*Biology for a Changing World 2e,* Chapter 16 Test Bank

1. Animal fossils usually have these structures.

1. legs
2. bony skeletons or hard shells
3. tails
4. scales
5. teeth

Answer: B

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils

2. Why is *Tiktaalik* considered a transitional fossil?

1. It is now extinct.
2. It was found between land and water.
3. It is a mixture of an aquatic and terrestrial invertebrate.
4. It is a hybrid of an aquatic and terrestrial vertebrate.
5. It has two eyes and fins.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils

3. What inhibits fossilization of a dead organism?

1. lack of oxygen
2. having a silicon protective shell
3. having a calcified skeleton
4. mineralization
5. the presence of microbes

Answer: E

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils

4. Which would most likely become fossilized under the appropriate conditions?

1. squid
2. shrimp
3. snail
4. seastar
5. sponge

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:fossils

5. Which would least likely become fossilized?

1. a fly caught in amber
2. a plant leaf in sedimentary rock
3. a vertebrate buried by volcanic ash
4. a invertebrate on the sea floor
5. a snail caught in a mudslide

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts: fossils

6. Which of the following correctly describes a type of fossil and the way in which it is formed?

A. A spider imprint can be created when the spider is trapped in amber.

B. A fish fossil can be created when the fish is rapidly buried in sediment, then dessicated.

C. A dinosaur may leave a mineralized fossil if it is rapidly buried in sediment and slowly compressed over millions of years.

D. A plant fossil may take the form of a leaf imprint, created when the leaf was rapidly buried in soft mud, which hardened around it.

E. Rapid freezing or desiccation may leave a fossil imprint if the organism is rapidly buried in sediment.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Medium

Important Words/Concepts: fossils

7. All of the following provide conditions in which a fossil may form, EXCEPT

* 1. desiccation.
	2. slow freezing.
	3. burial in tree sap.
	4. burial in a volcanic eruption.
	5. burial in a mudslide.

Answer: B

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossil formation

8. Regardless of the specifics, fossils may only form if the organism is preserved quickly. Why?

*Answer:* If the organism is not preserved quickly, then it is likely to be eaten by other animals or broken down by microbes.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossil formation

9. Which of the following is TRUE of fossil formation?

* 1. Fossils may only form when an animal is buried in sediment.
	2. Fossils may only form when an animal dries out.
	3. Fossils may only form if the organism is preserved quickly.
	4. Fossils may only form if the hard parts of the body mineralize.
	5. Fossils may only form if soft tissue remains intact.

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossil formation

10. List at least three conditions that might occur immediately upon the death of an organism that could lead to fossil formation.

*Answer:* freezing, desiccation, burial in amber, burial in sediment

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossil formation

11. Mineralization is the

1. replacement of organs with tree sap.
2. replacement of the skin with hard minerals.
3. replacement of the bones and teeth with minerals.
4. process of making all fossils.
5. process of making gemstones.

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:mineralization

12. Hardened tree sap that often contains fossilized organisms is called

1. amber.
2. copazol.
3. gum.
4. latex.
5. pitch.

Answer: A

DQ: How does the fossil record reveal information about evolutionary changes?

can form.

Type: Know It

Difficulty: Easy

Important Words/Concepts:amber

13. What is amber?

*Answer:* Hardened, fossilized tree sap.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts: fossilization

14. Is the fossil record complete? Explain.

*Answer:* The fossil record is incomplete. Many species may have existed without ever leaving fossil evidence of their existence.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:fossilization

15. How is a fossil mold formed?

*Answer:* The mold is the impression made by the dead organisms. The organism itself might have rotted away, but its imprint may become fossilized.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:fossilization

16. What is mineralization?

*Answer:* Replacement of the organism’s hard parts (bones and teeth) with various hard minerals.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:fossilization

17. Explain how scientists can find tropical aquatic fossils in the rock of the arctic tundra or fossilized aquatic organisms in the rocks of a mountain.

*Answer:* The planet has undergone many changes and continues to change. What is part of a mountain today may have been part of a seabed at some point in the past.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Hard

Important Words/Concepts:fossilization

18. Explain why some parts of the planet are rich in fossils, and in other places, there are no, or few, fossils.

*Answer:* Not all conditions are conducive to fossilization. In wet, tropical areas, organisms are likely to rot or be consumed before being fossilized. In other locations, the dead organisms are not quickly buried by sediment, meaning they will slowly decay rather than becoming fossils. Also, not all organisms have hard body parts that are likely to fossilize.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Hard

Important Words/Concepts:fossilization

19. What circumstances would keep an animal from becoming a fossil?

*Answer:* Many things would keep an animal from becoming fossilized. It wouldn’t become a fossil if it was eaten, if it was broken down by microbes after death, if it was a soft organism lacking hard body parts, or if it didn’t encounter conditions that would allow it to fossilize (e.g., being buried quickly or embedded in tree sap).

