

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Study the table below.

**Student's Observation of Characteristics**

Organism	Characteristic 1	Characteristic 2
W	teeth	scales
X	reproduces	grows
Y	hair	moves
Z	feathers	eats

A student records observed characteristics for four organisms. Based on this student's observations, which organism has two characteristics of *all* living things?

- A. organism W                      B. organism X  
 C. organism Y                      D. organism Z

2. A teacher asks her students to classify four animals by completing the chart shown below.

**Classification of Four Animals**

Animal	Outer Covering	Lays eggs	Classification
1	fur	no	?
2	scales	yes	?
3	smooth skin	yes	?
4	feathers	yes	?

Which column correctly completes the chart?

- A. 

Classification
amphibian
reptile
mammal
bird

      B. 

Classification
amphibian
bird
reptile
mammal
- C. 

Classification
mammal
amphibian
bird
reptile

      D. 

Classification
mammal
reptile
amphibian
bird

3. Which characteristic applies to animals in only *one* of these taxonomic groups: reptiles, mammals, birds, amphibians, or fishes?

- A. have hair                      B. lay eggs  
 C. have webbed feet          D. breathe with gills

4. To which group does an animal belong if it lays eggs and has scales and gills?

- A. amphibian
- B. bird
- C. fish
- D. reptile

5. The following table lists characteristics of five different types of animals. Use the information in the table to answer the following question(s).

Characteristics	Type I	Type II	Type III	Type IV	Type V
Segments	fewer than 5 segments	5 or more segments	fewer than 5 segments	fewer than 5 segments	5 or more segments
Antennae	one pair of antennae	one pair of antennae	no antennae	two pairs of antennae	no antennae
Number of Legs	fewer than 10 legs	10 or more legs	fewer than 10 legs	10 or more legs	no legs
Mandibles	yes	yes	no	yes	no
Exoskeleton	yes	yes	yes	yes	no
Wings	yes	no	no	no	no

An animal has 20 body segments and has no mandibles. Which type of animal is it?

- A. Type II
- B. Type III
- C. Type IV
- D. Type V

6. A certain organism has many cells, each containing a nucleus. If the organism makes its own food, it would be classified as

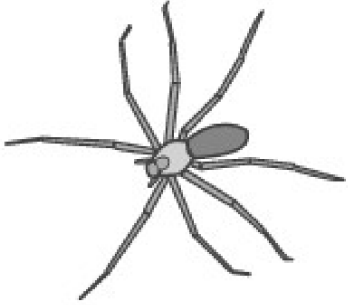
- A. a bacterium
- B. a fungus
- C. a plant
- D. an animal

7. The picture shows three insects that are very similar and are grouped together by scientists.  
Which of the following belongs in the same group as the insects shown in the picture?

A.



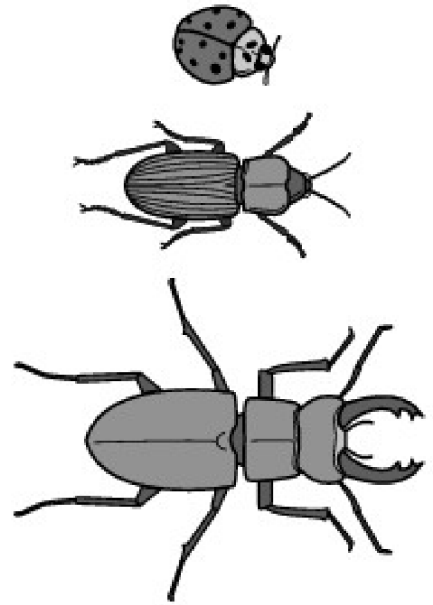
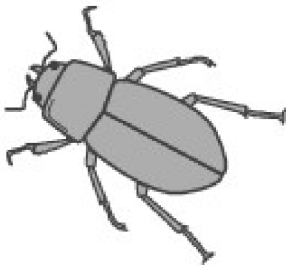
B.



C.



D.



8. The table below shows the classifications of four animals.

Animal Classification				
Animal	Q	R	S	T
Kingdom	Animalia	Animalia	Animalia	Animalia
Phylum	Chordata	Chordata	Chordata	Chordata
Class	Mammalia	Mammalia	Mammalia	Mammalia
Order	Carnivora	Rodentia	Rodentia	Carnivora
Family	Canidae	Muridae	Muridae	Felidae
Genus and Species	<i>Canis familiaris</i>	<i>Mus musculus</i>	<i>Mesocricetus auratus</i>	<i>Felis sylvestris</i>

According to their classification, which of the following animals are *most* closely related?

- A. Q and R                      B. S and T  
C. Q and T                      D. R and S

9. Use the tables below to answer the following question.

Group 1	Group 2
hawk	cow
shark	rabbit
polar bear	butterfly

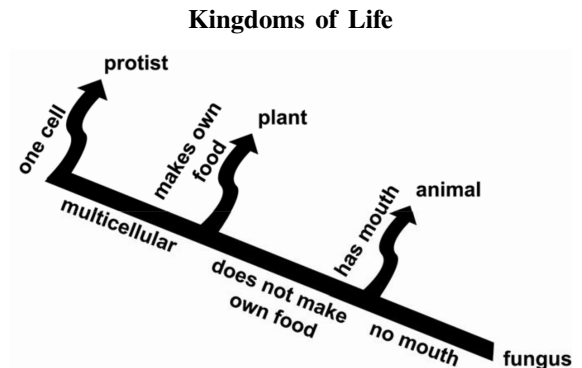
The tables above show two different groups of animals. Which animal would *most* likely belong in Group 1?

- A. deer                              B. squirrel  
C. earthworm                      D. lion

10. A lynx, *Lynx canadensis*, has a short tail with a black tip running all the way around the tail. It also has highly visible tufts of hair on the ears. A bobcat, *Lynx rufus*, has a short tail with black only on top of the tail's tip. It also has inconspicuous ear tufts. From the descriptions and scientific names of both animals you can conclude that

- A. the lynx and bobcat are the same species.  
B. "lynx" and "bobcat" are two names for the same animal.  
C. the lynx and bobcat are the same genus.  
D. the lynx and bobcat are not from the same phylum.

11. Use this key to answer the question.



This key is used to classify certain kinds of living organisms into kingdoms.

According to the key, which kind of organism is multicellular, doesn't make its own food, and doesn't have a mouth?

- A. a protist                              B. a plant  
C. an animal                              D. a fungus

12. Use the data table below to answer the question.

Snail Coloring

Sea Snail Species	Shell Color	Underside Color	Maximum Length
Red foot Snail	Brown	Red	150 mm
White Foot Snail	Brown	White	180 mm

A scientist studied two species of sea snail and recorded the physical characteristics in the data table. Which conclusion about the data is based on correct reasoning?

- A. If a snail she studied had a brown shell, then it was a red foot snail.
- B. If a snail she studied had a brown shell, then it had a white underside.
- C. If a snail she studied was 125 millimeters long, then it was red foot snail.
- D. If a snail she studied was 175 millimeters long, then it had a white underside.

13. Use this dichotomous key to answer the question.

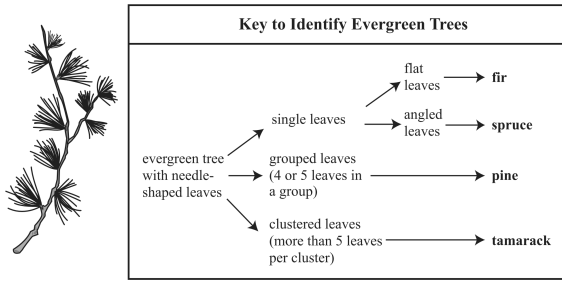
Reptiles and Amphibians

1a.	Has external gills	Go to 6.
1b.	Does not have external gills	Go to 2.
2a.	Has scales	Go to 3.
2b.	Does not have scales	Go to 4.
3a.	Has a shell	turtle
3b.	Does not have a shell	Go to 5.
4a.	Has a tail as an adult	Go to 6.
4b.	Does not have a tail as an adult	frog
5a.	Has legs	lizard
5b.	Does not have legs	snake
6a.	Has coastal grooves along the side	salamander
6b.	Does not have coastal grooves along the side	newt

Trish constructed a dichotomous key to help identify the reptiles and amphibians living in a certain area. Which phrase describes a lizard?

- A. an animal with scaly skin and a shell but no external gills
- B. an animal with scaly skin and legs but no shell
- C. an animal with legs and coastal grooves but no tail
- D. an animal with external gills and a tail but no coastal grooves

14. While on a walk, Samuel saw a tree he had not seen before. He used a key to help him identify the type of tree. A branch from the tree and the key he used are shown below.



Based on the key, which type of tree did Samuel most likely see?

- A. fir  
 B. spruce  
 C. pine  
 D. tamarack
15. An amoeba, an oak tree, a squirrel, and mildew are all classified in the same

- A. domain.  
 B. kingdom.  
 C. genus.  
 D. species.

16. Four students attempted to classify organisms into the Plant and Animal Kingdoms. Their classifications are shown in the table below.

	Plants	Animals
Student 1	Eukaryotic cell	Prokaryotic cell
Student 2	Multicellular	Unicellular
Student 3	Cells have cell walls	Cells do not have cell walls
Student 4	Heterotrophic by absorption	Heterotrophic by ingestion

Which student's classification correctly separates organisms into these two Kingdoms?

- A. Student 1  
 B. Student 2  
 C. Student 3  
 D. Student 4
17. Which of the following is an example of a prokaryotic organism?
- A. bacterium  
 B. celery  
 C. horse  
 D. mushroom
18. The table below provides classification information for four different mammals.

Scientific Classification of Four Mammals

Classification Level	Mammal 1	Mammal 2	Mammal 3	Mammal 4
Order	Rodentia	Lagomorpha	Rodentia	Rodentia
Family	Castoridae	Leporidae	Sciuridae	Sciuridae
Genus	<i>Castor</i>	<i>Sylvilagus</i>	<i>Sciurus</i>	<i>Sciurus</i>
Species	<i>canadensis</i>	<i>floridanus</i>	<i>niger</i>	<i>carolinensis</i>

Which of these mammals are most closely related to each other?

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

19. The answer to which of the following questions would be *most* useful in determining whether to classify an organism in kingdom Plantae or kingdom Animalia?
- A. Is the organism able to respond to stimuli?
  - B. Is the organism able to make its own food?
  - C. Is the organism unicellular or multicellular?
  - D. Is the organism made of cells with or without nuclei?

20. Organism *A* is eukaryotic, is unicellular, and lacks a cell wall. Organism *B* is eukaryotic, is multicellular, has a cell wall, and contains chloroplasts.

In which kingdoms should these organisms be classified?

- A. organism *A* in Protista and organism *B* in Fungi
- B. organism *A* in Protista and organism *B* in Plantae
- C. organism *A* in Animalia and organism *B* in Fungi
- D. organism *A* in Animalia and organism *B* in Plantae

21. Scientists have discovered a new type of organism. To assign the organism to a domain and kingdom, which of the following is *most* important for scientists to know?

- A. the organism's cell structure
- B. the organism's population size
- C. the organism's social behavior
- D. the organism's reproductive rate

22. *Danaus plexippus* and *Danaus gilippus* are two species of butterflies. Which of the following statements *best* explains why scientists classify them as two different species?

- A. Only one of the species migrates in winter.
- B. Only one of the species is found in North America.
- C. The two species are not eaten by the same predators.
- D. The two species cannot produce fertile offspring with each other.

23. A researcher is studying a particular disease-causing agent. The agent has a protein coat, but it lacks a nucleus, contains no other organelles, and can reproduce only when it is inside an animal cell.

The researcher should classify the agent as which of the following?

- A. a bacterium
- B. a fungus
- C. a protist
- D. a virus

24. Prokaryotes are structurally simple organisms that have existed for over two billion years. Which of the following are prokaryotes?

- A. bacteria
- B. fungi
- C. plants
- D. protists

25. The table below provides information about nutrition and cellular structure for organisms in different kingdoms.

Kingdom	Nutrition	Nucleus	Unicellular or Multicellular
Fungi	heterotrophic	yes	unicellular and multicellular
Plantae	autotrophic	yes	multicellular
Animalia	?	?	?

What information *best* completes the table?

- A. autotrophic, no, unicellular
- B. autotrophic, yes, multicellular
- C. heterotrophic, no, unicellular
- D. heterotrophic, yes, multicellular

26. Two populations of fruit flies both belong to the genus *Drosophila*. The fruit flies are able to successfully mate within their own populations, but males from one population are unable to mate and produce offspring with females from the other population.

Based on this information, which of the following statements could describe the fruit flies in the two populations?

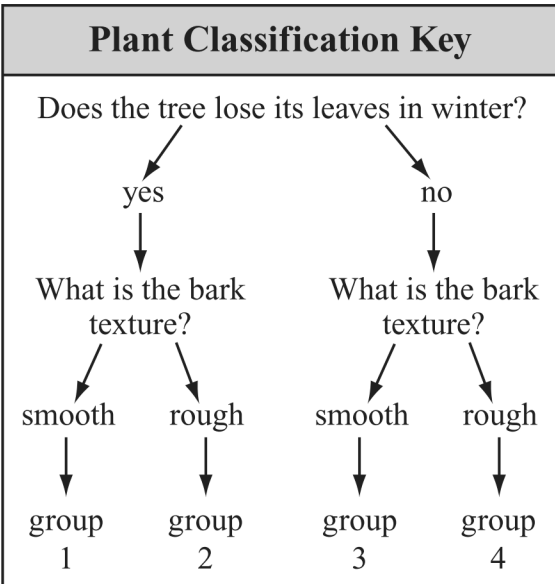
- A. They are classified as different orders.
- B. They are classified in different classes.
- C. They are classified as different species.
- D. They are classified in different kingdoms.

