evolve into simple organisms
  - D. changes in migration patterns
24. Which population of organisms would be in greatest danger of becoming extinct?
- A. A population of organisms having few variations living in a stable environment.
  - B. A population of organisms having few variations living in an unstable environment.
  - C. A population of organisms having many variations living in a stable environment.
  - D. A population of organisms having many variations living in an unstable environment.

1.  
Answer: D
2.  
Answer: C
3.  
Answer: C
4.  
Answer: C
5.  
Answer: B
6.  
Answer: A
7.  
Answer: A
8.  
Answer: A
9.  
Answer: B
10.  
Answer: A
11.  
Answer: C
12.  
Answer: B
13.  
Answer: A
14.  
Answer:
  - The resistant bacteria survived, reproduced, and passed on the gene for resistance.
  - More of the resistant ones survived and reproduced.
15.  
Answer: D
16.  
Answer: B
17.  
Answer: B
18.  
Answer: C
19.  
Answer: B
20.  
Answer: C
21.  
Answer: B
22.  
Answer: A
23.  
Answer: A
24.  
Answer: B