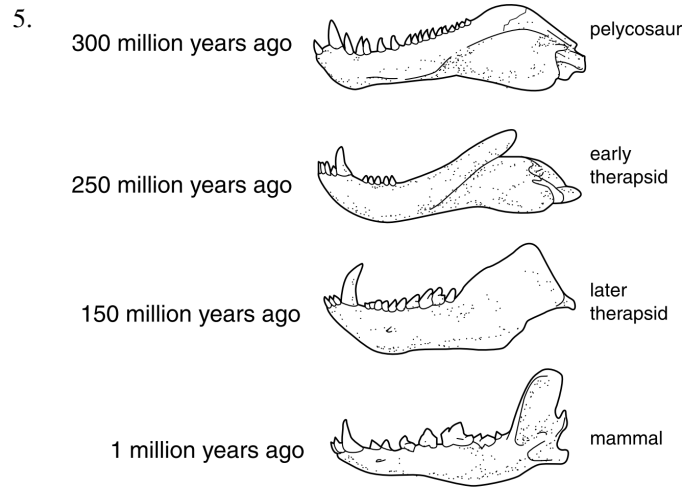


Evolution Common Assessment 1

- The field of biology that includes the study of the origin of new species through time is known as
  - biochemistry
  - evolution
  - ecology
  - embryology
- Evidence of the changes in a species' physical characteristics over long geological periods can best be shown through a study of
  - the homologous structures of present-day species
  - comparative biochemistry
  - the fossil record
  - comparative embryology
- Evidence that best supports the theory of biological evolution was obtained from the
  - investigation of environmental niches
  - study of fossil records
  - comparison of the number of cells in organisms
  - analysis of food chains and food webs
- The diagram shown represents a section of undisturbed layers of sedimentary rock in New York State and shows the location of fossils of several closely related species. According to currently accepted evolutionary theory, which is the most probable assumption about species A, B and C?
 

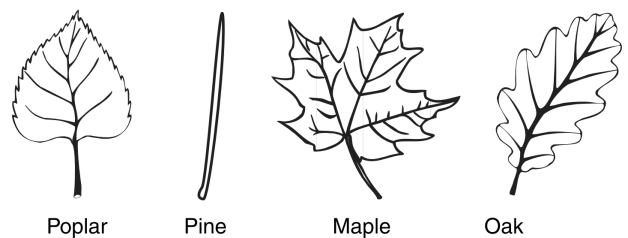
Species A	→ Surface of ground
Species B and A	
Species B	
Species C	

- Species B is more abundant than species C.
- Species C existed before species B.
- Species A and B are genetically identical.
- Species B descended from species A.



The fossilized jawbones in the diagram above show the changes in organisms over time. According to the diagrams, which of the following is a likely conclusion?

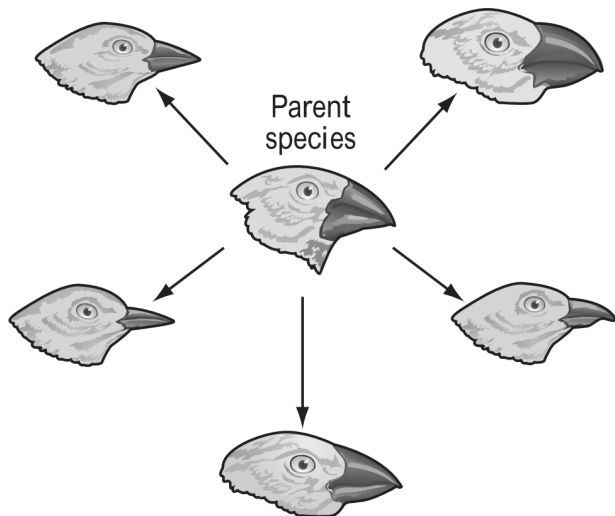
- These fossils provide evidence that evolution occurs rapidly.
  - These fossils provide evidence that evolution occurs over long periods of time.
  - These fossils belonged to organisms that were large and slow moving.
  - These fossils lack similar characteristics in their structural design.
- The picture below shows four leaves, each from a different tree.



Which leaf is *best* adapted to a dry environment?

