

Reporting Category 3

3 Having a standard taxonomic system benefits the scientific community by allowing scientists from all over the world to do which of the following? **(S8A)**

- A Have a common system for the classification of locations containing fossils
- B Use a similar system to classify the impact of removing species from ecosystems
- C Have a common understanding in the classification of organisms
- D Understand how other scientists classify predator-prey relationships

8 Some organisms have genes that improve their ability to survive and reproduce. If the genes also help their offspring survive and reproduce, then which of the following will most likely increase? **(R7E)**

- F The frequency of the genes in one individual
- G The frequency of the genes in the population
- H The number of genes in one chromosome
- J The number of genes in the species

15 The concept of gene flow is demonstrated when a cow is driven off from its herd, joins another herd, and reproduces. When the cow contributes to the gene pool of the new herd, which of these most likely increases? **(S7F)**

- A Natural selection
- B Genetic variation
- C Environmental fitness
- D Reproductive mutations

19 A student collected the animal shown below on a field trip. The student used a dichotomous key and a microscope to classify the animal. **(R8B)**



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Dichotomous Key

Step	Characteristic	Identification
1a	Possesses segmentation	Go to 2
1b	Lacks segmentation	Go to 3
2a	Has an exoskeleton with jointed appendages	Phylum Arthropoda
2b	Has no exoskeleton, unjointed appendages (if any present), and a segmented worm-like body; is possibly in a tube (if in a tube, may have tentacles)	Phylum Annelida
3a	Possesses a foot, a radula, arms, and/or a shell	Phylum Mollusca
3b	Lacks all of the above and is dorsoventrally flattened	Phylum Platyhelminthes

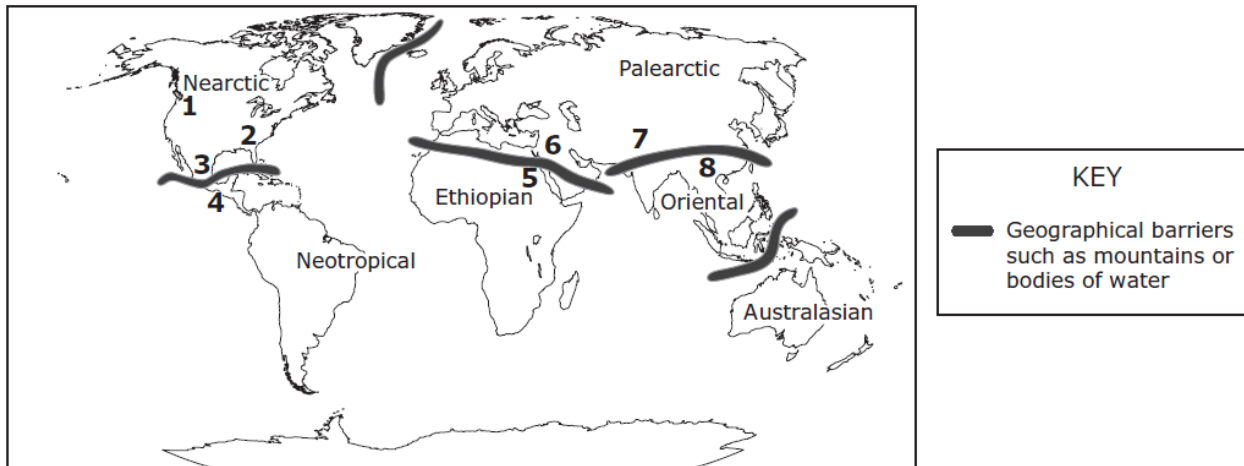
How should this animal be classified?

- A Arthropoda
- B Annelida
- C Mollusca
- D Platyhelminthes

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25 Zoogeographic regions are characterized by the presence of specific groups of animals. These regions are determined by the taxonomic or phylogenetic relationships of animals. The map shows the zoogeographic regions proposed by the naturalist Alfred Russel Wallace in 1876. **(R7A)**

Zoogeographic Regions



The similarities of organisms in which two areas numbered above provide the best evidence for common ancestry between the organisms in both locations?

- A 1 and 2
- B 3 and 4
- C 5 and 6
- D 7 and 8

28 Arthropods are joint-legged animals. Spiders, crabs, pill bugs, centipedes, and millipedes are examples of the many types of arthropods. Which of these arthropods are most closely related? **(R8B)**

- F Arthropods of the same family
- G Arthropods of the same class
- H Arthropods of the same genus
- J Arthropods of the same species

34 After examining the fossil record, scientists have determined that scorpions today are much smaller than their extinct ancestors. For example, *Jaekelopterus rhenaniae*, a giant scorpion species that lived 255 million to 460 million years ago, was 2.5 meters long. Which of the following conclusions is supported by this information? **(S7B)**

- F Scorpions living today have increased their numbers since they first appeared.
- G Scorpions in the fossil record are smaller than their descendants are.
- H Scorpions have changed as a result of natural selection.
- J Scorpions do not appear in their original state in the fossil record.