27. The scientific name for the woodchuck is *Marmota monax*, and the scientific name for the long-tailed marmot is *Marmota caudata*. Which of the following statements describes the taxonomic relationship between the woodchuck and the long-tailed marmot?

- A. They belong to different phyla.
- B. They belong to the same genus.
- C. They belong to the same species.
- D. They belong to different families.



28. Kate is using the key shown below to classify a tree into one of four different groups.



The tree loses its leaves in winter and has rough bark. According to the key, into which group should the tree be classified?

- A. group 1                      B. group 2  
C. group 3                      D. group 4
29. Which of the following statements is correct about the hierarchy of the taxonomic system currently used to classify organisms?
- A. All organisms of a given order belong to the same species.  
B. Many different classes of organisms belong to the same order.  
C. All organisms of a given phylum belong to the same kingdom.  
D. Many different families of organisms belong to the same genus.

30. Which of the following statements *best* explains why the chestnut-sided warbler, *Dendroica pensylvanica*, and the cerulean warbler, *Dendroica cerulea*, are classified as closely related species?

- A. They eat the same types of insects.  
B. They have similar DNA sequences.  
C. They show similarities in their nesting behaviors.  
D. They live in the same types of woodland habitats.

31. The scientific name for the cougar is *Puma concolor*. Which of the following organisms is most closely related to the cougar?

- A. *Corythaixoides concolor*  
B. *Lynx rufus*  
C. *Panthera tigris*  
D. *Puma yagouaroundi*

32. A scientist discovered a new organism in some caves in Pennsylvania. The organism has the following characteristics:

- It is multicellular.
- Its cells lack cell walls.
- It is motile.
- It is heterotrophic.

Based on this information, to which kingdom does the organism belong?

- A. Animalia                      B. Eubacteria  
C. Fungi                            D. Plantae

33. Anya is observing an organism in the laboratory. The table below shows her observations.

Question	Yes	No
Do the organism's cells have chlorophyll?	X	
Can the organism move?		X
Is the organism multi-cellular?	X	
Do the organism's cells have a cell wall?	X	

The organism Anya is observing *most likely* belongs to which kingdom?

- A. Animalia                      B. Eubacteria  
C. Fungi                            D. Plantae

34. Which of the following is *most* important in classifying two groups of bears into the same genus?

- A. similar diets                  B. similar genes  
C. similar habitat                D. similar body size

35. Use the classification table below to answer the following question.

CLASSIFICATION TABLE

Group	Contains a Nucleus	Type of Cells	Makes Own Food	Has Cell Walls
1	Yes	Unicellular or multicellular	No	Yes
2	No	Unicellular	Some species	Yes
3	Yes	Multicellular	Yes	Yes
4	Yes	Unicellular or multicellular	Some species	Some species
5	Yes	Multicellular	No	No

Based on the information in the table, which group contains humans?

- A. Group 1                            B. Group 3  
C. Group 4                            D. Group 5

36. Which organism is *most closely* related to *Ursus arctos horribillis*?

- A. *Ursus americanus*          B. *Canis lupus arctos*  
C. *Carcinus maenas*            D. *Puma concolor*

37. Which of the following is found in all living organisms?

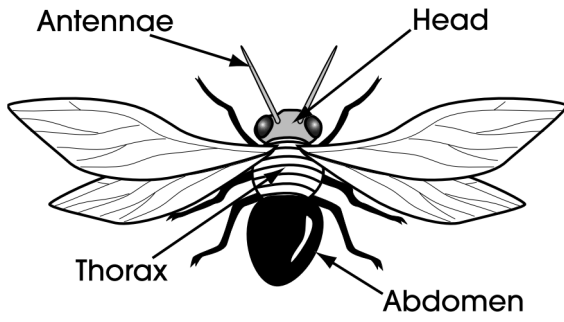
- A. cell                                    B. organ  
C. organ system                      D. tissue

38. If two organisms are in the same class, they *must* also be in the same—
- A. kingdom and family.
  - B. kingdom and phylum.
  - C. phylum and genus.
  - D. genus and species.
39. The scientific name for bay live oaks that grow along the coast is *Quercus virginiana var. maritima* (Mill). Which of the following is *most* closely related to bay live oaks?
- A. *Batis maritima*
  - B. *Carpinus carolinia var. virginiana*
  - C. *Clematis virginiana L.*
  - D. *Quercus falcata var. pagodaefolia* (Ell.)
40. Which information would a scientist use to classify the genus and species of a plant?
- A. The type of insect that is attracted to the flowers on the plant
  - B. The physical traits this plant shares with other plants
  - C. The time of year flowers bloom on the plant
  - D. The location where this plant grows best
41. Scientists' decisions on which kingdoms to classify organisms in are based on which of the following?
- A. The color of the organism
  - B. The diet of the organism
  - C. The size of the organism
  - D. The structure of the organism
42. The system of plant and animal classification developed over two hundred years ago and still used today is based on
- A. acquired similarities.
  - B. structural similarities.
  - C. biochemical similarities.
  - D. environmental similarities.
43. All kingdoms of living things can be placed in one of three larger classification groups called domains. Which cell component is found in all three domains of living things?
- A. cell wall
  - B. ribosome
  - C. nucleus
  - D. mitochondria

44. The chart below is a taxonomic key for the fictitious insect genus *Problematica*.

Characteristics of the Genus <i>Problematica</i>		
1	Thorax and abdomen entirely black	<i>Problematica alva</i>
	Thorax striped and abdomen black	Go to 2
2	Antennae curled	<i>Problematica brancus</i>
	Antennae straight	Go to 3
3	Wings longer than body	<i>Problematica cantrellis</i>
	Wings shorter than body	Go to 4
4	Wings white	<i>Problematica differensis</i>
	Wings black	<i>Problematica fortunatas</i>

A student has been asked to identify the following insect.



To which species does the insect belong?

- A. *Problematica alva*
- B. *Problematica brancus*
- C. *Problematica cantrellis*
- D. *Problematica differensis*

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

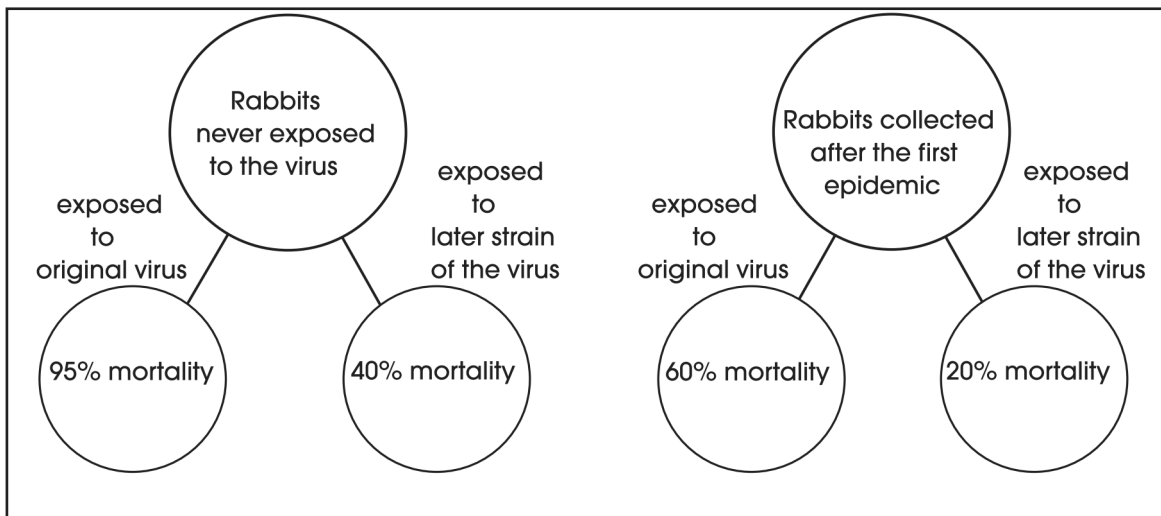
In 1859, European rabbits were introduced into Australia. The rabbits ate agricultural crops and native plants. The wild rabbit population expanded rapidly, numbering in the hundreds of millions. To control the rabbit population, the Australian government introduced the myxoma virus. Transmitted by a mosquito, this virus caused disease in the European rabbits. Each exposure to the virus led to an epidemic, and the following mortality rates were observed in the wild rabbit population.

**Chart 1**

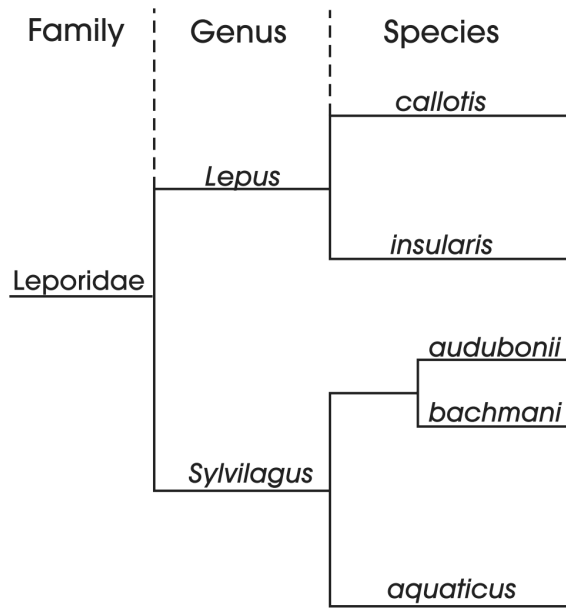
<b>Epidemic</b>	<b>Wild Rabbit Mortality Rate</b>
1st	99.8%
2nd	90%
3rd	40 - 60%

Australian scientists kept laboratory populations of the original virus and rabbits that were never exposed to the virus. They also maintained populations of rabbits and strains of the virus collected from the wild at different times after the original introduction of the virus. The scientists then exposed each group of rabbits to a different strain of the virus. The diagram below summarizes their data.

**Diagram 1**



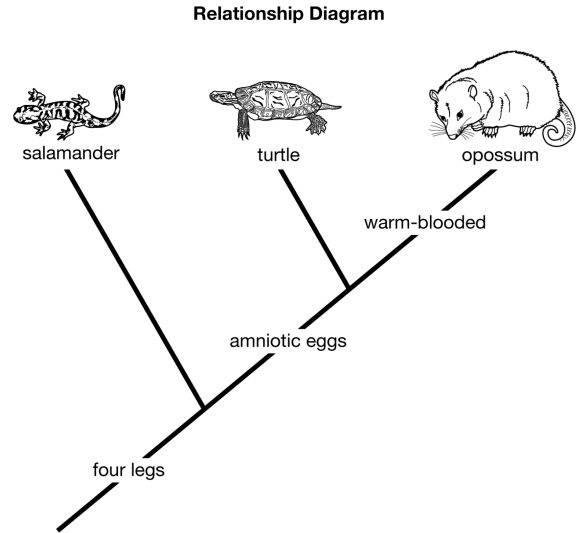
45. This classification system shows genetic relationships between five species of rabbits.



Which species likely harbors the virus infecting *Sylvilagus bachmani*?

- A. *Lepus callotis*
- B. *Lepus insularis*
- C. *Sylvilagus aquaticus*
- D. *Sylvilagus audubonii*

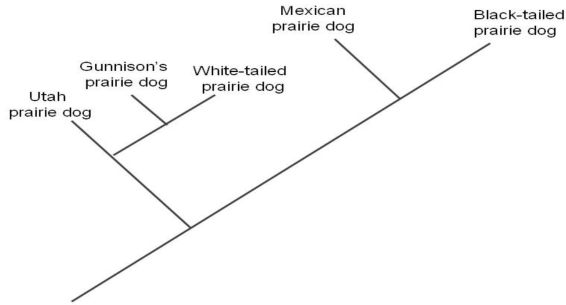
46. Use the relationship diagram below to answer the question.



Which statement most accurately describes a relationship between two animals in the relationship diagram?

- A. The turtle and opossum have amniotic eggs.
- B. The turtle and salamander have amniotic eggs.
- C. The turtle and opossum are warm-blooded.
- D. The turtle and salamander are warm-blooded.

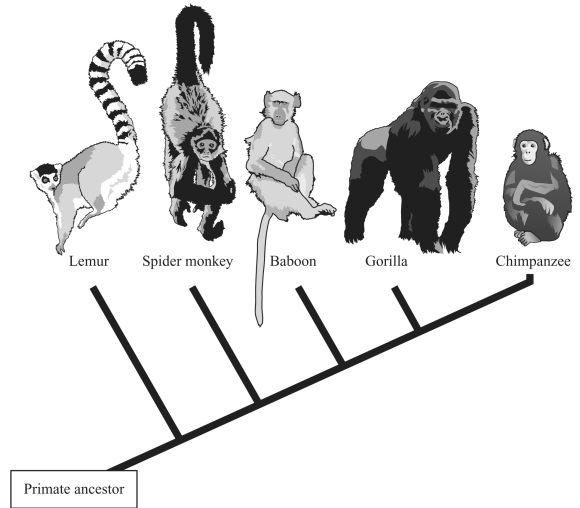
47. The figure below shows the classification of several types of prairie dogs.



Which of the following statements is *best* supported by the classification in this figure?

- A. The Utah prairie dog was the ancestor of the Gunnison's prairie dog.
- B. The White-tailed prairie dog evolved from the Black-tailed prairie dog.
- C. The Mexican prairie dog and the Utah prairie dog share a common ancestor.
- D. The Mexican prairie dog is the closest relative of the White-tailed prairie dog.

