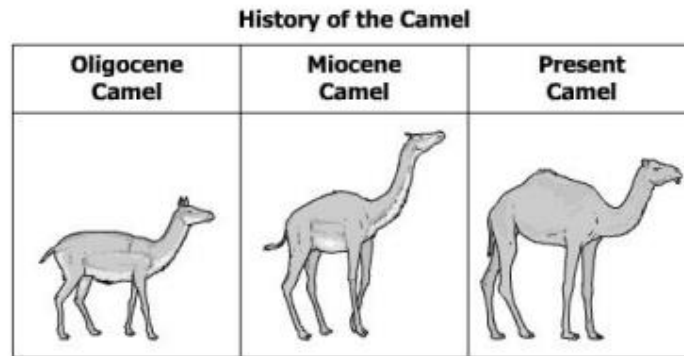


Evolution (Unit 8) Practice SOL Questions

Which best helps scientists determine the age of fossils?

- A Physical traits
- B Genetic makeup
- C Reproductive strategy
- D Radioactive isotopes



Studying the differences between fossils and modern organisms helps scientists better understand the —

- A role of mutation in life functions
- B primary function of key macromolecules
- C adaptation of organisms through acquired traits
- D evolution of organisms over time

Which of these would most likely result in a change to the current classification of an organism?

- A Discovering organisms with similar physical traits in the fossil record
- B Finding a related organism that was previously considered extinct
- C Linking the organism to different ancestors through DNA sequencing
- D Observing organisms that occupy the same ecological niche

Animals that are the *least* specialized generally stand the best chance of survival when the environment suddenly and drastically changes because they are able to —

- A adapt to different conditions
- B mutate rapidly
- C move from place to place
- D reproduce abundantly

The study of embryos and other early stages of development can help in the classification of living things, past and present, by providing clues about the —

- A prokaryotic species that are at risk for extinction
- B rate of appearances of new terrestrial organisms
- C barriers to mating among marine populations
- D common ancestry among vertebrate species

Scientists classifying modern animals are most likely to compare the —

- A structure of the animals' ATP
- B function of the animals' limbs
- C composition of the animals' bones
- D sequence of the animals' DNA

A group of ponies lives in the Chincoteague National Wildlife Reserve in Virginia. The development of longer legs over time would be selected for if —

- A it increased the survival rate of the long-legged ponies
- B it decreased the rate of reproduction of the long-legged ponies
- C it prohibited the long-legged ponies from using available food sources
- D it made the long-legged ponies run more slowly

Which of the following is evidence to support the idea that two different species might have a common ancestor?

- F** Their fossils were discovered in the same location.
- G** Many of their genes are the same.
- H** Their methods of respiration are alike.
- J** They use the same means of locomotion.



Classification Key for Insects

1. a. Antennae with rounded tips go to 2
b. Antennae with pointed tips go to 3
2. a. Wings with stripes go to 4
b. Wings without stripes *Papilio polyxenes*
3. a. Wings fringed with visible hairs *Lymantria dispar*
b. Wings lacking hairs *Malacosoma americanum*
4. a. Wings with tail-like extensions shorter than antennae *Papilio palamedes*
b. Wings with tail-like extensions longer than antennae *Eurytides marcellus*

According to the classification key, what is the genus and species of this organism?

- A *Papilio polyxenes*
- B *Malacosoma americanum*
- C *Papilio palamedes*
- D *Eurytides marcellus*

Bacteria adapt more quickly than elephants to environmental changes. Which best explains this difference?

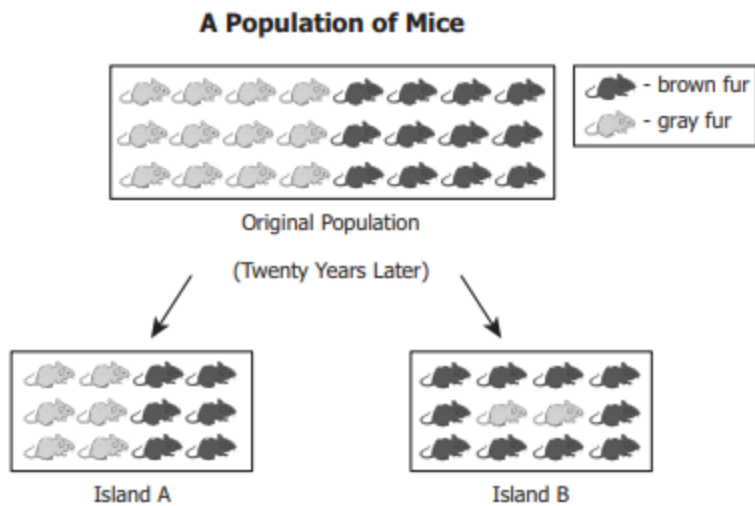
- F Bacteria reproduce more rapidly.
- G Individual bacteria grow more steadily.
- H Bacterial populations are more isolated.
- J Individual bacteria have more genes.