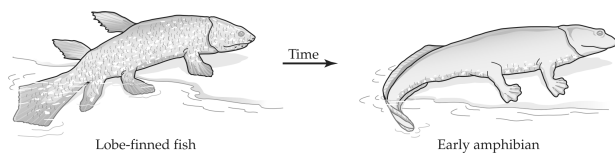
- poplar
- pine
- maple
- oak

7. The diagram below shows the beaks of five species of birds that developed over time from one parent species. The five species of birds can be found living in the same area.



Which of the following *best* explains why the beak shape of each species of bird developed differently?

- A. Each beak shape helps the birds to produce different songs.
  - B. Each beak shape is an adaptation to a specific source of food.
  - C. Each beak shape is designed to construct a different type of nest.
  - D. Each beak shape helps protect the birds from a different predator.
8. Amphibians were the first vertebrates to live on land. The ancestors of amphibians were probably lobe-finned fish. The diagram below shows this development of amphibians over time.



Which of these terms *best* describes how amphibians could have developed from lobe-finned fish?

- A. selective breeding
- B. cloning
- C. migration
- D. natural selection

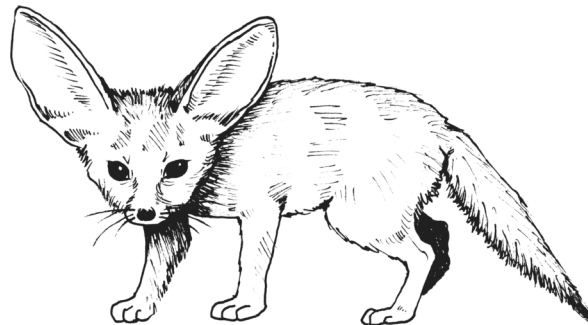
9. Which type of species is *most likely* to become extinct?

- A. a species that eats a very specialized diet
- B. a species that has a high reproductive rate
- C. a species that has a high population density
- D. a species that lives in a large habitat area

10. Evidence supports the theory that whales are descendants of land mammals. How did land mammals evolve into sea mammals?

- A. The end of the ice age forced many land mammals to live in the sea.
- B. Sea mammals evolved through interbreeding of land mammals and fish.
- C. There was less competition for food among sea mammals.
- D. Land mammals inherited mutations that helped them survive in water.

11. The fennec, shown below, is a small fox-like creature native to North Africa. It lives in a very dry climate and has large ears that help rid its body of excess heat.

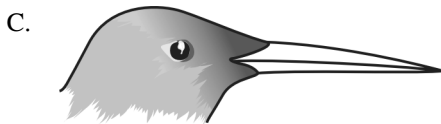
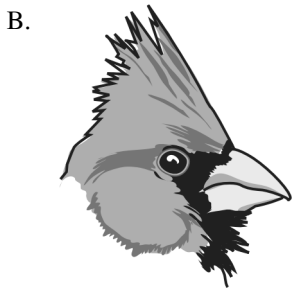
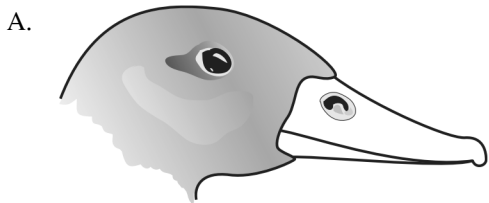


The size and body structures of the fennec are the result of what process?

- A. Succession
- B. Natural selection
- C. Selective breeding
- D. Genetic engineering

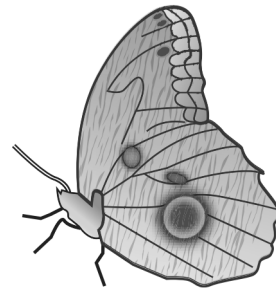
12. Which would indicate that a series of fossils represent the evolution of the horse?
- A. All of the fossils were found in the same layers of rocks as horse fossils.
  - B. All of the fossils are completely identical to horse bones.
  - C. All of the fossils show similar structures to that of the modern horse.
  - D. All of the fossils were located in the same place on Earth as horses.

13. Which bird's bill is *best* for collecting nectar from plants?



14.

### Owl Butterfly



The owl butterfly has patterns on its wings that look like large eyes. How does this help the butterfly survive?