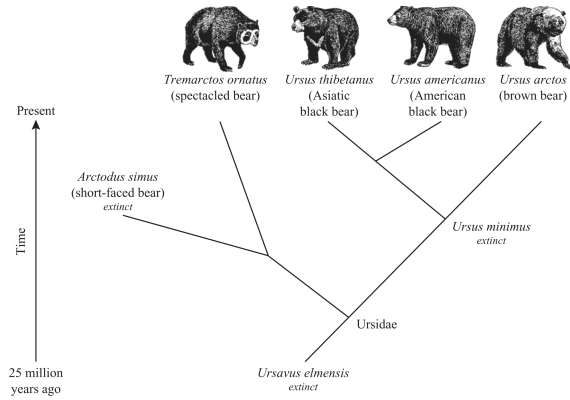
48. The diagram below shows the evolutionary relationship of several primates.



Based on the diagram, which of the following statements is true?

- A. Lemurs were the most recent to evolve.
- B. Gorillas evolved directly from chimpanzees.
- C. Spider monkeys and lemurs evolved at the same time.
- D. Gorillas and baboons evolved from a common ancestor.

49. A student researching bears found the chart below in a textbook. The chart shows the



Which of the following conclusions is *best* supported by the data given in this chart?

- A. Modern bears evolved from species that are now extinct.
- B. The short-faced bear was the ancestor of the Asiatic black bear.
- C. Present day bear species are more closely related than their ancestors were.
- D. Natural selection favored the brown bear over the American black bear.

50. 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



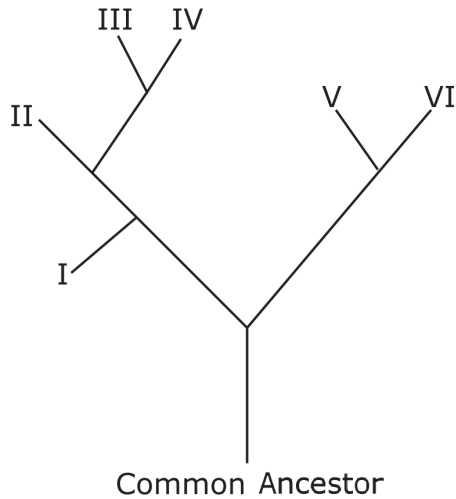
51. The diagram below depicts the DNA fingerprints of four fish species.

Species 1	Species 2	Species 3	Species 4
██████████	██████████	██████████	██████████
	██████████	██████████	
██████████		██████████	██████████
██████████		██████████	██████████
██████████		██████████	██████████
	██████████	██████████	
██████████		██████████	██████████
██████████		██████████	██████████

Which two species of fish are most closely related?

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

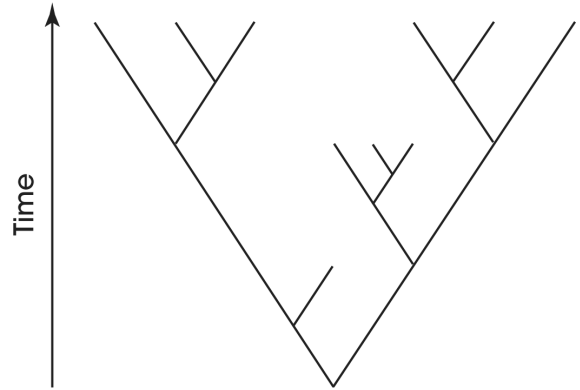
52. This diagram shows a cladogram of six species based on amino acid similarities.



Which two species are the *most closely* related?

- A. I and II                      B. II and IV  
 C. I and V                      D. V and VI

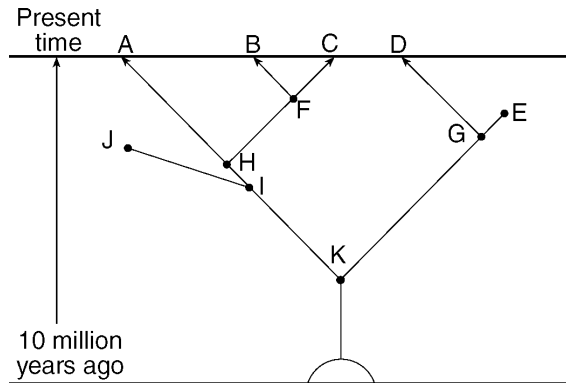
53. The following diagram is found in an evolutionary biology textbook.



This branching tree diagram is most likely used to represent the theory that suggests

- A. new species arise throughout time following rounds of mass extinction.  
 B. all species share a common ancestor and that change occurs through time.  
 C. speciation occurs very quickly with long periods of no change in between.  
 D. all species originated during the same period and some have subsequently gone extinct.

54. Base your answer(s) to the following question(s) on the diagram and on your knowledge of biology. The diagram shows an interpretation of relationships based on evolutionary theory. The letters represent different species.



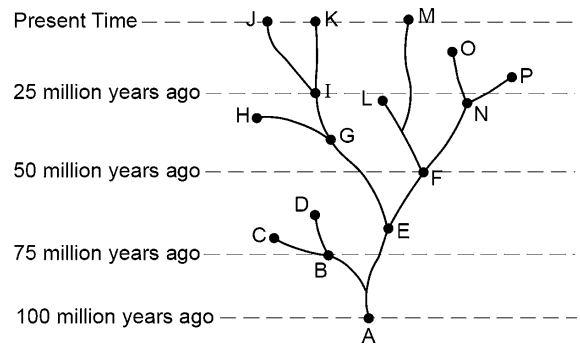
The diagram indicates that a common ancestor for species *C* and *E* is species

- A. *F*      B. *G*      C. *H*      D. *K*

55. Which species are least likely to be vital parts of a present-day ecosystem?

- A. *A* and *E*                      B. *C* and *D*  
 C. *E* and *J*                        D. *B* and *F*

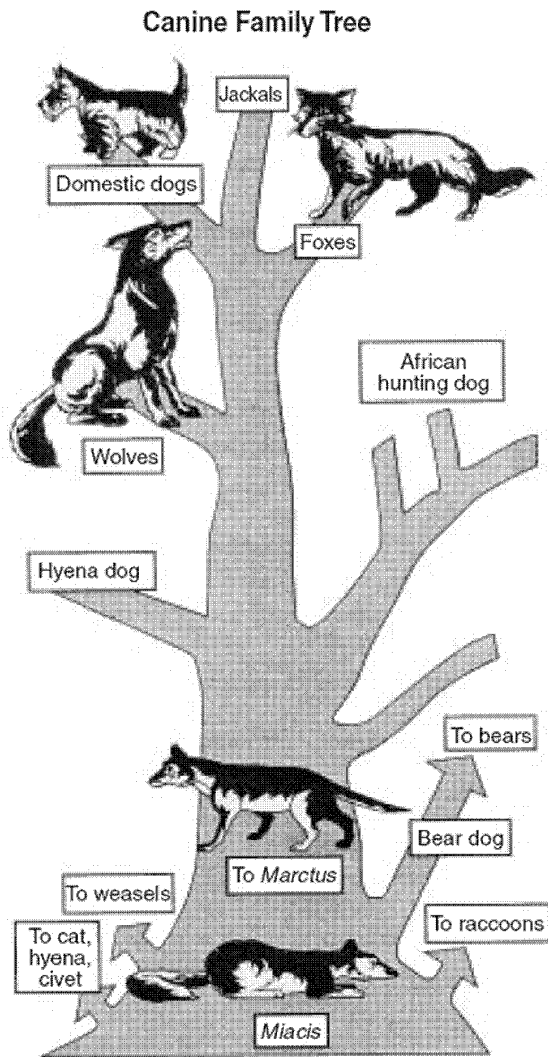
56. The diagram illustrates a proposed evolutionary path of certain organisms, based on the theory of evolution.



Which statement could best be inferred from the information in this diagram?

- A. Evolution does not involve gradual change.  
 B. Evolutionary changes can result in extinction.  
 C. Evolution begins with plants.  
 D. Evolution produces organisms that all fill the same niche.

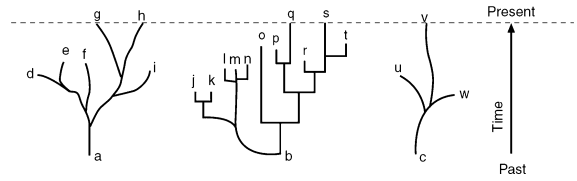
57. Base your answer(s) to the following question(s) on the diagram, which represents the relationships between animals in a possible canine family tree, and on your knowledge of biology.



According to the diagram, which group of organisms has the most closely related members?

- cats, weasels, and wolves
- bears, raccoons, and hyena dogs
- jackals, foxes, and domestic dogs
- African hunting dogs, hyena dogs, and domestic dogs

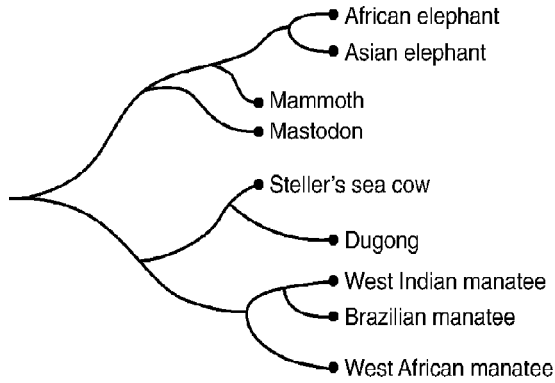
58. According to some scientists, patterns of evolution can be illustrated by the accompanying diagrams.



Which statement best explains the patterns seen in these diagrams?

- The organisms at the end of each branch can be found in the environment today.
- The organisms that are living today have all evolved at the same rate and have undergone the same kinds of changes.
- Evolution involves changes that give rise to a variety of organisms, some of which continue to change through time while others die out.
- These patterns cannot be used to illustrate the evolution of extinct organisms.

59. The relationship of some mammals is indicated in the diagram.

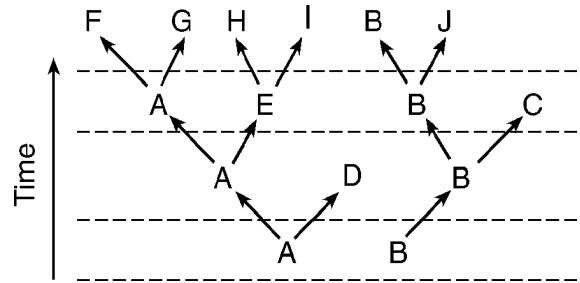


Past → Present Time

Which statement about the African elephant is correct?

- A. It is more closely related to the mammoth than it is to the West African manatee.
- B. It is more closely related to the West Indian manatee than it is to the mastodon.
- C. It is not related to the Brazilian manatee or the mammoth.
- D. It is the ancestor of Steller's sea cow.

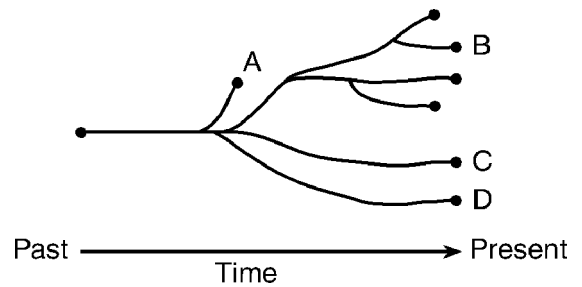
60. Base your answer(s) to the following question(s) on the diagram and on your knowledge of biology. Letters A through J represent different species of organisms. The vertical distances between the dotted lines represent long periods of time in which major environmental changes occurred.



Which species appears to have been most successful in surviving changes in the environment over time?

- A. A      B. B      C. C      D. H

61. The diagram below shows the evolution of some different species of flowers.

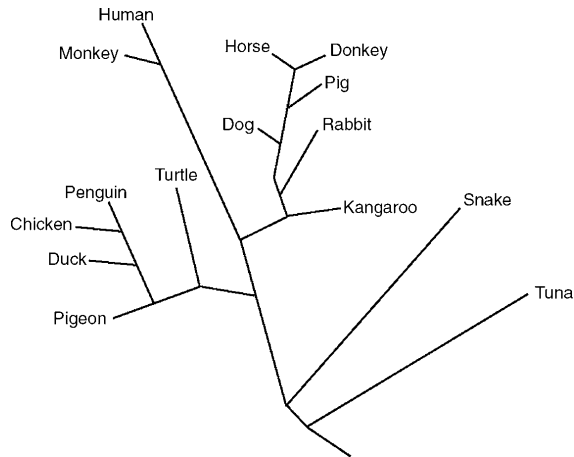


Which statement about the species is correct?

- A. Species A, B, C, and D came from different ancestors.
- B. Species C evolved from species B.
- C. Species A, B, and C can interbreed successfully.
- D. Species A became extinct.

62. Base your answer(s) to the following question(s) on the information below and on your knowledge of biology.

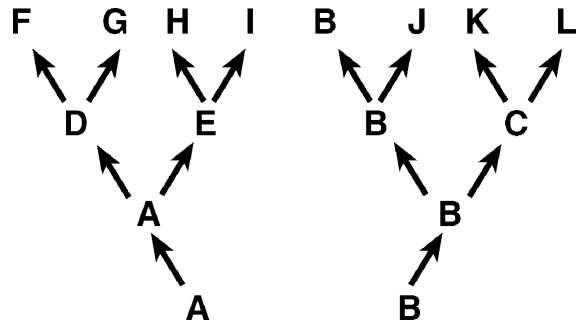
Based on their analysis of the differences in amino acid sequences of one kind of protein, scientists prepared the evolutionary tree shown below.