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Hard

Important Words/Concepts:fossilization

20. Relative dating uses

1. indirect dating of fossils based on their surroundings.
2. 14C data of the surrounding.
3. radiometric data.
4. 14C data of the object being examined.
5. ages of known fossils.

Answer: A

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: relative and radiometric dating

21. Fossils found in sedimentary rocks

1. are youngest at the bottom.
2. get older at the top.
3. get younger the deeper they are found.
4. get older the deeper they are found.
5. are all the same age.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:relative and radiometric dating

22. A paleontologist studies

1. sedimentary rocks.
2. invertebrates.
3. relative dating.
4. radiocarbon dating.
5. fossils.

Answer: E

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: relative and radiometric dating

23. If a fossil is found on top of two layers of rock with relative dates of 570 mya and 530 mya, what is its approximate age?

1. 570 mya.
2. 530 mya.
3. 560 mya.
4. 550 mya.
5. 540 mya

Answer: B

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts: paleontology and relative and radiometric dating

24. If a fossil is found beneath of two layers of rock with relative dates of 570 mya and 530 mya, what is its approximate age?

1. 560 mya.
2. 530 mya.
3. 570 mya.
4. 550 mya.
5. 540 mya.

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts: paleontology and relative and radiometric dating

25. Which data would be most reliable?

1. Relative dating of a fossil.
2. Radiometric dating of a fossil.
3. Relative and radiometric dating of a fossil.
4. Radiometric data of three fossils from the same depth.
5. Relative data of three fossils from different depths.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Hard

Important Words/Concepts:paleontology and relative and radiometric dating

26. Use the lettered phrases below to correctly compare and contrast relative and radiometric dating by selecting the answer choice that correctly identifies the characteristics of each.

I. Can be used to arrange fossils in the correct sequence from oldest to youngest.

II. Can provide an estimate of the absolute age of the fossils.

III. Can be used on all fossils, regardless of the type of rock in which they are found.

1. Only I applies to relative dating; only II and III apply to radiometric dating.
2. Only I and III apply to relative dating; only II and III apply to radiometric dating.
3. Only I and III apply to relative dating; only I and II apply to radiometric dating.
4. Only I applies to relative dating; only II applies to radiometric dating.
5. All three characteristics apply to both relative and radiometric dating.

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Medium

Important Words/Concepts: radiometric dating

27. All of the following statements about fossil dating are true EXCEPT

* 1. radiometric dating is the most accurate way to age a fossil.
	2. relative dating of fossils involves radiometrically dating rocks above and below the fossil.
	3. fossils found deeper in the Earth are generally older than fossils found higher.
	4. both relative and radiometric dating may be used in combination to determine the age of a fossil.
	5. sedimentary rock can be radiometrically dated while volcanic rock cannot

Answer: E

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:evolution, fossil record, radiometric dating, relative dating

28. Every night when you put on your pajamas, you put that day’s pants in the laundry basket first, then that day’s shirt. You wash all your laundry on Sunday. After undressing on Friday, you realize you left your driver’s license in your pants pocket on Wednesday. If each shirt is one layer and each pair of pants is also one layer, how many layers do you have to remove from the laundry basket to find Wednesday’s pants?

1. Remove 2 layers, and the pants are layer 3.
2. Remove 3 layers, and the pants are layer 4.
3. Remove 4 layers, and the pants are layer 5.
4. Remove 5 layers, and the pants are layer 6.
5. Remove 6 layers, and the pants are layer 7.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:evolution, fossil record, radiometric dating, relative dating

29. You find a fossil embedded in rock as shown in the picture below. What do you estimate is the age of this fossil?

*Answer:* 290 mya

|  |
| --- |
| 245 mya |
| 260 mya |
| 275 mya |
| Fossil |
| 305 mya |
| 320 mya |

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:evolution, fossil record, radiometric dating, relative dating

30. You find a fossil embedded in rock as shown in the picture below. What do you estimate is the age of this fossil?

*Answer:* 320 mya

|  |
| --- |
| 245 mya |
|  |
| 295 mya |
| Fossil |
|  |
| 370 mya |

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Hard

Important Words/Concepts: evolution, fossil record, radiometric dating, relative dating

31. You are a scientist who has just found a fossil embedded in rock that you cannot date with radiometric techniques. Is there anything else you can do to get an age for this fossil? If so, explain. Is radiometric dating completely useless to you?

