Quiz: Lines of Evidence for Evolution

Read each question. Circle the letter of the correct answer.

1. Which statement describes evolution?

A. change in biodiversity across Earth's surface

B. relationship between organisms' structure and function

C. change in the genetic makeup of a population over time

D. beneficial inherited trait that is passed to future generations

2. The theory that landforms on Earth's surface, such as mountains, waterfalls, and canyons, were created by sudden natural catastrophes is known as the theory of catastrophism. Why was it an important theory to evolutionary thinkers?

A. The explanation relied solely on biblical interpretation.

B. The explanation showed a uniform rate of change on Earth.

C. The explanation relied on scientific evidence from the fossil record that showed abrupt changes in species.

D. The explanation showed that the same natural forces that changed Earth's surface and its organisms in the past still operate today.

3. What is suggested by the similarity of early embryos of different species of vertebrates?

A. recent common ancestry

B. similar environments in the past

C. evolution from a distant common ancestor

D. no evolutionary relationship between the groups

4. Scientists believe that all eukaryotes share a common ancestry because the nucleotides that make up all eukaryotic DNA are _____.

A. free

B. ancient

C. complex

D. the same

5. A mutation in the homeobox genes of an organism could result in _____.

A. changes in the body plan of the organism

B. an increase in random mutations over time

C. changes to the organism's shared common ancestor

D. a reduction in diversity of body types of future organisms

6. If an organism has a vestigial structure, that structure likely once had a function in a(n) _____.

A. early ancestor

B. close relative

C. unrelated organism

D. embryological stage

7. Protein sequences in one organism that resemble those of another suggest a _____.

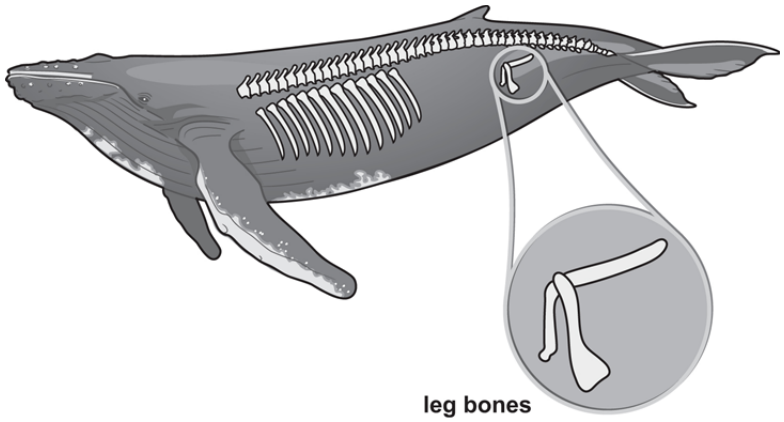
A. coincidence

B. shared ancestry

C. great number of mutations

D. lack of evolutionary relationship

8. The illustration shows the hind leg bones of a whale.



The hind leg bones of a whale are examples of _____.

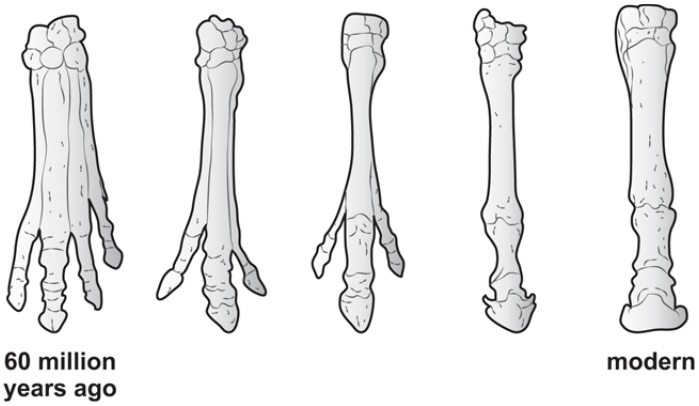
A. fossil structures

B. vestigial structures

C. analogous structures

D. homologous structures

9. The diagram represents bones in the hind limbs of fossil horses and modern horses.



These fossils indicate that horse evolution included _____.

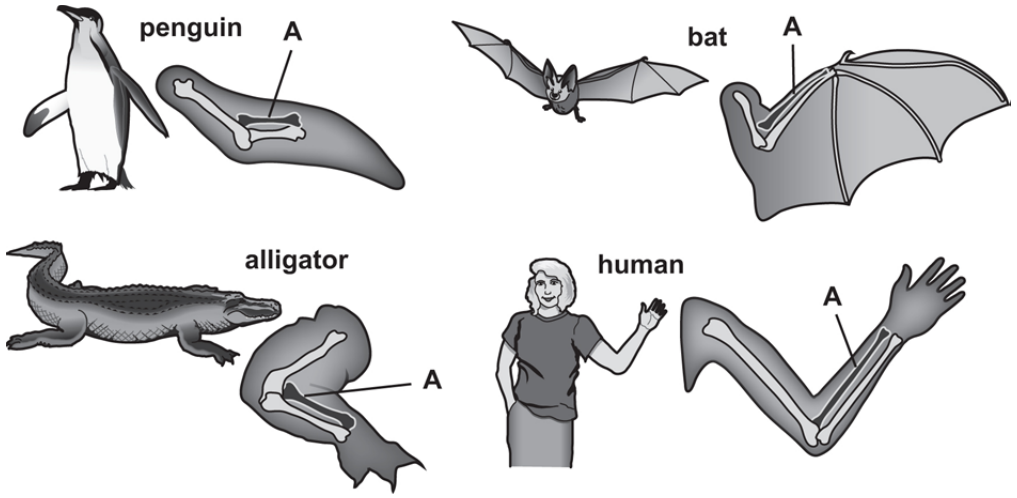
A. an addition of vestigial toe bones

B. a change from six toes to two toes

C. a change from four toes to one toe

D. a loss of genes that control toe development

10. The illustration shows bones in four animals.



The bones labeled A are known as _____.

A. extinct structures

B. sequential structures

C. analogous structures

D. homologous structures

Read each statement. Write your answer on the lines.

11. What do scientists mean when they say the genetic code is "universal"?

_____

_____

_____

12. Describe how DNA analysis can be used to investigate evolutionary relationships among different bird species.

_____

_____

Explain the role that pseudogenes in birds play in determining evolutionary relationships.

_____

_____

_____

_____

_____

13. The table shows the evolutionary relationship of vertebrates.

Evolutionary Relationship of Vertebrates

Species	Number of amino acids that differ from those in human hemoglobin protein chain (total chain length = 146 amino acids)
Human	0
Rhesus monkey	8
Mouse	27
Chicken	45
Frog	67
Lamprey	125

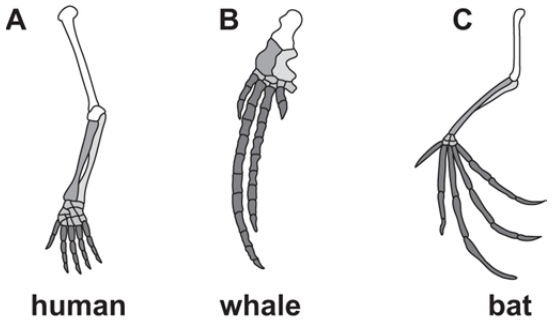
How do the data in the table indicate that humans and Rhesus monkeys share the most recent common ancestor?

14. The illustration shows forelimb bones for a human, whale, and bat.

What is similar and different about the three forelimbs?

How does this information provide evidence of common ancestry?

Forelimb Bones



15. What is the evolutionary significance of the genetic code?