- A. It helps the butterfly fly faster.
- B. It helps the butterfly see better.
- C. It helps the butterfly scare enemies.
- D. It helps the butterfly absorb sunlight.

15. Use the pictures below to answer the following question.



hover fly

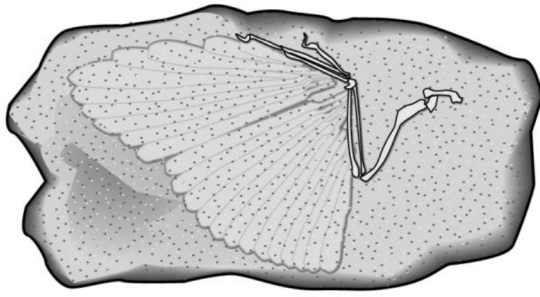


honey bee




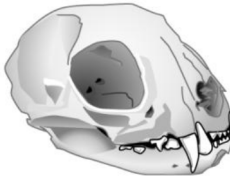
A hover fly looks like a honey bee. Which statement *best* explains how this adaptation helps the hover fly survive?

- A. Looking like a honey bee keeps other animals away from the hover fly's food.
- B. Looking like a honey bee allows the hover fly to collect more pollen.
- C. Looking like a honey bee allows the hover fly to blend with its environment.
- D. Looking like a honey bee keeps some predators from trying to eat the hover fly.

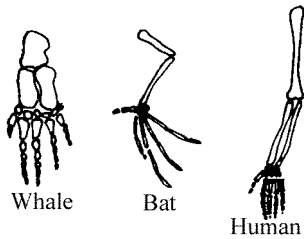
16. The picture below shows a fossil of a body section.



Which of the following is most similar to the body section shown above?

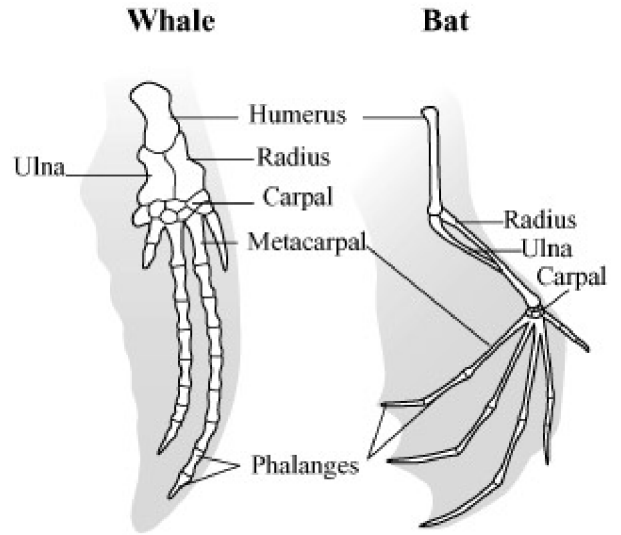
- A. 
- B. 
- C. 
- D. 

17. The diagrams represent the forelimbs of three different vertebrates. Which field of study, providing evidence for evolution, is represented by the similarity in bone structure among these three organisms?



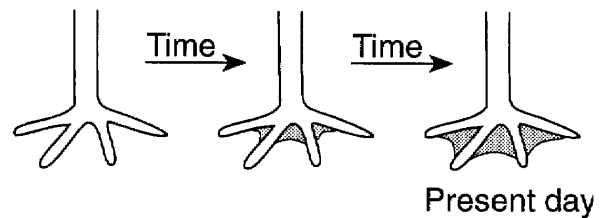
- A. comparative embryology
- B. comparative physiology
- C. comparative anatomy
- D. comparative biochemistry

18. The bones of a whale flipper are similar to the bones of a bat wing as shown in the illustration below.



What does this similarity in bone structure suggest about the whale and the bat?

- A. They use the same methods to travel.
- B. They evolved from a common ancestor.
- C. They can migrate to the same locations.
- D. They can manipulate objects in the same way.
19. The changes in foot structure in a bird population over many generations are shown in the diagram. These changes can best be explained by the concept of



- A. evolution
- B. extinction
- C. stable gene frequencies
- D. use and disuse

20. Which of the following provides the *most convincing* evidence that two different animal species evolved from a common ancestor?
- A. They live in similar environments.
  - B. They have similar adult body shapes.
  - C. They have similar methods of locomotion.
  - D. They show similar features in embryonic development.