*Answer:* If radiometric dating will not work, then you can age the fossil using relative dating techniques. This would involve using radiometric dating on rocks both above and below the fossil of interest.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:evolution, fossil record, radiometric dating, relative dating

32. Fossils found deep in the earth are generally \_\_\_\_\_\_ than the fossils found above them.

*Answer:* older

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossil dating

33. Rocks formed from \_\_\_\_\_ can be directly dated using radiometric dating.

1. sedimentation
2. ossification
3. volcanic eruptions
4. mineral deposition
5. microbial activity

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossil dating

34. Which of these is in the correct order based on the fossil record and our understanding of evolution?

1. Birds, prokaryotes, reptiles, amphibians, fish, colonial protists, single-celled protists.
2. Prokaryotes, single-celled protists, colonial protists, fish, amphibians, reptiles, birds
3. Single-celled protists, colonial protists, prokaryotes, reptiles, amphibians, fish, birds.
4. Prokaryotes, single-celled protists, colonial protists, fish, amphibians, birds, reptiles.
5. Prokaryotes, single-celled protists, colonial protists, amphibians, fish, birds, reptiles.

Answer: B

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Hard

Important Words/Concepts:evolution

35. You have found a new type of fossil, but you have had no success in dating the fossil or the layer of rock in which it was found. How can you estimate the fossil’s age?

*Answer:* You can estimate the fossil’s age by dating layers above and below the fossil.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:fossil dating

36. Put the following in order, based on the fossil record and our understanding of evolution: birds, prokaryotes, reptiles, amphibians, fish, colonial protists, single-celled protists.

*Answer:* Prokaryotes, single celled protists, colonial protists, fish, amphibians, reptiles, and birds.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts: evolution

37. What gives the most accurate dating of a fossil, relative dating or radiometric dating? Explain your answer.

*Answer:* Relative dating can only give you a range between layers below and above the fossil. The range can be tight, or it can be many millions of years. Radiometric dating is a date of the exact layer where the fossil is found, giving much more accurate dates.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Hard

Important Words/Concepts:fossil dating

38. Evolutionarily speaking, which in each of the following pairs came first?

1. eukaryotes or prokaryotes
2. aquatic animals or terrestrial animals
3. multicellular organisms or cellular organisms
4. amphibians or fish
5. reptiles or birds

*Answer:*

1. prokaryotes
2. aquatic animals
3. cellular organisms
4. fish
5. reptiles

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils and evolutionary history

39. The oldest ancestor of modern day horses had how many toes?

1. 5
2. 4
3. 3
4. 2
5. 1

Answer: B

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils and evolutionary history

40. Changes in species over time are well documented by \_\_\_\_\_\_ fossils.

1. cat
2. fish
3. horse
4. dog
5. chimpanzee

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils and evolutionary history

41. The driving force behind the evolution of horses is

1. diet.
2. climate.
3. floods.
4. catastrophes.
5. natural selection.

Answer: E

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts: fossils and evolutionary history

42. The four-toed ancestor of the modern horse would have been well suited to life in the

1. open grasslands.
2. desert.
3. savannah.
4. forest.
5. tropics.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:fossils and evolutionary history

43. What are the two conclusions about life on Earth that are derived from the theory of descent with modification?

*Answer:*

All living things are related.

The different species we see today have emerged over time as a result of natural selection operating over millions of years.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Hard

Important Words/Concepts:descent with modification, evolution

44. What were the two predictions of Darwin’s theory of evolution? Has the fossil record supported those predictions? Explain your answer.

*Answer:* Darwin’s theory of evolution predicted that all life on Earth is related and that modern species have emerged from small changes in ancestral species through natural selection. The fossil record has supported the theory of evolution with fossils of transitional organisms that have some ancestral traits and some modern traits.

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Hard

Important Words/Concepts**:** evolution, fossil record

45. Which of the following statements is FALSE?

1. The greatest evidence in support of the theory of evolution comes from fossils.
2. The fossil record is incomplete, even for vertebrates.
3. The fossil record provides great detail about the ancestors of animals such as jellyfish.
4. The fossil record shows that prokaryotes evolved before eukaryotes.
5. The fossil record contains intermediate organisms that have some ancestral traits as well as newer, more evolved traits.

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossil record

46. Which of the following statements is TRUE?

1. Prokaryotes and eukaryotes evolved at the same time.
2. *Tiktaalik* is a species that is intermediate between a fish and a reptile.
3. Evolution has been only poorly supported by the fossil record.
4. Animals with hard parts such as bones or shells are more likely to fossilize.
5. Thanks to extensive excavations, the fossil record is now nearly complete.

Answer: D

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Hard

Important Words/Concepts:evolution, fossil record

47. All of the following are TRUE about the evolution of the horse, EXCEPT

1. the earliest horselike ancestors appeared 2 million years ago.
2. horses evolved from ancestors that had four toes.
3. modern horses walk on the central toe.
4. the fossil record of the horse is fairly well studied.
5. some ancestral species evolved into two different species, one of which became an ancestor of the horse while the other became extinct.

Answer: A

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Hard

Important Words/Concepts:evolution, fossil record

48. Modern day horses have

1. five toes.
2. one toe.
3. four toes.
4. two toes.
5. three toes.