According to this diagram, the DNA of which pair of organisms would show the greatest similarity?

- A. penguin and turtle    B. horse and donkey  
C. snake and tuna        D. turtle and rabbit

63. Base your answer(s) to the following question(s) on the diagram below and on your knowledge of biology. Letters *A* through *L* represent different species of organisms. The arrows represent long periods of geologic time.



Which two species are the most closely related?

- A. *J* and *L*                      B. *G* and *L*  
C. *F* and *H*                      D. *F* and *G*

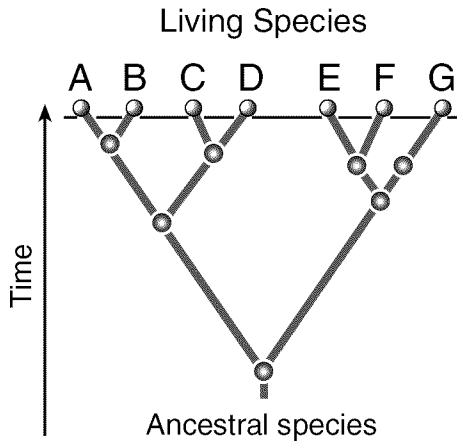
64. Which species was best adapted to changes that occurred in its environment over the longest period of time?

- A. *A*      B. *B*      C. *C*      D. *J*

65. Which two species would most likely show the greatest similarity of DNA and proteins?

- A. *B* and *J*                      B. *G* and *I*  
C. *J* and *K*                      D. *F* and *L*

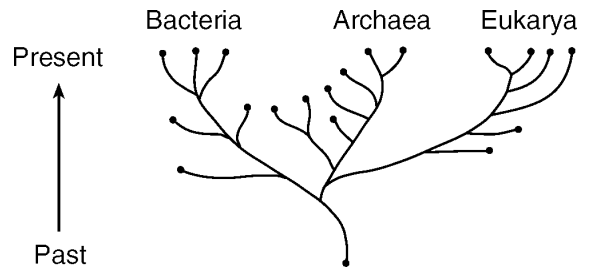
66. The evolutionary pathways of seven living species are shown in the diagram below.



Which two species are likely to have the most similar DNA base sequences?

- A. *B* and *G*                      B. *E* and *G*  
 C. *B* and *C*                        D. *C* and *D*

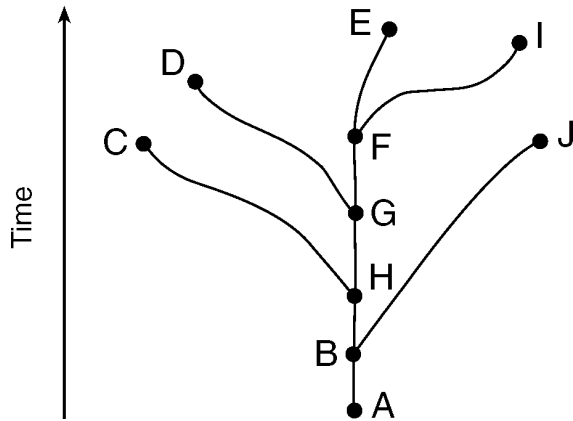
67. A current proposal in the field of classification divides life into three broad categories called domains. This idea is illustrated below.



Which concept is best supported by this diagram?

- A. Evolutionary pathways proceed only in one set direction over a short period of time.  
 B. All evolutionary pathways will eventually lead to present-day organisms.  
 C. All evolutionary pathways are the same length and they all lead to present-day organisms.  
 D. Evolutionary pathways can proceed in several directions with only some pathways leading to present-day organisms.

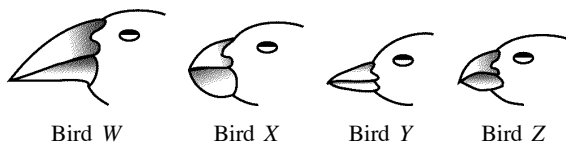
68. The evolutionary pathways of ten different species are represented in the diagram below.



Which two species are the most closely related?

- A. C and D                      B. E and I  
C. G and J                      D. A and F

69. The dichotomous key shown below can be used to identify birds W, X, Y, and Z.

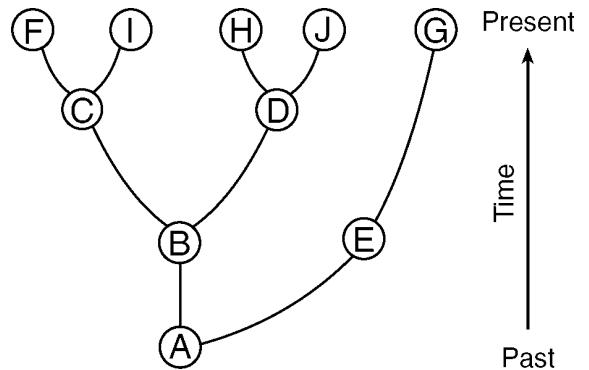


Dichotomous Key to Representative Birds	
1. a. The beak is relatively long and slender.....	<i>Certhidea</i>
b. The beak is relatively stout and heavy.....	go to 2
2. a. The bottom surface of the lower beak is flat and straight.....	<i>Geospiza</i>
b. The bottom surface of the lower beak is curved.....	go to 3
3. a. The lower edge of the upper beak has a distinct bend.....	<i>Camarhynchus</i>
b. The lower edge of the upper beak is mostly flat.....	<i>Platyspiza</i>

Bird X is most likely

- A. *Certhidea*                      B. *Geospiza*  
C. *Camarhynchus*                      D. *Platyspiza*

70. Base your answer(s) to the following question(s) on the diagram below that shows some evolutionary pathways. Each letter represents a different species.



Which two organisms are most closely related?

- A. F and I                      B. F and H  
C. A and G                      D. G and J

71. The most recent ancestor of organisms D and F is

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

72. If A represents a simple multicellular heterotrophic organism, B would most likely represent

- A. a single-celled photosynthetic organism  
B. an autotrophic mammal  
C. a complex multicellular virus  
D. another type of simple multicellular heterotroph

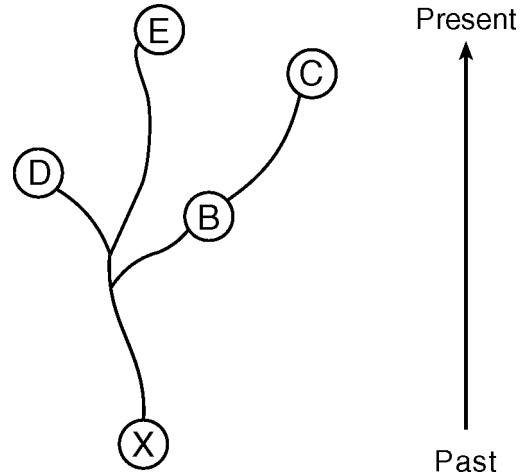
73. A classification system is shown in the table below.

Classification	Examples
Kingdom — animal	△, ○, ▱, ☆, □, ◇, ⋈, ▽
Phylum — chordata	△, ▱, ⋈, ☆, □
Genus — <i>Felis</i>	□, ⋈
Species — <i>domestica</i>	□

This classification scheme indicates that □ is most closely related to

- A. ☆    B. △    C. ▱    D. ⋈

74. The evolutionary pathways of five species are represented in the diagram below.

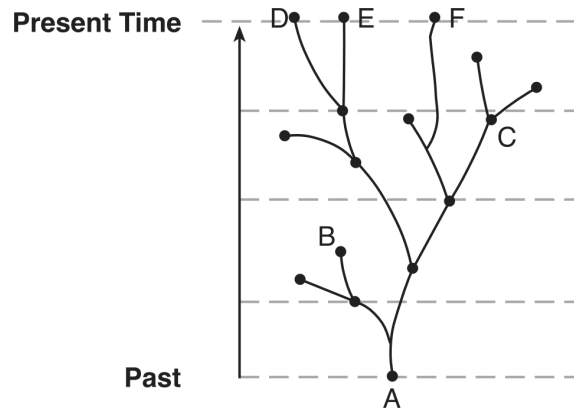


Which statement is supported by the diagram?

- A. Species C is the ancestor of species B.
- B. Species D and E evolved from species B.
- C. Species X evolved later than species D but before species B.
- D. Both species C and species D are related to species X.



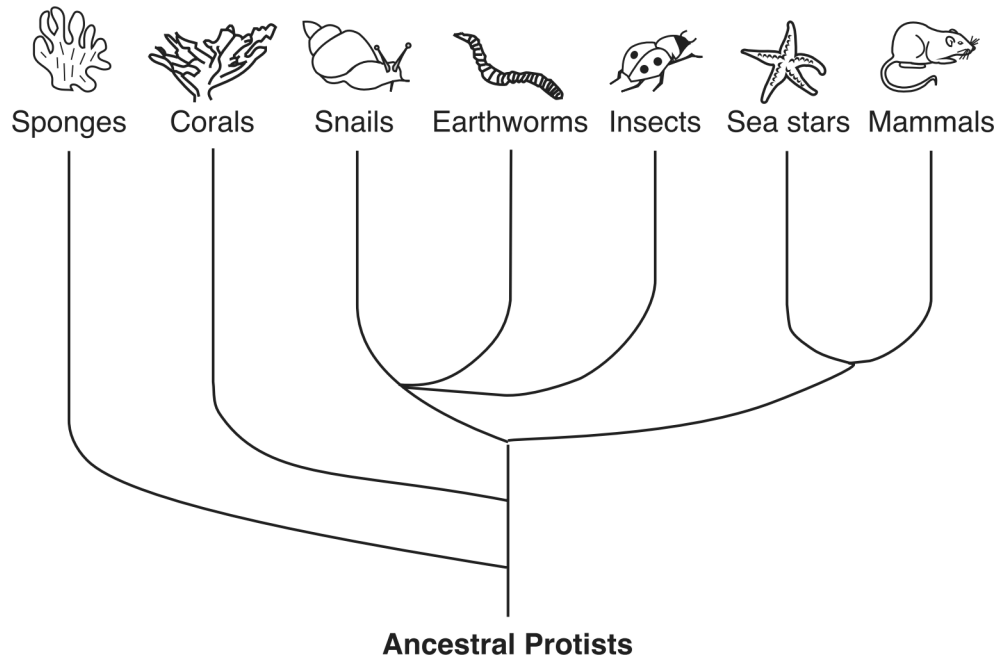
75. The diagram below illustrates possible evolutionary pathways of some species.



Which statement is a valid inference based on the information in the diagram?

- A. Species *A* is the common ancestor of all life on Earth.
- B. Species *D* is more closely related to species *E* than to species *F*.
- C. Species *B* is the ancestor of species *F*.
- D. Species *C* is the ancestor of species that exist at the present time.

76. The diagram below represents possible evolutionary relationships between groups of organisms.



Which statement is a valid conclusion that can be drawn from the diagram?

- A. Snails appeared on Earth before corals.
- B. Sponges were the last new species to appear on Earth.
- C. Earthworms and sea stars have a common ancestor.
- D. Insects are more complex than mammals.

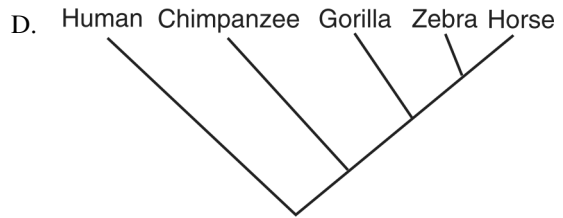
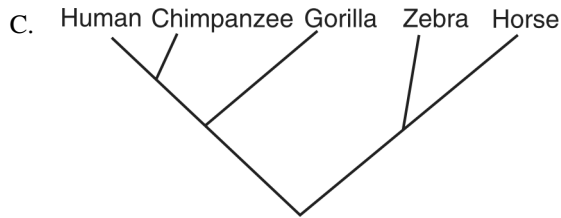
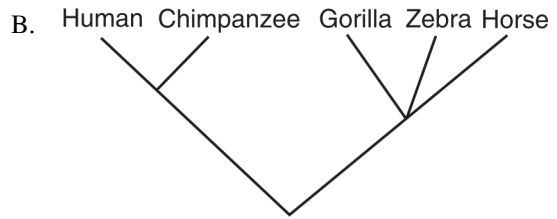
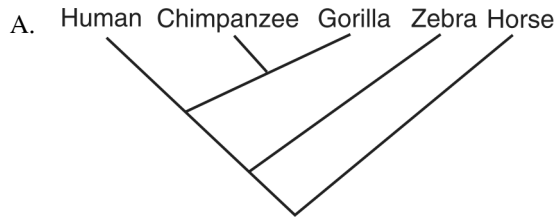
77. Which observation could best be used to indicate an evolutionary relationship between two species?

- A. They have similar base sequences.
- B. They have similar fur color.
- C. They inhabit the same geographic regions.
- D. They occupy the same niche.

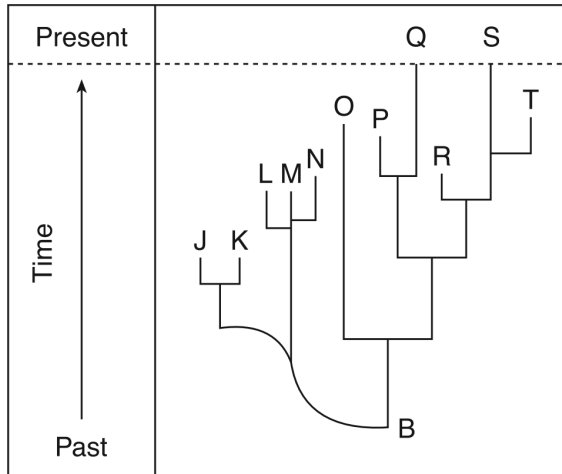
78. Base your answers to the following questions on the information below and on your knowledge of biology.