The eastern meadowlark and the western meadowlark are two closely related bird species. The two species avoid interbreeding because they have different mating songs. This is an example of —

- A adaptive radiation
- B behavioral isolation
- C geographic isolation
- D artificial selection

An early biological theory stated that a change in a population can occur when organisms with favorable variations for a particular environment survive and pass these variations on to the next generation. This theory is better known as the Theory of —

- F Natural Selection
- G Punctuated Selection
- H Variation and Adaptation
- J Acquired Characteristics



A population of mice is evenly divided into two groups, and each group is placed on an isolated island with no existing mouse population. Which statement *best* explains the difference in the mouse populations on Island A and Island B at the end of the 20 years?

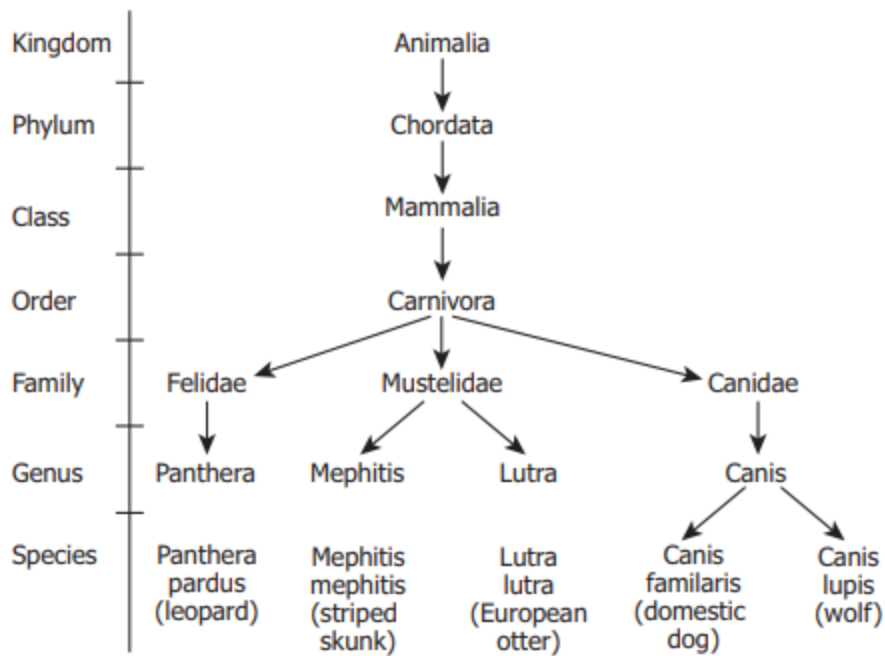
- A** On Island A, the allele for gray fur was dominant, while on Island B, the allele for brown fur was dominant.
- B** More brown mice were in the half of the original population that was sent to Island B than in the group sent to Island A.
- C** Conditions on Island B favored the brown-furred individuals, while both fur colors were evenly advantaged on Island A.
- D** The recapturing of mice on Island A and Island B was done differently.

The oxygen content in the atmosphere of the early Earth is thought to have increased significantly once which of these developed?

- A** Amino acids
- B** Archaeobacteria
- C** Photosynthetic bacteria
- D** Mitochondria

A researcher discovers two populations of birds that are similar. The two populations live in habitats that are different. What evidence might suggest to the researcher that the birds belong to different species rather than the same species?