Answer: B

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:horse evolution

49. The most ancient horses had

1. five toes.
2. one toe.
3. four toes.
4. two toes.
5. three toes.

Answer: C

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Know It

Difficulty: Easy

Important Words/Concepts:horse evolution

50. You have four similar, apparently related fossils.

1. Fossil 1 is similar to a lobe-finned fish, with a neck, flexible wrists, finger bones, and thick ribs.
2. Fossil 2 is similar to a lobe-finned fish, with a neck and flexible wrists.
3. Fossil 3 is similar to a lobe-finned fish, with a neck.
4. Fossil 4 is appears to be an amphibian lacking scales, with a neck, flexible wrists, finger bones, and thick ribs.

Which one of these would be considered a tetrapod?

*Answer****:***Fossil 4

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Easy

Important Words/Concepts:evolution

51. You have four similar, apparently related fossils. The fossils are in labeled boxes, but there is a chance that another researcher working on your project mislabeled the boxes containing the specimens. You know the fossils were found at the following depths: 100 feet, 80 feet, 60 feet, and 35 feet.

1. Fossil 1 is similar to a lobe-finned fish, with a neck, flexible wrists, finger bones, and thick ribs.
2. Fossil 2 is similar to a lobe-finned fish, with a neck and flexible wrists.
3. Fossil 3 is similar to a lobe-finned fish, with a neck.
4. Fossil 4 is appears to be an amphibian lacking scales, with a neck, flexible wrists, finger bones, and thick ribs.

Put these fossils in order based on depth, from deepest to most shallow.

*Answer:* fossil 3, fossil 2, fossil 1, fossil 4

DQ: How does the fossil record reveal information about evolutionary changes?

Type: Use It

Difficulty: Hard

Important Words/Concepts:evolution, fossil layering

52. *Tiktaalik* is an important fossil because it is a(n)

1. intermediate fossil.
2. transitional fossil.
3. link between fish and tetrapods.
4. fish with useful terrestrial adaptations.
5. All of the above.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:the importance of transitional fossils

53. Which statement about *Tiktaalik* is FALSE?

1. It was a tetrapod.
2. It is a transitional fossil.
3. It did not have jointed fingers.
4. It was a fish with useful terrestrial adaptations.
5. Its neck was mobile.

Answer: A

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:the importance of transitional fossils

54. Which does NOT describe the body structure of *Tiktaalik*?

1. It had a long, flat head.
2. Gills were present.
3. It had sturdy ribs to support the body on land.
4. It had jointed fingers and toes.
5. Its neck was mobile.

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:the importance of transitional fossils

55. The fossil record could be improved with more of these.

1. whole animal fossils
2. transitional fossils
3. mold fossils
4. mineralized fossils
5. trace fossils

Answer: B

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:the importance of transitional fossils

56. The discovery of a transitional fossil is important because

1. it supports geologic timescale.
2. it supports relative dating.
3. it supports evolution and natural selection.
4. it supports relative and radiometric dating.
5. it supports paleontology.

Answer: C

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:the importance of transitional fossils

57.Velociraptor, of *Jurassic Park* fame, was one of many genera in the group of animals called dromeosaurs. The organisms in this group share characteristics of both dinosaurs that lived before they did and of birds, which evolved later. As such, they are

1. excellent examples of vestigial species that have gone extinct because their wings were insufficiently well developed to fly.
2. excellent examples of fossil intermediates that both support the predictions of descent with modification and help us understand the evolution of birds from their dinosaur ancestors.
3. excellent examples of fossil intermediates that both support the predictions of descent with modification and help us understand the evolution of dinosaurs from their bird ancestors.
4. excellent examples of how using DNA to study similarities and differences among organisms can help us infer evolutionary relationships among them.
5. excellent examples of evolutionary puzzles that cannot be explained by our current understanding of descent with modification.

Answer: B

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Medium

Important Words/Concepts: transitional fossils

58. List three challenges of living on land as compared with living in the water?

*Answer:*

Water supports the bodies of fish, but on land, animals have to have sturdy bodies to support themselves in order to overcome gravity.

Animals living on land risk drying out.

Taking in oxygen is different on land than in water.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:evolution, transitional fossil

59. All of the following are tetrapods, EXCEPT

* 1. ray-finned fishes.
	2. amphibians.
	3. reptiles.
	4. birds.
	5. mammals.

Answer: A

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts: evolution, tetrapod

60. A tetrapod is

* 1. an animal with two fins.
	2. an animal with four fins.
	3. an animal with two limbs.
	4. an animal with four limbs.
	5. an animal with four appendages intermediate between fins and limbs.