Species	Sequence of Four Amino Acids Found in the Same Part of the Hemoglobin Molecule of Species
human	Lys—Glu—His—Phe
horse	Arg—Lys—His—Lys
gorilla	Lys—Glu—His—Lys
chimpanzee	Lys—Glu—His—Phe
zebra	Arg—Lys—His—Arg

Which evolutionary tree best represents the information in the chart?



79. Some evolutionary pathways are represented in the diagram below.



An inference that can be made from information in the diagram is that

- A. many of the descendants of organism *B* became extinct
- B. organism *B* was probably much larger than any of the other organisms represented
- C. most of the descendants of organism *B* successfully adapted to their environment and have survived to the present time
- D. the letters above organism *B* represent members of a single large population with much biodiversity

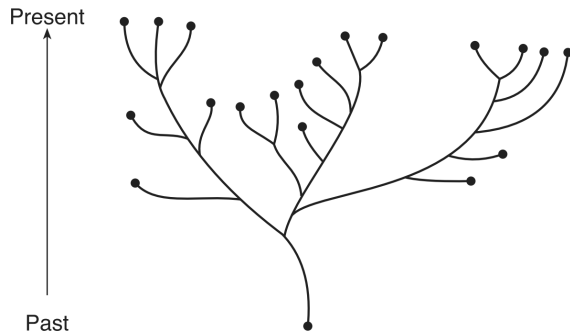
80. DNA electrophoresis is used to study evolutionary relationships of species. The diagram below shows the results of DNA electrophoresis for four different animal species.

Species A	Species X	Species Y	Species Z
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

Which species has the most DNA in common with species *A*?

- A. *X* and *Y*, only
- B. *Y*, only
- C. *Z*, only
- D. *X*, *Y*, and *Z*

81. An evolutionary pathway is represented below.



Which statement about evolutionary pathways is most accurate?

- A. All evolutionary pathways show that life began with autotrophic organisms that soon evolved into heterotrophic organisms.
- B. Two organisms on the same branch of an evolutionary pathway are more closely related to each other than to those on distant branches.
- C. All the organisms shown at the ends of evolutionary pathway branch tips are alive today.
- D. Evolutionary pathways show that evolution is a short-term process.

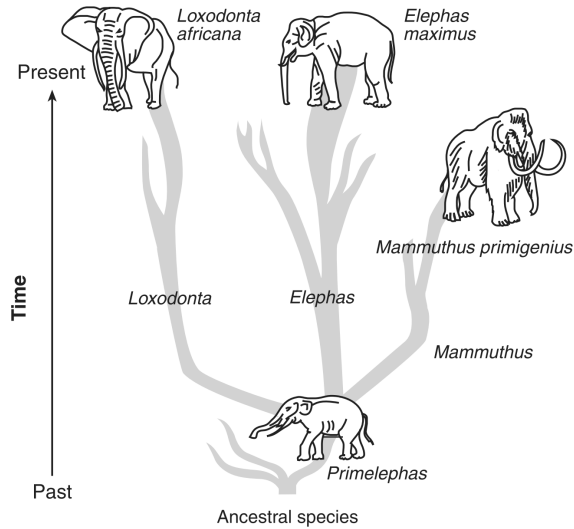
82. A researcher recently discovered a new species of bacteria in the body of a tubeworm living near a hydrothermal vent. He compared the DNA of this new bacterial species to the DNA of four other species of bacteria. The DNA sequences came from the same part of the bacterial chromosome of all four species.

Species	DNA Sequence
unknown species	ACT GCA CCC
species I	ACA GCA CCG
species II	ACT GCT GGA
species III	ACA GCA GGG
species IV	ACT GCA CCG

According to these data, the unknown bacterial species is most closely related to

- A. species I
- B. species II
- C. species III
- D. species IV

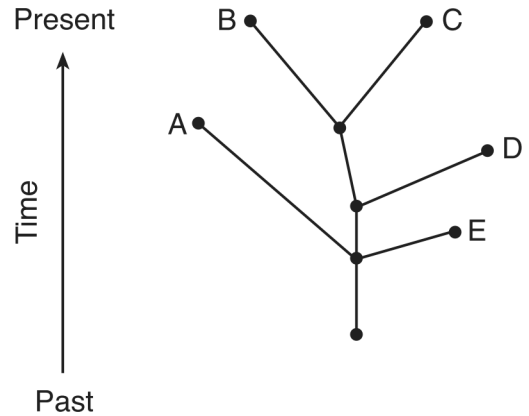
83. One possible pathway for the evolution of elephants is represented in the diagram below.



Which statement concerning this pattern of evolution is correct?

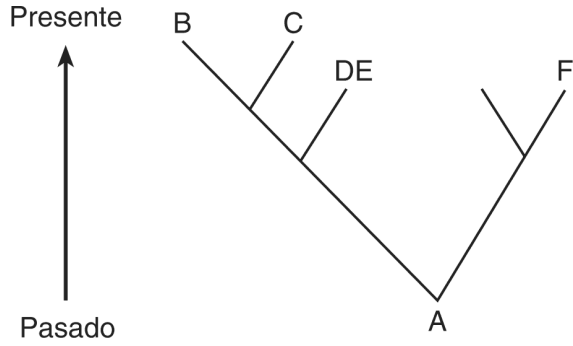
- A. Evolution always results in favorable traits.
- B. Evolution does not always result in a species that will survive to present time.
- C. Evolution leads to less complex organisms.
- D. Evolution results in the same changes in all species.

84. Which statement concerning the evolution of species *A*, *B*, *C*, *D*, and *E* is supported by the diagram below?



- A. Species *B* and *C* can be found in today's environments.
- B. Species *A* and *D* evolved from *E*.
- C. Species *A* and *C* can still interbreed.
- D. Species *A*, *B*, and *E* all evolved from a common ancestor and all are successful today.

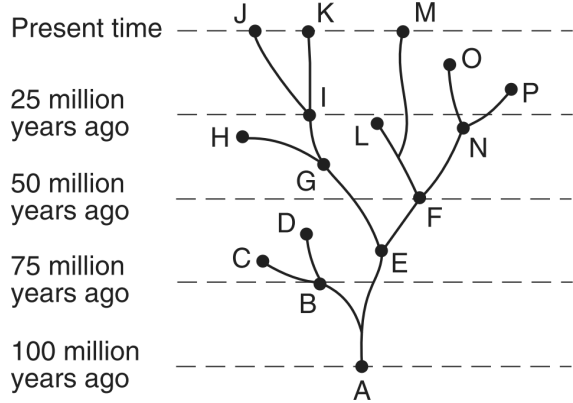
85. A diagram of evolutionary pathways of various animal species is shown below.



The pattern of these evolutionary pathways is most likely the result of alterations within which structure?

- A. vacuole
- B. cell membrane
- C. nucleus
- D. ribosome

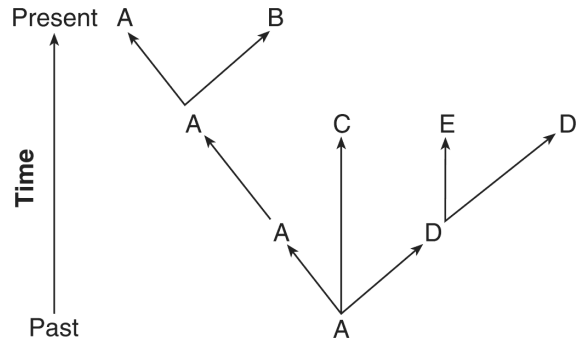
86. Base your answers to the following questions on the diagram below and on your knowledge of biology. The diagram represents possible evolutionary pathways of certain organisms.



Which species is most closely related to species L?

- A. E
- B. F
- C. G
- D. I

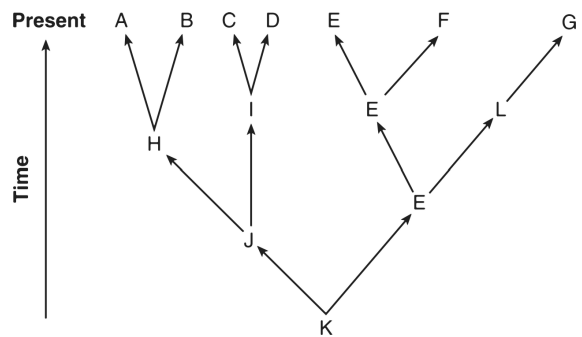
87. Base your answers to the following questions on the diagram below and on your knowledge of biology. Letters A through E represent different species of organisms. The arrows represent long periods of geologic time.



Which species would most likely show the greatest similarities in their amino acid sequences?

- A. A and E
- B. A and B
- C. B and D
- D. C and E

88. The evolutionary pathways of several species are represented in the diagram below. Which species was best adapted for survival in changing environmental conditions?



- A. A
- B. E
- C. K
- D. L

89. 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

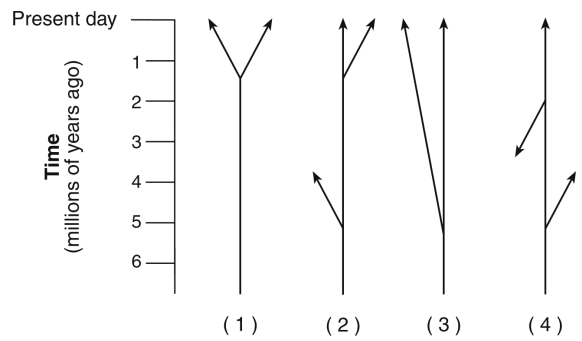
90. Base your answers to the following questions on the information below and on your knowledge of biology.

**Yes, This Big Lizard is Pink**

A new study from the University of Rome Tor Vergata shows that a rare strawberry-tinted land iguana [rosada iguana] in the Galapagos Islands is genetically distinct from other iguanas there, having diverged from them more than five million years ago as the archipelago [a group of islands] formed. The rosada iguana-which escaped Darwin's notice-was discovered only recently, largely because it lives on the desolate slopes of an active volcano.

Source: *Smithsonian*, March 2009

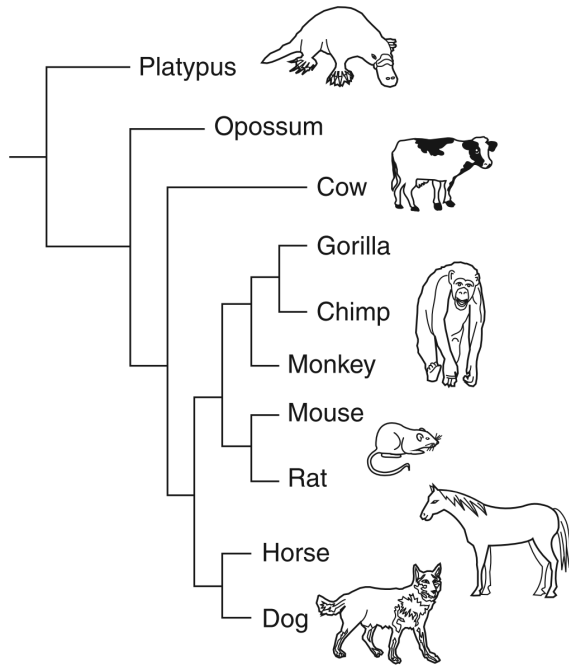
Which diagram best represents the evolutionary pathway of the strawberry-tinted iguana?



- A. (1)
- B. (2)
- C. (3)
- D. (4)



91. Base your answers to the following questions on the diagram below and on your knowledge of biology. The diagram shows the evolutionary relationships of some organisms.



Which two organisms would most likely synthesize the most similar enzymes?

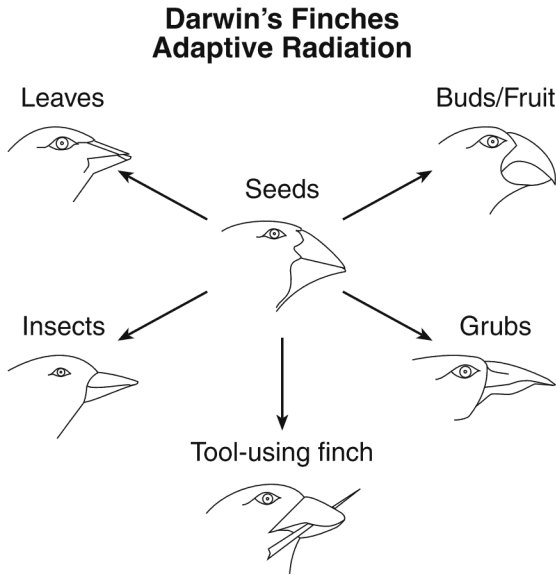
- A. monkey and mouse
- B. cow and horse
- C. chimp and rat
- D. horse and dog

92. In 2007, scientists broke open a fossil of a dinosaur bone and found some preserved tissues. Analysis showed that some proteins in these tissues are very similar to proteins found in modern chickens. The conclusion that these dinosaurs are related to modern chickens is based on

- A. molecular similarities
- B. natural selection
- C. similarities in behavior
- D. the occurrence of mutations

93. Base your answers to the following questions on the information and diagram below and on your knowledge of biology.

Finches on the Galapagos Islands are thought to have originated from South America and to have evolved into new species over the last 10,000 years. Some of this evolution is represented in the diagram below.