21. Use the information below to answer the following question(s).

A scientist is studying a group of related flowering plants. She set up a series of experiments to study relatedness, classification, and patterns of inheritance within this group of plants.

To study the relatedness among plants, the scientist compared a specific RNA sequence in four different species of plants. The results are shown in the table below.

**PERCENT SIMILARITY OF A SPECIFIC RNA SEQUENCE**

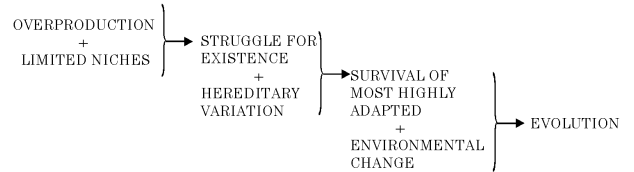
		Plant Species			
		1	2	3	4
Plant Species	1	—	88	92	85
	2	88	—	93	95
	3	92	93	—	87
	4	85	95	87	—

Which two species are *most closely* related?

- A. 1 and 3
- B. 1 and 4
- C. 2 and 3
- D. 2 and 4

22. Which structures would be considered homologous?
- A. the wing of a bat and the flipper of a whale
  - B. the arm of a starfish and the foreleg of a horse
  - C. the jointed appendage of a grasshopper and a human
  - D. the wings of a bat and a butterfly

23. Which theory is best illustrated by the flow chart shown?



- A. cell theory
  - B. theory of acquired characteristics
  - C. use and disuse theory
  - D. theory of natural selection
24. In most populations, the individuals that produce the greatest number of offspring are
- A. always the strongest
  - B. usually the best adapted
  - C. those that have only recessive traits
  - D. those that are the most intelligent

25. Use the following data table to answer the following question.

Organism	Respiration	Reproduction	Circulation	Skeleton
1	Through a moist outer surface	Asexual	Closed	Internal
2	Through gills	Sexual	Closed	Internal
3	Through holes in outer surface	Sexual	Open	External
4	Through lungs	Sexual	Closed	Internal
5	Through an outer surface	Asexual	None	None

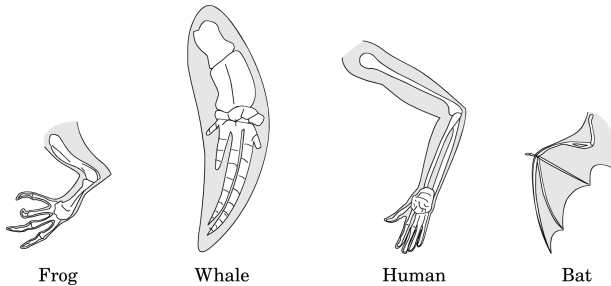
According to the data table, which two organisms are *most* closely related?

- A. 1 and 2                      B. 1 and 5                      C. 2 and 4                      D. 4 and 5

26. Members of a population may become separated from the original population by a newly formed mountain range. This occurrence is an example of

- A. geographic isolation      B. reproductive isolation  
C. natural selection          D. struggle for existence

27. This diagram represents the bone structures of the front limbs of four different animals.



What do the similarities of the structures suggest about these organisms?

- A. They grow at the same rate.  
B. They live in the same environment.  
C. They live for the same length of time.  
D. They evolved from a common ancestor.

28. It is thought that all citrus fruit trees evolved from a common ancestor because of their common ability to synthesize citric acid. This type of evidence of evolution is known as

- A. comparative embryology  
B. comparative biochemistry  
C. geographical distribution  
D. anatomical similarity

29. A bird's developmental stages resemble those of a reptile. This observation is often used to illustrate the probable common ancestry of these organisms through the study of

- A. comparative biochemistry  
B. punctuated equilibrium  
C. comparative embryology  
D. natural selection

30. Which statement is in agreement with Darwin's theory of evolution?

- A. More offspring are produced than can possibly survive.  
B. The organisms that are the most fit are always those with the greatest strength.  
C. Mutations are always beneficial.  
D. Acquired characteristics are inherited.