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts: evolution, tetrapod

61. List at least two ways in which *Tiktaalik* is like a fish and two ways in which it is like a tetrapod.

*Answer:*

Fishlike characteristics:

gills

forelimbs are fins with webbing and no distinct external digits

scales

small pelvic fins

Tetrapodlike characteristics:

long flat head

mobile neck not fused to shoulder

weight-bearing pectoral fins with jointed wrist and fingerlike bones

long sturdy ribs to support the body on land

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:evolution, tetrapod, *Tiktaalik*, transitional fossil

62. All of the following are features of a tetrapod, EXCEPT

1. two true limbs.
2. limbs made of bone.
3. limbs with jointed wrists.
4. limbs with jointed ankles.
5. limbs with digits.

Answer: A

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these typesof fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:evolution, tetrapod, transitional fossil

63. Which of the following statements is TRUE about *Tiktaalik*?

1. *Tiktaalik* represents the very first true amphibian.
2. *Tiktaalik* was an animal that thrived in deep waters.
3. *Tiktaalik* developed their specialized fins for the purpose of walking on land.
4. *Tiktaalik* was able to raise its head above water but could not travel on land.
5. *Tiktaalik* was a predator.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts: evolution, tetrapod, *Tiktaalik*, transitional fossil

64. Define what transitional fossils are and discuss why they are so important to the study of evolution.

*Answer:* Transitional fossils are fossils of organisms that show some features of ancient groups, as well as some features of modern groups. They are important because they help scientists understand how groups of organisms evolved through natural selection from one form into another, and they confirm Darwin’s theory of descent with modification.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:evolution, transitional fossil

65. The \_\_\_\_ -finned fish gave rise to tetrapods.

1. four
2. splay
3. ray
4. lobe
5. boney

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:lobe-finned fish

66. The \_\_\_\_ were the intermediates between ray-finned fish and tetrapods.

1. amphibians
2. caecilians
3. lobe-finned fish
4. reptiles
5. decapods

Answer: C

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:lobe-finned fish

67. Homology in comparative anatomy refers to

1. a similar shape and size.
2. similarity in size and function.
3. similarity of structure and a common ancestor.
4. similarity and no common ancestor.
5. similarity of structure but not function.

Answer: C

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and homologous structures

68. Which of the following statements is FALSE?

1. Homologous forelimbs are a result of common ancestry.
2. The forelimbs of tetrapods have the same common ancestor.
3. The human wrist is a structure that evolved in fish 375 million years ago.
4. Comparative anatomy is the study of bone structure in all organisms.
5. Variations in forelimb bone shape and function are evolutionary adaptations.

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and homologous structures

69. The wrist evolved in which organism 375 million years ago?

1. reptiles
2. fish
3. amphibians
4. birds
5. humans

Answer: B

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and homologous structures

70. Comparative anatomy ultimately links organisms to

1. a family tree.
2. one another.
3. a relative.
4. a common descendent.
5. a common ancestor.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:comparative anatomy and homologous structures

71. Which of the following may NOT indicate forelimb homology?

1. a similar structure of bones
2. the order of bones
3. the number of bones
4. the relative position of the bones
5. the function of the bones

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and homologous structures

72. If you looked at the mouthparts of a grasshopper, a butterfly, and a mosquito, you would see that they are very different. Grasshopper mouthparts are adapted for cutting and grinding up tough plant food; butterflies have a single, long, curled sucking tube for drinking nectar; and mosquitoes have both a sucking tube and needlelike structures for piercing skin. In spite of their differences, though, all three insects (indeed, all 900,000 species of insects!) have mouthparts composed of the same anatomical structures in the same positions. These facts tell you that

1. insect mouthparts are homologous and demonstrate that all insects inherited the same basic anatomical structures from a single common ancestor.
2. insect mouthparts are vestigial structures inherited from a common ancestor in which they were useful.
3. insect mouthparts are developmental homologies that demonstrate common ancestry for all insects.
4. DNA sequence homology among insects is very strong.
5. insects are unrelated; their mouthparts represent adaptations to their different ecological requirements.

Answer: A

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Medium

Important Words/Concepts:comparative anatomy and homologous structures

73. Define *homology*.

*Answer:* Homology is defined as anatomical, genetic, or developmental similarity among organisms due to common ancestry.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:homology

74. Which of the following statements about homology isTRUE?

1. It demonstrates how the same environment can lead to different physical structures.
2. It demonstrates how different environments can lead to the same physical structures.
3. It demonstrates that similarity of structures is due to descent from a common ancestor.
4. It demonstrates that similarity of structures can occur, even in the absence of common ancestors.
5. It demonstrates that similarity of structures is due to random chance.

Answer: C

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts: homology

75. Do you think the wing of a bird is homologous to the wing of a honeybee? Why or why not?

*Answer:* The wing of a bird is not homologous to the wing of a honeybee because, although they both function for flight, these wings did not arise from a common ancestor.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Hard

Important Words/Concepts:homology

76. Some snakes have small remnants of legs that they now use for clasping during mating. These leg remnants are

1. vestigial characteristics.
2. primitive arms.
3. faulty genitals.
4. homologous legs.
5. embryonic wings.