The seed-eating finch was most likely the

- A. largest finch
- B. common ancestor
- C. parent of the other finches
- D. most successful

94. Base your answers to the following questions on the information below and on your knowledge of biology.

The Galapagos pink land iguana, *Conolophus marthae* (*C. marthae*), is native to only one of the Galapagos Islands. Its entire range is currently limited to Wolf Volcano on Isabella Island. The iguana was first discovered on this island in 1986. Genetic studies of the animal began sometime later, and it was identified as a species separate from other iguana populations on the Galapagos in 2009. Its population might have been as high as 100 in 1986, but now there might be as few as 10 of the animals left alive.

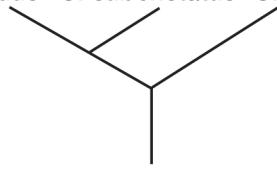
Other evidence indicates that this species could have diverged from another line of iguanas about 5.7 million years ago. After that, the other line of iguanas diverged into two other species, *C. pallidus* and *C. subcristatus*.

The testing that revealed that these iguanas are a separate species from the other iguanas present in the Galapagos most likely included

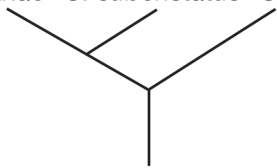
- A. genetic engineering
- B. cloning studies
- C. DNA analysis
- D. the use of paper chromatography

95. Which evolutionary tree best represents the information about the pink land iguana provided in the passage?

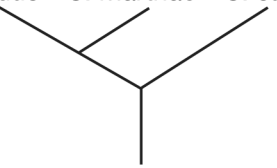
A. *C. pallidus* *C. subcristatus* *C. marthae*



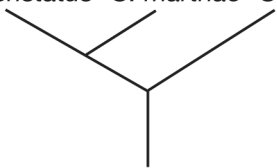
B. *C. marthae* *C. subcristatus* *C. pallidus*



C. *C. pallidus* *C. marthae* *C. subcristatus*

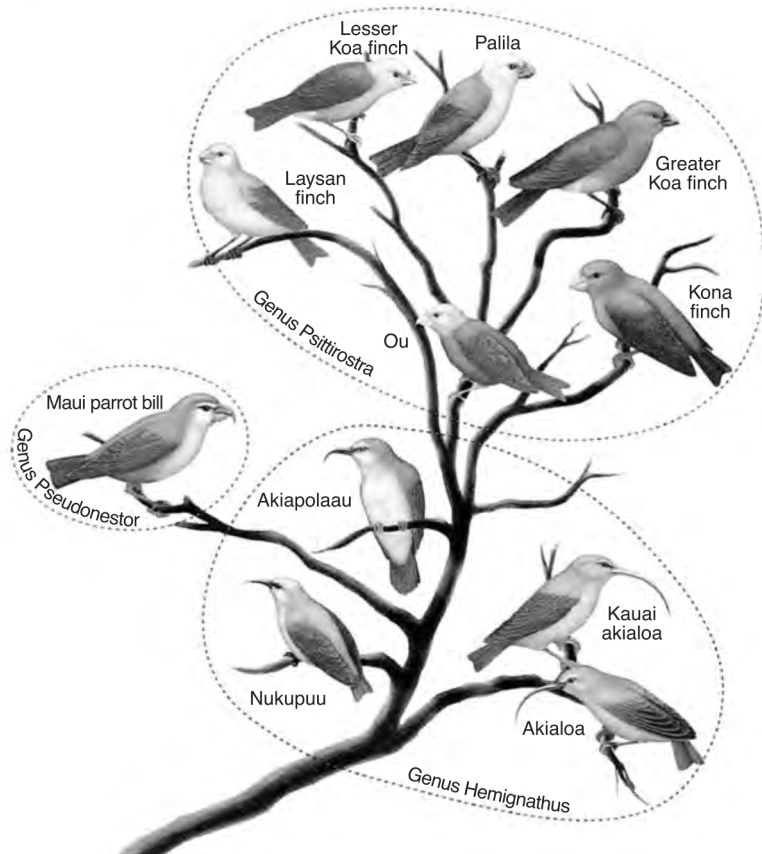


D. *C. subcristatus* *C. marthae* *C. pallidus*



96. Base your answers to the following questions on the information and diagram below and on your knowledge of biology.

The circled areas in the diagram represent bird species that are in the same genus, a classification group that includes closely related species. These birds are found on the Hawaiian Islands.

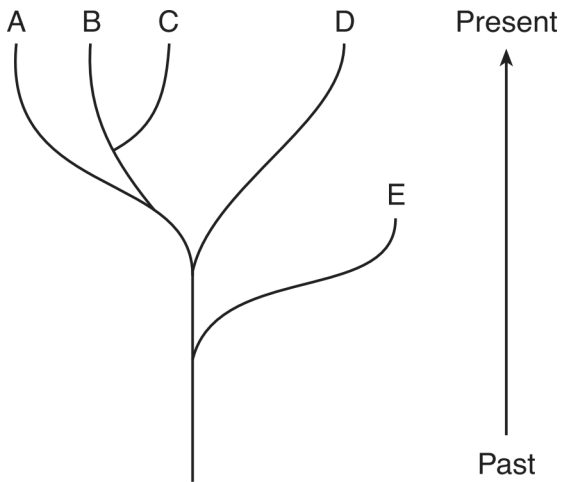


Source: *Biology, 9th Edition*, Mader, McGraw-Hill, Boston, MA, 2007, p.313

Which two finches are most closely related?

- A. Lesser Koa finch and Nukupuu
- B. Akialoa and Ou
- C. Kauai akialoa and Maui parrot bill
- D. Ou and Greater Koa finch

97. The diagram below represents an evolutionary tree.

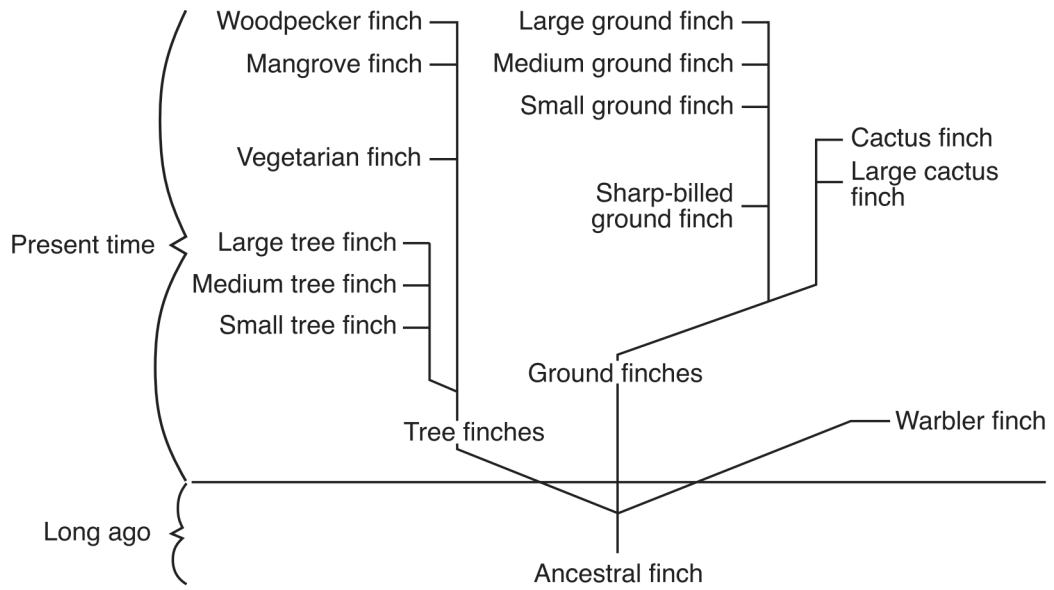


Which statement best describes species *E*?

- A. Species *D* is an ancestor of species *E*.
- B. Through natural selection, species *E* produced increased survival mechanisms.
- C. Species *E* had greater success due to patterns of behavior.
- D. Species *E* had insufficient adaptive characteristics for survival in a changing environment.

98. Base your answers to the following questions on the chart below and on your knowledge of biology.

**Evolutionary Chart of Galapagos Finches**



adapted from: *Galapagos: A Natural History Guide*

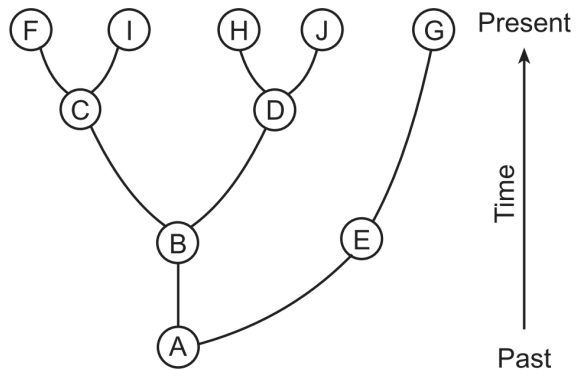
Which finches would be most like the ancestral finch?

- A. large ground finches
- B. cactus finches
- C. warbler finches
- D. large tree finches

99. Present-day cactus finches are a type of

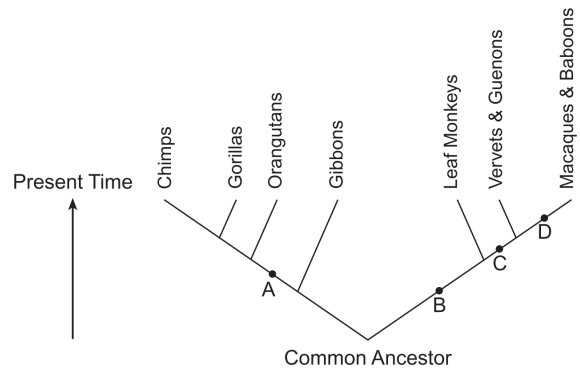
- A. tree finch
- B. ground finch
- C. warbler finch
- D. ancestral finch

100. Some evolutionary pathways are represented in the diagram below. An inference that can be made from information in the diagram is that



- A. species *E* evolved from species *G*
- B. species *A* was probably much larger than all the other species
- C. species *C* is a direct descendant of species *I*
- D. species *J* is adapted to the existing environment

101. Base your answers to the following questions on the diagram below and on your knowledge of biology. The diagram represents evolutionary relationships among some primates.

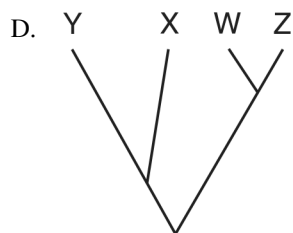
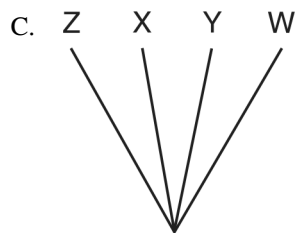
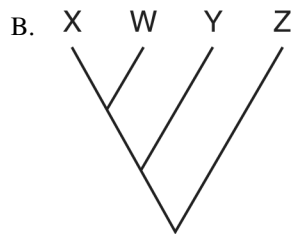
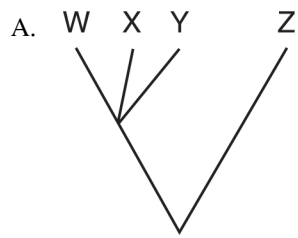


Which statement best describes a relationship between the common ancestor and the other organisms in the diagram?

- A. The common ancestor most likely has segments of its DNA that will match each of the other organisms'.
  - B. The common ancestor is more closely related to macaques than to gibbons.
  - C. Orangutans and gorillas have exactly the same DNA as the common ancestor.
  - D. Chimps and baboons were the first organisms to evolve from the common ancestor.
102. A line representing an organism that is closely related to leaf monkeys and that evolved at about the same time as the gibbons would be drawn beginning at point

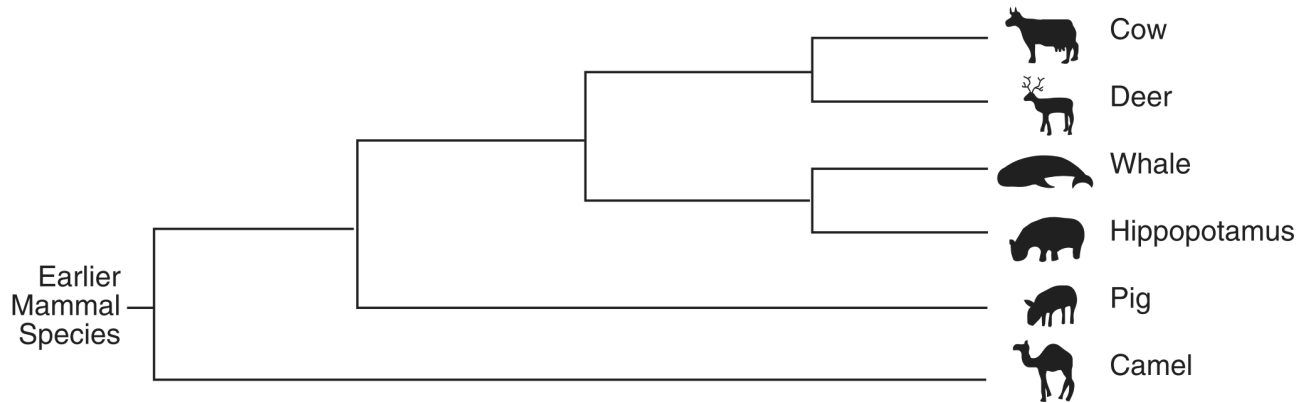
- A. *A*
- B. *B*
- C. *C*
- D. *D*

103. Which branching tree diagram shows that species W and Z are most closely related?





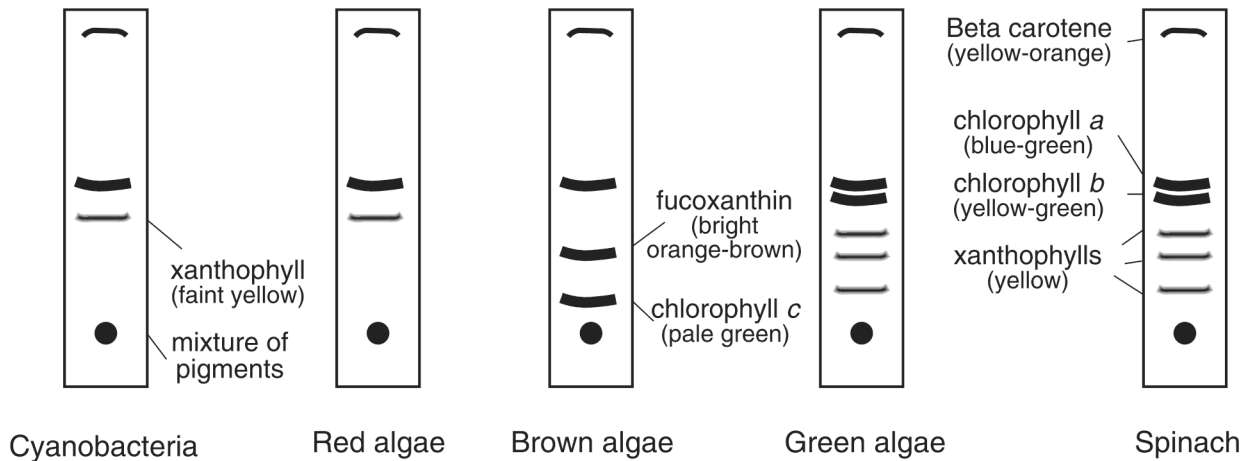
104. The diagram below shows the evolutionary relationships among several types of mammals.