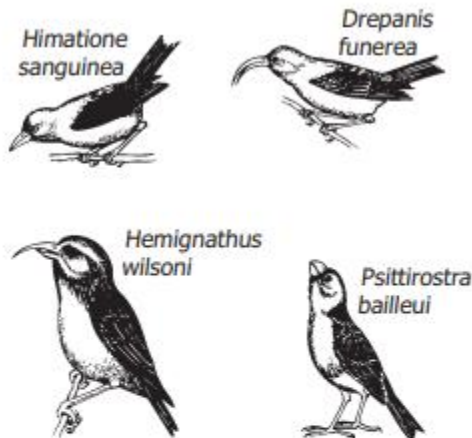
- F** Some birds appear to be hybrids of the birds in the two populations.
- G** The birds in the two populations have different mating behaviors.
- H** Birds in the two populations sometimes feed in different locations.
- J** The two populations of birds feed at different times of the day.



Based on this classification scheme, the European otter and the leopard are in the same —

- F kingdom but in different orders
- G genus but in different species
- H order but in different families
- J family but in different genera

Hawaiian Honeycreepers



The different species of Hawaiian honeycreepers shown all descended from a single species of North American bird. They now have different beaks, eat different foods, sing different songs, and live in different environments on the islands. Which factor probably contributed *most* to the development of these different species?

- F Loss of habitat
- G Geographic isolation
- H Egg size
- J Predation

**Amino-Acid Differences Compared
with Human Hemoglobin**

Species	Number of amino-acid differences
Lamprey	125
Frog	67
Dog	32
Macaque	8

The table indicates the number of amino acids that differ in the amino-acid sequence of the hemoglobin from selected organisms when compared to human hemoglobin. On the basis of this information, which organism would be classified as *most* closely related to humans?

- A** Lamprey
- B** Frog
- C** Dog
- D** Macaque

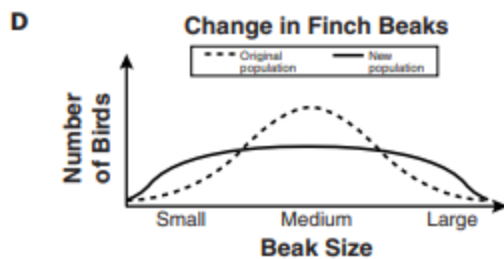
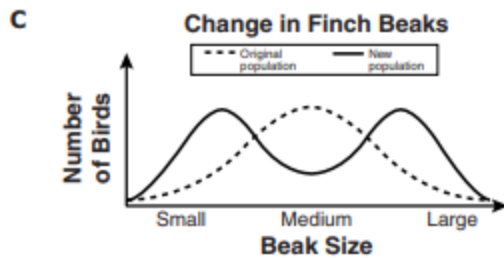
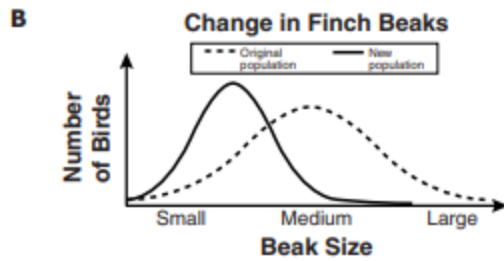
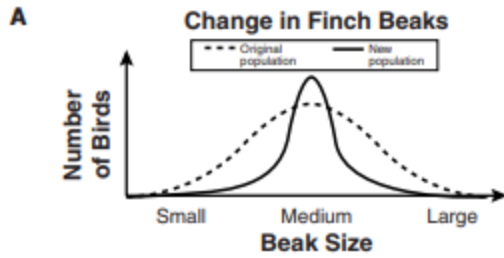
Dutch Elm Disease is a destructive fungal infection that kills elm trees. Some elms are more resistant to the disease than other elms. Which *best* explains this difference?

- F** Resistant trees form a symbiotic relationship with the fungus.
- G** Resistant trees gain resistant properties from the soil.
- H** Resistant trees have beneficial variations of some genes.
- J** Resistant trees produce frequent mutations.

Some snake embryos have small buds resembling limbs. These buds disappear at later stages of embryo development. These findings suggest that these snakes —

- A** had a parent with limbs
- B** have functional limbs as adults
- C** will have offspring with limbs
- D** evolved from an ancestor that had limbs

Which graph *best* illustrates the expected change in the finch population if the environment changes to favor small beaks?



Lady Beetles



Charles Darwin proposed his theory of evolution based on observations of nature. Which observation that contributed to his theory is illustrated by this population of beetles?

- A Environmental resources are limited.
- B Populations remain stable over time.
- C Individuals within a population may vary widely.
- D Species produce more offspring than can survive.