Answer: A

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts: vestigial

77. A structure inherited from an ancestor that no longer serves a function is a \_\_\_\_\_\_\_ structure.

1. homologous
2. primitive
3. faulty
4. vestigial
5. embryonic

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:vestigial

78. The similarity between the forearm of a human and an alligator suggests that

1. humans are reptiles (crocodilians).
2. humans once laid eggs.
3. alligators descended from mammals.
4. mammals descended from reptiles.
5. alligators and humans share a common ancestor.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:homology

79. The long bones of a bat wing are homologous to

1. the feathers of a bird.
2. the wings of an insect.
3. the humerus of a human.
4. the fingers of a frog.
5. ulnare of a wombat

Answer: C

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:homology

80. The humerus of *Tiktaalik* is homologous to the \_\_\_\_ of a human.

*Answer:* humerus

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts: homology

81. Compare the forearms of alligators and *Tiktaalik*.

*Answer: Tiktaalik* has the same basic bone structure (though the digits are inferred), but the bones are much shorter and stouter than in the alligator.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:homology

82. How can the human middle ear be similar to the jaw of a reptile or the bones gills of a fish?

*Answer:* All of these structures developed from the pharyngeal slits found in the early stage embryo of each.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:homology

83. Where have similarities in vertebrate embryological development been shown?

1. pharyngeal pouches
2. limb buds
3. a postanal tail
4. pharyngeal slits (or position of eyes on head)
5. All of the above.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and developmental homologous structures

84. The similarities of vertebrate embryos can be explained by

1. species homology.
2. snalogous structures.
3. vestigial structures.
4. descent from a common ancestor.
5. All of the above.

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and developmental homologous structures

85. The middle ear bones in humans is homologous to

1. the middle ear bones in fish.
2. the limb buds of a snake.
3. jaw bones of reptiles.
4. the notochord of fish.
5. a postanal tail in reptiles.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:comparative anatomy and developmental homologous structures

86. Early in development, vertebrate embryos develop a characteristic series of pouches in the “throat” region; these pouches are called pharyngeal arches. In the early 1800s, an embryologist named Karl Reichert determined that two of the three mammalian inner ear bones (the “hammer” and the “anvil”) arose from one of the pharyngeal arches. The same part of the same arch gives rise to the bones that form the jaw joint in reptiles. Which of the following best describes this finding?

A. This is an example of a fossil intermediate demonstrating how a series of complex traits evolved through time.

B. This is an example of how genetic similarities and differences can be used to determine how organisms are evolutionarily related.

C. This is an example of a developmental homology from which we can infer that reptiles and mammals are evolutionarily related.

D. This is an example of how a vestigial structure—the reptilian jaw joint—can be used to demonstrate that reptiles and mammals are evolutionarily related.

E. This is an example of how DNA mutations create fossil intermediates.

Answer: C

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Medium

Important Words/Concepts: developmental homologous structures

87. Explain how mutations in genes can lead to homologous structures in different species.

*Answer:* Mutations in genes can alter the proteins made by those genes. This variety of new proteins leads to variation in the population. Natural selection can then act on this variation and those new proteins that offer an advantage to an individual will be passed on to future offspring. This can lead to the development of homologous structures in different species.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts: homology

88. In the very early stages of embryonic development, distinguishing between a human embryo, a cat embryo, and a bird embryo is difficult. Why is this? What does this similarity tell us about evolution?

*Answer:* In the very early stages of embryonic development, a human, cat, and bird embryo all look remarkably similar. This similarity supports the theory of descent with modification. Because all vertebrates share common ancestry, this commonality is reflected in embryonic development.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:homology

89. All vertebrates have pharyngeal pouches in early embryonic development. What do these pouches become in fish? In reptiles? In humans and other mammals?

*Answer:* In fish, the pharyngeal pouches become bones that support the gills; in reptiles, they become the bones of the jaw; and in humans and other mammals, they become the middle ear bones.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Hard

Important Words/Concepts:homology

90. A structure inherited from an ancestor that no longer serves a clear purpose in an organism is called a

1. heterologous structure.
2. homologous structure.
3. rudimentary structure.
4. symbiotic structure.
5. vestigial structure.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Know It

Difficulty: Easy

Important Words/Concepts:homology, vestigial

91. A few birds, such as ostriches, have wings but cannot fly. Which of the following best explains this?

1. Ostriches are not true birds.
2. Ostriches evolved from an amphibian ancestor that had winglike arms and glided among trees.
3. When reptiles evolved into birds, some birds developed wings for flight, but others developed wings incapable of flight.
4. Ostriches evolved from a bird ancestor that flew.
5. Ostriches evolved first, then all other flying birds evolved from ostriches.