Which mammal would be most closely related to a hippopotamus?

- A. deer                      B. whale                      C. pig                      D. cow

105. Base your answers to the following questions on the diagram below and on your knowledge of biology. The diagram represents the results of paper chromatography performed on extracts from five organisms.



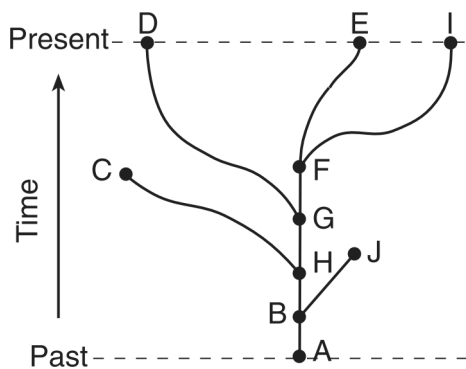
Which two organisms are most closely related?

- A. cyanobacteria and green algae                      B. red algae and spinach  
 C. brown algae and red algae                      D. red algae and cyanobacteria

106. Caffeine is a compound found in the seeds of many different plants, such as coffee beans, cola nuts, and cacao beans (the source of chocolate). The presence of this chemical in all three types of plants suggests that these plants

- A. inherited identical mutations
- B. share a common ancestry
- C. were exposed to the same type of radiation in the past
- D. were cloned from a caffeine plant

107. The evolutionary pathways of ten different species are represented in the diagram below.

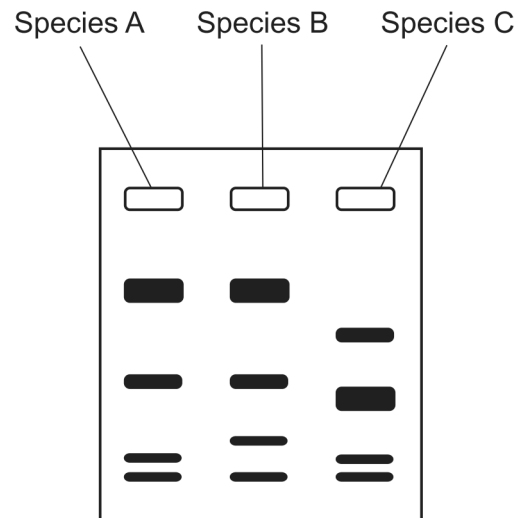


Which statement would most likely be correct, based on the information in the diagram?

- A. Species C had many variations and lived in a stable, unchanging environment.
- B. Species D, C, and J are extinct.
- C. Species F evolved from species D.
- D. Species J had little variation and lived in a changing environment.

108. Base your answer to the following question on the information and diagram below and on your knowledge of biology.

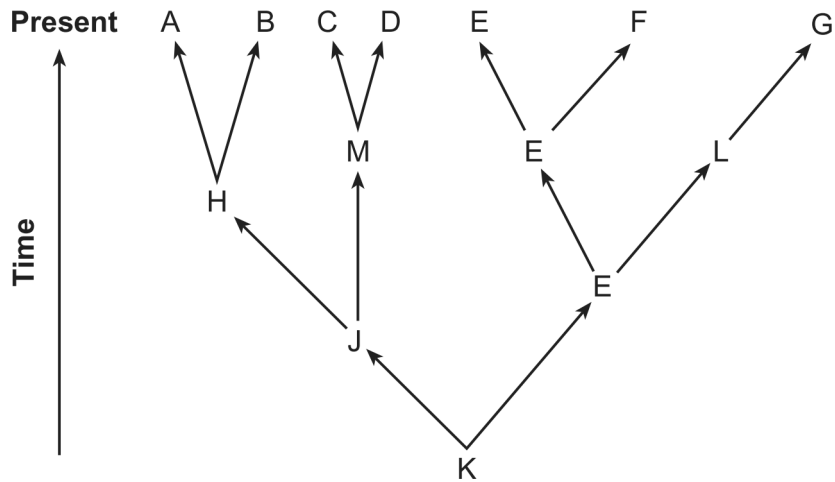
Scientists attempted to determine the evolutionary relationships between three different finch species, A, B, and C. In order to do this, they examined the physical characteristics and DNA of these species. DNA was extracted from all three species and analyzed using gel electrophoresis. The results are shown in the diagram.



Which statement best describes the method used above to determine the evolutionary relationships between three species of finches?

- A. Examine the structure of the beaks and compare them.
- B. Observe behavioral and physical characteristics of all the finches and group them by similarities.
- C. Obtain molecular evidence from all three species and identify similarities.
- D. Compare common ancestors of all three of the species to see if they are the same.

109. The diagram below represents evolutionary pathways of seven groups of organisms alive today.



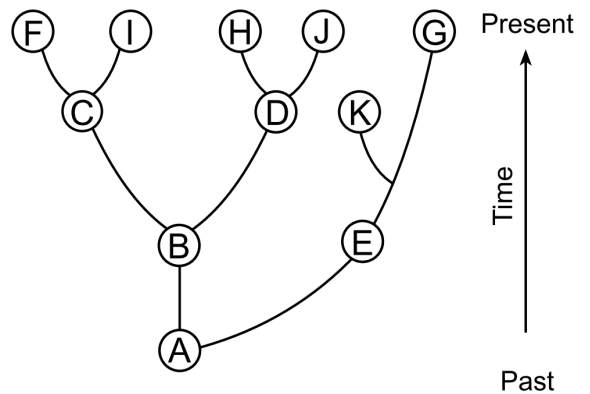
Which two living species would be expected to have the most similar proteins?

- A. A and C                      B. B and C                      C. E and F                      D. H and M

110. Scientists recently discovered that three different types of squid, a marine animal, previously thought to be three different species, were actually all members of one species. Their earlier ideas were based on using squid carcasses (dead bodies). The new, more accepted classification is most probably based on an analysis of

- A. a greater number of squid carcasses  
 B. the feeding habits of the three different species  
 C. a number of newly found squid fossils  
 D. the DNA present in the cells of squid

111. Base your answers to the following questions on the information and diagram below and on your knowledge of biology. The diagram represents the evolutionary relationships among many organisms.

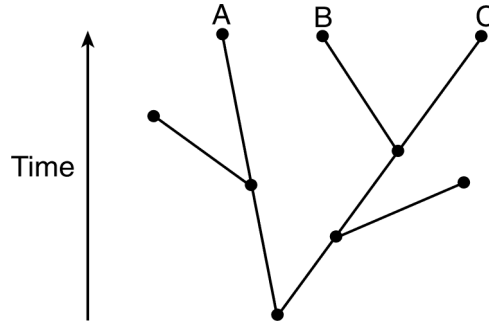


Three species with the most similar traits are most likely

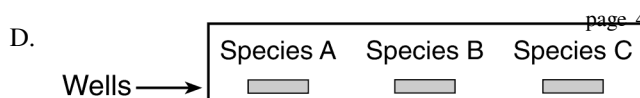
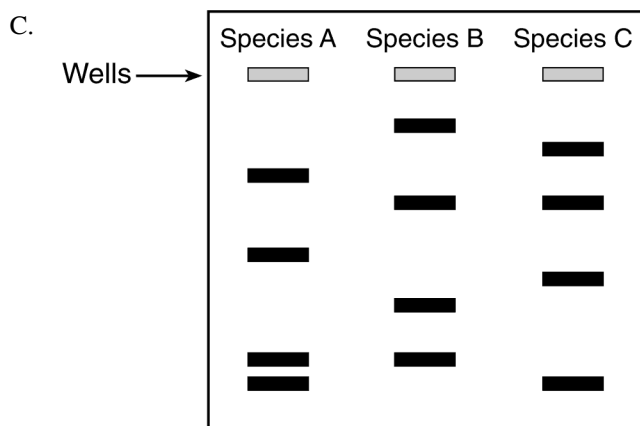
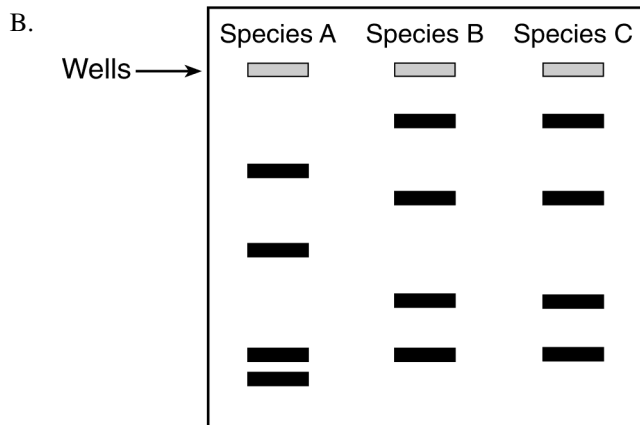
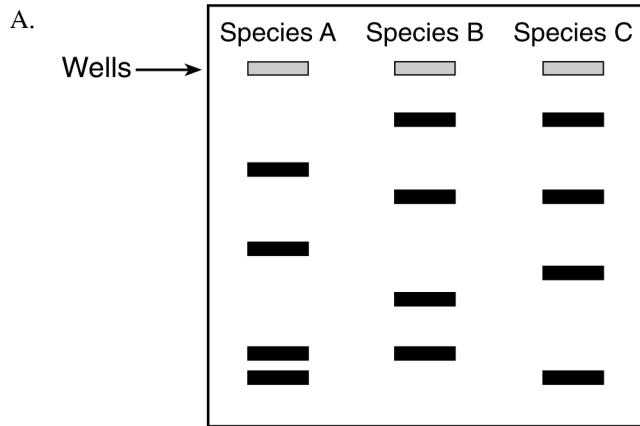
- A. F, I, G                      B. D, H, J  
 C. B, D, G                      D. F, A, J

112. When comparing characteristics of two organisms, which evidence would be considered the strongest for supporting a possible evolutionary relationship?
- A. The two organisms are the same color.
  - B. The two organisms are the same height.
  - C. The two organisms produce many of the same proteins.
  - D. The two organisms are found in the same locations.

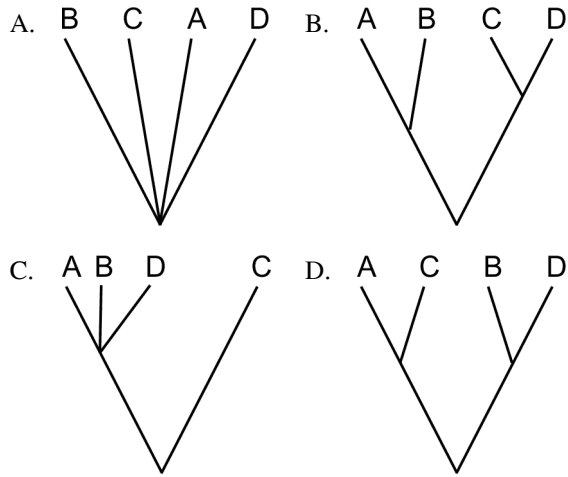
113. Base your answers to the questions on the information below and on your knowledge of biology. The evolutionary tree below represents possible relationships between several species of plants.



According to the tree, species *B* and *C* are more closely related to each other than to species *A*. Which gel electrophoresis diagram would best support this statement?



114. Which diagram below indicates that species *D* is more closely related to *C* than it is to either *A* or *B*?



115. Microbes that enter the body, causing disease, are known as

- A. pathogens
- B. antibodies
- C. enzymes
- D. hosts

116. A piece of refrigerated, cooked meat will remain safe to eat for a longer period of time than a refrigerated piece of raw meat of similar size. Which statement is a valid inference based on this information?

- A. Cooking meat kills many bacteria and fungi.
- B. Cool temperatures stimulate the growth of microbes on raw meat.
- C. Raw meat cannot be preserved.
- D. Cooked meat contains antibodies that destroy decomposers.