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39 A harmless scarlet king snake and a venomous eastern coral snake have similar band patterns, as shown below. For the scarlet king snake, the adaptation of having a banding pattern like the eastern coral snake's is known as mimicry. **(R7E)**



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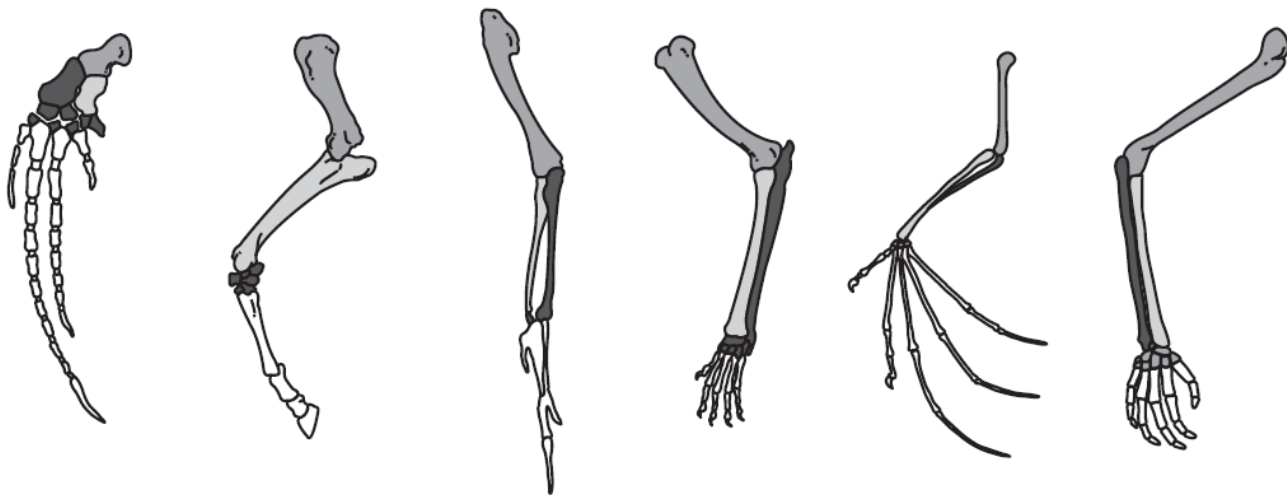
Scarlet king snake

Eastern coral snake

The outcome of this adaptation in the scarlet king snake is to —

- A make it easier for the scarlet king snake to attract prey
- B make it easier for the scarlet king snake to interbreed with the other snake
- C allow the scarlet king snake to blend in with its environment
- D protect the scarlet king snake from predators

52 The limbs of several organisms are shown in the illustrations below. Scientists sometimes compare the limbs of these organisms to look for evidence of common ancestry. **(R7A)**



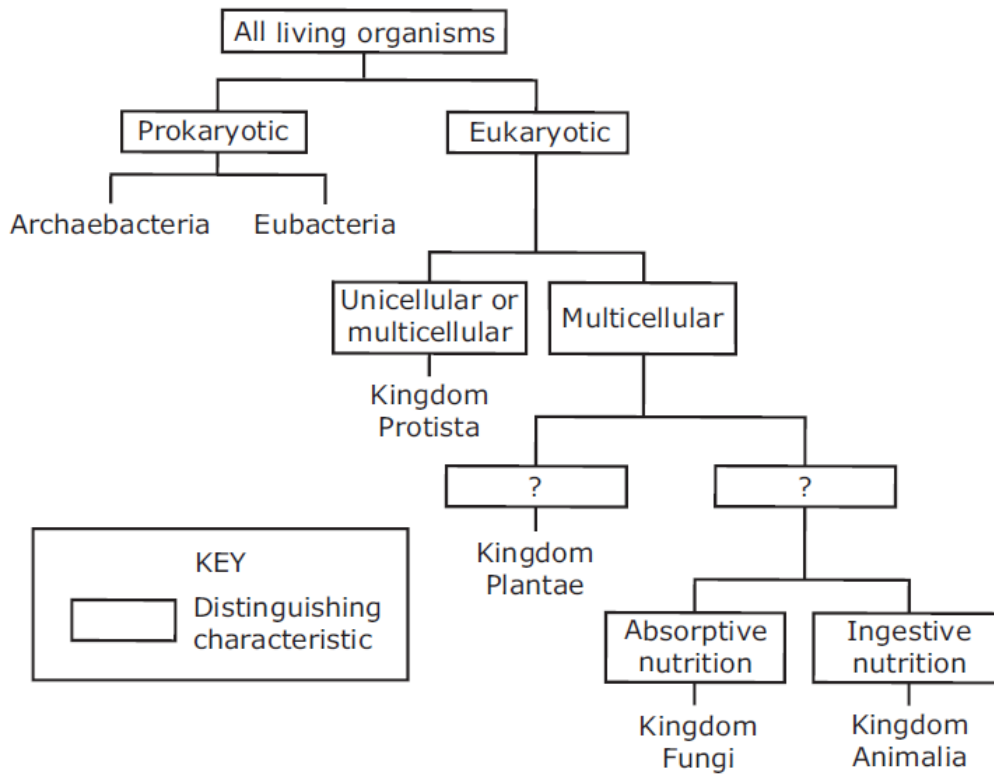
These limbs provide evidence of common ancestry because they — **(S8C)**

- F have the same basic structure
- G perform the same function
- H are the same size
- J are parts of mammals

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54 The diagram shows taxonomic groups and a major distinguishing characteristic of all but two of them.

Taxonomic Groups



Which characteristics will be used to complete the chart?

F Motile Nonmotile

H Autotrophic Heterotrophic

G Nonphotosynthetic Photosynthetic

J No nucleus Nucleus