Answer: D

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Hard

Important Words/Concepts:homology, vestigial

92. Many fossils are mineralized and no longer contain DNA. You find three mineralized fossils representing different species. In the absence of DNA, how can you determine which two are more closely related to each other than they are to the third?

*Answer:* You can use similarity of anatomical features, or homology, as a means of determining relatedness among these three species.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:homology, vestigial

93. Considering the similarities in vertebrate embryos, what is responsible for the physical differences in appearances of vertebrate adults?

*Answer:*Differential gene expression.

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Hard

Important Words/Concepts: comparative anatomy and developmental homologous structures

94. The dissimilarities of the physical appearance of vertebrate adults can be explained by

1. species variation.
2. analogous structures.
3. vestigial structures.
4. descent from a common ancestor.
5. differential gene expression.

Answer: E

DQ: What features make *Tiktaalik* a transitional fossil, and what role do these types of fossils play in the fossil record?

Type: Use It

Difficulty: Easy

Important Words/Concepts:comparative anatomy and developmental homologous structures

 95. Which organism would have the most similar DNA to humans?

1. chimp
2. reptile
3. amphibian
4. bird
5. fish

Answer: A

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Easy

Important Words/Concepts: molecular evidence for evolution

96. Which statement is FALSE?

1. All organisms contain DNA.
2. The more shared DNA, the more closely related the species.
3. The less shared DNA, the more evidence for a common ancestor.
4. DNA can accumulate mutations over time
5. Neutral mutations can accumulate over time.

Answer: C

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Easy

Important Words/Concepts**:** molecular evidence for evolution

97. Which mutation would most likely be selected against during evolution?

1. a mutation in a noncoding region of a gene
2. a mutation in a coding region of a gene
3. a mutation in a noncoding promoter region
4. a mutation in a short tandem repeat region
5. a neutral mutation

Answer: B

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Hard

Important Words/Concepts:molecular evidence for evolution

98. If a protein is found in humans, chimps, birds, fish, and tetrapods, in which did it most likely evolve?

1. humans
2. chimps
3. fish
4. tetrapods
5. birds

Answer: C

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Easy

Important Words/Concepts:molecular evidence for evolution

99. In a comparison of DNA between two species, maximum homology and relatedness is indicated if

1. 100% of the bases are A, T, G, and C.
2. 100% of the amino acids are the same.
3. 100% of the noncoding regions are the same.
4. 100% of the DNA is the same in the coding region of a gene.
5. 100% of the DNA is the same in both coding and noncoding regions.

Answer: E

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Hard

Important Words/Concepts: molecular evidence for evolution

100. How does the molecular structure of DNA, along with the system of transcription and translation, support the theory of descent with modification?

*Answer:* All living organisms use the same system of four nucleotides in their DNA and decode the information in the same manner. The simplest explanation for this is that this system is the same one used by the first life form, and this system has been passed down to all other living organisms that descended from it.

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Hard

Important Words/Concepts:DNA, evolution, homology

101. Which of the following scenarios is most likely when comparing the DNA of a baboon and a human?

* 1. Coding regions and noncoding regions are both 90% similar between species.
	2. Coding regions are 75% similar and noncoding regions are 90% similar between species.
	3. Coding regions are 90% similar and noncoding regions are 75% similar between species.
	4. Coding regions are 50% similar and noncoding regions are 30% similar between species.
	5. Coding regions are 30% similar and noncoding regions are 50% similar between species.

Answer: C

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Easy

Important Words/Concepts:DNA, evolution, homology

102. Rank the following in order of least reliable evidence of common ancestry to most reliable.

* 1. similarity of habitat, similarity of anatomy, similarity of DNA
	2. similarity of habitat, similarity of DNA, similarity of anatomy
	3. similarity of anatomy, similarity of habitat, similarity of DNA
	4. similarity of DNA, similarity of anatomy, similarity of habitat
	5. similarity of DNA, similarity of habitat, similarity of anatomy

Answer: A

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Easy

Important Words/Concepts:DNA, evolution, homology

103. A great deal of medical research uses mice as model systems for human diseases. Why do you think this is? Why not use a fish instead?

*Answer:* Mice are better models for human disease because they are more genetically similar to humans because they have a more recent common ancestor. Thus, medical research on mice is more likely to be applicable to humans than research done on fish.

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Hard

Important Words/Concepts: DNA, evolution, homology

104. Kangaroo rats (actually mice) from the deserts of the southwestern United States look nearly identical to jerboas (also mice) from the deserts of Africa. You sequence one gene present in both species, as well as the same gene in the U.S. pocket mouse and the African jumping mouse. You obtain the following results. Based on the data, which species are most closely related to each other? What does this tell you about similarity of appearance and evolution?