117. Base your answers to the questions on the information below and on your knowledge of biology.

### **Bird Flu**

Researchers are not sure when the H7N9 virus, referred to as bird flu, hit the China poultry markets. In February of 2012, the virus was found to have spread from birds to humans. All cases resulted from direct contact with infected poultry.

The bird flu can cause severe respiratory illness in humans. Since flu viruses constantly mutate, it would be difficult to develop a vaccine ahead of time. Scientists are worried that the virus could spread easily among people, causing a worldwide outbreak of the disease.

Based on the information, one danger of the new Bird Flu H7N9 strain is that it

- A. causes death in over 75% of the individuals who become infected
- B. is transferred to humans through consuming cooked poultry
- C. can spread from humans to birds, such as crows and pigeons
- D. mutates rapidly, making it hard to produce an effective vaccine

118. Scientists hypothesize that cabbage, broccoli, cauliflower, and radishes developed along a common evolutionary pathway. Which observation would best support this hypothesis?

- A. Fossils of these plants were found in the same rock layer.
- B. Chloroplasts of these plants produce a gas.
- C. These plants live in the same environment.
- D. These plants have similar proteins.

119. The dichotomous key below provides a way to classify some animals into groups according to their physical characteristics.

Dichotomous Key	
I	wings ..... go to II no wings ..... group A
II	feathers ..... group B no feathers ..... go to III
III	two legs ..... group C six legs ..... group D

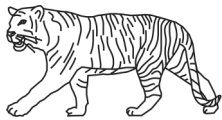
The key can be used to classify each of the four animals represented below.



Wasp



Ant



Tiger



Bird

Which row in the chart shows the correct classification group for each animal?

Row	Wasp	Ant	Tiger	Bird
(1)	group D	group D	group A	group B
(2)	group B	group A	group D	group C
(3)	group B	group D	group A	group C
(4)	group D	group A	group A	group B

120. Base your answers to the following question on the passage below and on your knowledge of biology.

Most animal fossils include hard body parts such as teeth and bones. Until recently, scientists had little hope that soft tissue could be preserved in the bones. A team of scientists has removed soft tissue containing a collagen protein from the leg bone of a 68-million-year-old fossil from a dinosaur, *Tyrannosaurus rex*. The technique of mass spectrometry was used to identify the sequences of certain molecules in several small fragments of the dinosaur collagen protein.

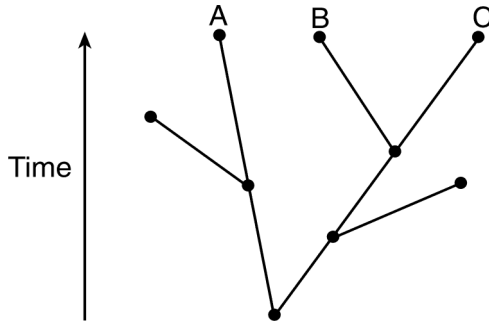
The molecular sequences were compared to those of modern animals. The scientist found that the collagen protein of the *Tyrannosaurus rex* more closely resembled the collagen protein found in modern chickens than that in some other modern animals.

When the scientists compared the molecular sequences in the collagen proteins of the *Tyrannosaurus rex* to those of modern animals, they were most likely seeking information about

- A. patterns of behavior
- B. reproductive cycles
- C. common ancestry
- D. changing environmental conditions



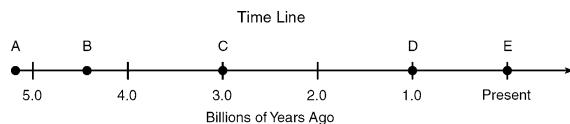
121. Base your answers to the questions on the information below and on your knowledge of biology. The evolutionary tree below represents possible relationships between several species of plants.



In addition to analyzing DNA, what other evidence could be used to best support the evolutionary relationship between species *B* and *C*?

- A. Species *B* and *C* live in the same ecosystem.
- B. Species *B* and *C* require the same amount of sunlight.
- C. Species *B* and *C* possess many of the same enzymes.
- D. Species *B* and *C* grow to the same maximum height as species *A*.

122. According to the interpretation of the fossil record by many scientists, during which time interval shown on the accompanying time line did increasingly complex multicellular organisms appear on Earth?

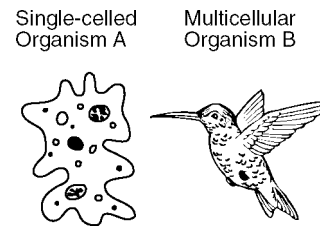


- A. *A* to *B*
- B. *B* to *C*
- C. *C* to *D*
- D. *D* to *E*

123. Every single-celled organism is able to survive because it carries out

- A. metabolic activities
- B. autotrophic nutrition
- C. heterotrophic nutrition
- D. sexual reproduction

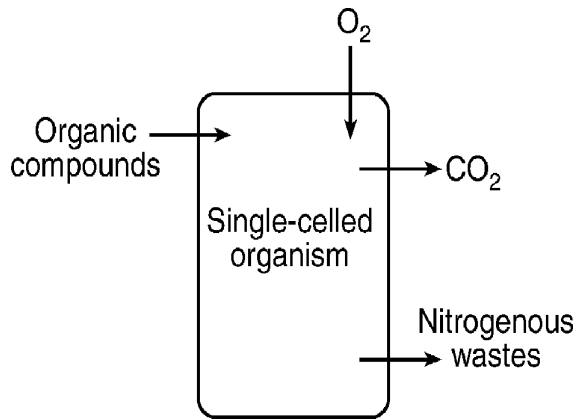
124. Two organisms are represented below.



Which statement concerning organism *A* and organism *B* is correct?

- A. Organism *A* contains tissues while organism *B* lacks tissues.
- B. Organism *A* and organism *B* have the same organs.
- C. Organism *A* and organism *B* have structures that allow them to maintain homeostasis.
- D. Organism *A* lacks structures that maintain a dynamic equilibrium, while organism *B* has these structures.

125. The arrows in the diagram below indicate the movement of materials into and out of a single-celled organism.



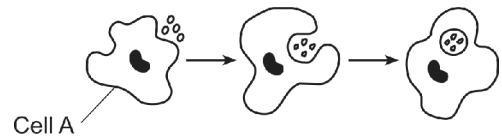
The movements indicated by all the arrows are directly involved in

- A. the maintenance of homeostasis  
 B. photosynthesis, only  
 C. excretion, only  
 D. the digestion of minerals
126. The ability to grow in size is a characteristic of living organisms. Although an icicle may grow in size over time, it is considered nonliving because there is
- A. an increase in matter, but no increase in the number of icicles  
 B. an interaction between the icicle and the environment  
 C. no way for the icicle to move away from heat  
 D. no metabolic activity present

127. One characteristic of all living things is that they

- A. develop organ systems  
 B. produce identical offspring  
 C. maintain internal stability  
 D. synthesize only inorganic matter

128. The diagram below shows cell A completing a life process.



Cell A performs functions similar to the tissues and systems in complex, multicellular organisms. This process results in

- A. increased genetic variation  
 B. the maintenance of homeostasis  
 C. a reduction in competition  
 D. increased autotrophic nutrition

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1.  
Answer: B  
Points: 1

2.  
Answer: D  
Points: 1

3.  
Answer: A  
Points: 1

4.  
Answer: C  
Points: 1

5.  
Answer:  
Points: 1

6.  
Answer:  
Objective: 10.1  
Points: 1

7.  
Answer: D  
Points: 1

8.  
Answer: D  
Points: 1

9.  
Answer: D  
Points: 1

10.  
Answer: C  
Points: 1

11.  
Answer: D  
Objective: LA LS-M-C1  
Points: 1

12.  
Answer: D  
Objective: LA SI-M-A6  
Points: 1

13.  
Answer: B  
Objective: LA LS-M-C1  
Points: 1

14.  
Answer: D  
Objective: MA 1  
Points: 1

15.  
Answer: A  
Objective: MA 5.3  
Points: 1

16.  
Answer: C  
Objective: MA 5.3  
Points: 1

17.  
Answer: A  
Objective: MA 2.2  
Points: 1

18.  
Answer: D  
Objective: MA 5.2  
Points: 1

19.  
Answer: B  
Objective: MA 2.3  
Points: 1

20.  
Answer: B  
Objective: MA 2.3  
Points: 1

21.  
Answer: A  
Objective: MA 2.3  
Points: 1

22.  
Answer: D  
Objective: MA 5.2  
Points: 1

23.  
Answer: D  
Objective: MA 2.8  
Points: 1

24.  
Answer: A  
Objective: MA 2.2  
Points: 1

25.  
Answer: D  
Objective: MA 2.3  
Points: 1

26.  
Answer: C  
Objective: MA 5.2  
Points: 1

27.  
Answer: B  
Objective: MA 5.2  
Points: 1

28.  
Answer: B  
Objective: MA 1  
Points: 1

29.  
Answer: C  
Objective: MA 5.2  
Points: 1

30.  
Answer: B  
Objective: MA 5.2  
Points: 1

31.  
Answer: D  
Objective: MA 5.2  
Points: 1

32.  
Answer: A  
Objective: MA 2.3  
Points: 1

33.  
Answer: D  
Objective: MA 1  
Points: 1

34.  
Answer: B  
Objective: MA 5.2  
Points: 1

35.  
Answer:  
Points: 1

36.  
Answer: A  
Points: 1

37.  
Answer: A  
Points: 1

38.  
Answer: B  
Objective: MS B06a  
Points: 1

39.  
Answer: D  
Objective: MS B06a  
Points: 1

40.  
Answer: B  
Objective: MS 3.6a  
Points: 1

41.  
Answer: D  
Points: 1

42.  
Answer: B  
Points: 1

43.  
Answer: B  
Points: 1

44.  
Answer: C  
Objective: OH HS.E  
Points: 1

45.  
Answer: D  
Objective: OH HS.E  
Points: 1

46.  
Answer: A  
Objective: PA A.3.2.1  
Points: 1

47.  
Answer: C  
Points: 1

48.  
Answer: D  
Objective: MA 18  
Points: 1

49.  
Answer: A  
Objective: MA 5.1  
Points: 1

50.  
Answer: C  
Objective: 3.A.1.a  
Points: 1

51.  
Answer: A  
Objective: MS 3.5c  
Points: 1

52.  
Answer: D  
Points: 1

53.  
Answer: B  
Objective: OH HS.I  
Points: 1

54.  
Answer: D  
Points: 1

55.  
Answer: C  
Points: 1

56.  
Answer: B  
Points: 1

57.  
Answer: C  
Points: 1

58.  
Answer: C  
Points: 1

59.  
Answer: A  
Points: 1

60.  
Answer: B  
Points: 1

61.  
Answer: D  
Points: 1

62.  
Answer: B  
Points: 1

63.  
Answer: D  
Points: 1

64.  
Answer: B  
Points: 1

65.  
Answer: A  
Points: 1

66.  
Answer: D  
Points: 1

67.  
Answer: D  
Points: 1

68.  
Answer: B  
Points: 1

69.  
Answer: D  
Points: 1

70.  
Answer: A  
Points: 1

71.  
Answer: B  
Points: 1

72.  
Answer: D  
Points: 1

73.  
Answer: D  
Points: 1

74.  
Answer: D  
Points: 1

75.  
Answer: B  
Points: 1

76.  
Answer: C  
Points: 1

77.  
Answer: A  
Points: 1

78.  
Answer: C  
Points: 1

79.  
Answer: A  
Points: 1

80.  
Answer: C  
Points: 1

81.  
Answer: B  
Points: 1

82.  
Answer: D  
Points: 1

83.  
Answer: B  
Points: 1

84.  
Answer: A  
Points: 1

85.  
Answer: C  
Points: 1

86.  
Answer: B  
Points: 1

87.  
Answer: B  
Points: 1

88.  
Answer: B  
Points: 1

89.  
Answer: B  
Points: 1

90.  
Answer: C  
Points: 1

91.  
Answer: D  
Points: 1

92.  
Answer: A  
Points: 1

93.  
Answer: B  
Points: 1

94.  
Answer: C  
Points: 1

95.  
Answer: A  
Points: 1

96.  
Answer: D  
Points: 1

97.  
Answer: D  
Points: 1

98.  
Answer: C  
Points: 1

99.  
Answer: B  
Points: 1

100.  
Answer: D  
Points: 1

101.  
Answer: A  
Points: 1

102.  
Answer: B  
Points: 1

103.  
Answer: D  
Points: 1

104.  
Answer: B  
Points: 1

105.  
Answer: D  
Points: 1

106.  
Answer: B  
Points: 1

107.  
Answer: D  
Points: 1

108.  
Answer: C  
Points: 1

109.  
Answer: C  
Points: 1

110.  
Answer: D  
Points: 1

111.  
Answer: B  
Points: 1

112.  
Answer: C  
Points: 1

113.  
Answer: B  
Points: 1

114.  
Answer: B  
Points: 1

115.  
Answer: A  
Points: 1

116.  
Answer: A  
Points: 1
117.  
Answer: D  
Points: 1
118.  
Answer: D  
Points: 1
119.  
Answer: Row (4)  
Points: 1
120.  
Answer: C  
Points: 1
121.  
Answer: C  
Points: 1
122.  
Answer: D  
Points: 1
123.  
Answer: A  
Points: 1
124.  
Answer: C  
Points: 1
125.  
Answer: A  
Points: 1
126.  
Answer: D  
Points: 1
127.  
Answer: C  
Points: 1
128.  
Answer: B  
Points: 1