U.S. kangaroo rat: GGACCCAGATCAGTAGGACT

U.S. pocket mouse: GGACGCAGATCATTAGGACT

African jerboa: GGATCCAAATTTGTCGGAGT

African jumping mouse: GGATCGAAATTTGTCGAAGT

*Answer:* The U.S. kangaroo mouse is most closely related to the U.S. deer mouse, while the African kangaroo mouse is most closely related to the African mouse. Thus, similarity of outward appearance does not necessarily indicate a close evolutionary relationship.

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Hard

Important Words/Concepts:DNA, evolution, homology

105. A 300-nucleotide sequence of DNA from humans and five other vertebrates were analyzed. Based on the following results, which is most distantly related to humans?

1. vertebrates with 45 nucleotides that differed from the human DNA
2. vertebrates with 65 nucleotides that differed from the human DNA
3. vertebrates with10 nucleotides that differed from the human DNA
4. vertebrates with 4 nucleotides that differed from the human DNA
5. vertebrates with 44 nucleotides that differed from the human DNA

Answer: B

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Easy

Important Words/Concepts:homologous DNA

106. A 200-nucleotide sequence of DNA from humans and five other vertebrates were analyzed. Based on the following results, which is most closely related to humans?

1. vertebrates with 45 nucleotides that differed from the human DNA
2. vertebrates with 65 nucleotides that differed from the human DNA
3. vertebrates with 10 nucleotides that differed from the human DNA
4. vertebrates with 4 nucleotides that differed from the human DNA
5. vertebrates with 44 nucleotides that differed from the human DNA

Answer: D

DQ: What can anatomy and DNA reveal about evolution?

Type: Know It

Difficulty: Easy

Important Words/Concepts:homologous DNA

107. A 100-nucleotide sequence of DNA from humans and five other vertebrates were analyzed, with the following results:

Species A had 45 nucleotides that differed from the human DNA.

Species B had 65 nucleotides that differed from the human DNA.

Species C had 10 nucleotides that differed from the human DNA.

Species D had 4 nucleotides that differed from the human DNA.

Species E had 44 nucleotides that differed from the human DNA.

Which of these is most distantly related to humans?

*Answer****:***Species B

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Easy

Important Words/Concepts:DNA homology

108. A 200 nucleotide sequence of DNA from humans and five other vertebrates were analyzed, with the following results:

Species A had 45 nucleotides that differed from the human DNA.

Species B had 65 nucleotides that differed from the human DNA.

Species C had 10 nucleotides that differed from the human DNA.

Species D had 4 nucleotides that differed from the human DNA.

Species E had 44 nucleotides that differed from the human DNA.

Which of these is most closely related to humans?

*Answer:* Species D

DQ: What can anatomy and DNA reveal about evolution?

Type: Use It

Difficulty: Easy

Important Words/Concepts:DNA homology

**General Questions**

1. Scientists who study ancient life are known as

1. jurassicologists.
2. fossilologists.
3. paleontologists.
4. fossicologists.
5. Darwinologists.

Answer: C

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossils

2. Invertebrates

1. have a strong backbone.
2. lack ribs and have a weak backbone.
3. have a tube of bone around their spinal cord.
4. lack a backbone.
5. almost always fossilize well.

Answer: D

Type: Know It

Difficulty: Easy

Important Words/Concepts: fossils

3. Animals first emerged from the water onto land about \_\_\_\_ million years ago.

1. 25 to 30
2. 275 to 300
3. 400 to 450
4. 375 to 385
5. 1 to 1.5

Answer: D

Type: Know It

Difficulty: Easy

Important Words/Concepts:fossils

4. The \_\_\_\_ was known as the Age of Fishes.

1. Cambrian
2. Silurian
3. Mississippian
4. Pre-Cambrian
5. Devonian

Answer: E

Type: Know It

Difficulty: Hard

Important Words/Concepts:fossils

5. The most direct evidence of evolution comes from

1. radiometric dating.
2. homologous skeletons.
3. mitochondrial DNA.
4. similar mating habits.
5. the fossil record.

Answer: E

Type: Know It

Difficulty: Hard

Important Words/Concepts: fossils

6. Why would you expect two species with very similar DNA to have very similar embryonic development?

*Answer:* Proteins not only make up a large part of an organism, they also include the enzymes that control the developmental process. DNA codes for proteins; so these two organisms would have very similar proteins, and thus, very similar developmental processes.

Type: Use It

Difficulty: Hard

Important Words/Concepts:homology

7. Why would you expect two species with very similar DNA to have very similar body forms?

*Answer:* Proteins not only make up a large part of an organism, they also include the enzymes that control the developmental process. DNA codes for proteins; so these two organisms would have very similar proteins, and thus, very similar developmental processes and very similar final body forms.

Type: Use It

Difficulty: Hard

Important Words/Concepts:homology