

Chapter 5 Section 1 Cells Heredity & Classification /38

Section: Change Over Time

1. One way to tell kinds of animals apart is by their _____.

DIFFERENCES AMONG ORGANISMS

_____ 2. How does adaptation help an organism?

- a. It helps the organism change colors.
- b. It improves its ability to survive and reproduce.
- c. It improves its ability to change species.
- d. It helps the organism become a fossil.

_____ 3. If one animal or plant has the same characteristics as another, they may both be part of the same

- a. evolution.
- b. planet.
- c. species.
- d. fossil record.

4. Two organisms that can mate to produce offspring that can reproduce belong to the same _____.

5. When members of the same species live in the same place, they form a(n) _____.

6. Since life began on Earth, many _____ have vanished and many new ones have appeared.

7. Scientists have observed that species _____ over time.

8. The inherited _____ in populations also change over time.

9. What can result as populations of organisms change?

10. The process by which new species gradually develop is called _____.

EVIDENCE OF CHANGES OVER TIME

_____ 11. Where do scientists look for evidence of evolution?

- a. in the layers of the Earth
- b. in caves
- c. in water
- d. in old books

Directed Reading A *continued*

- _____ **12.** What is a fossil?
- a.** a layer of sediment
 - b.** a living organism
 - c.** a very old organism
 - d.** remains of a once-living organism

13. Describe how a fossil is usually formed.

14. What is the timeline of life formed by studying fossils called?

15. How are fossils organized in the fossil record?

16. Fossils in newer layers of the Earth tend to resemble

current _____.

17. In older layers of the Earth, are fossils more or less likely to resemble today's animals or plants?

18. Some fossils may be of earlier life-forms that do not

_____ anymore.

EVIDENCE OF ANCESTRY

_____ **19.** The fossil record provides evidence about

- a.** the age of rocks.
- b.** the order in which species have existed.
- c.** the number of layers the Earth has.
- d.** the composition of minerals.

_____ **20.** All living things inherit similar traits from their

- a.** ancestors.
- b.** evolution.
- c.** fossils.
- d.** descendants.

Directed Reading A *continued*

21. As scientists study the fossil record, they may draw models to illustrate their _____ about the relationships between extinct and living organisms.

22. How is a new species or group of species represented in the scientist's model?

23. List two groups of animals that may share a common ancestor with whales.

2pts

24. Scientists think that all mammal species alive today evolved from common _____.

25. Scientists have combined information on hundreds of thousands of organisms to sketch out a _____ that includes all known organisms.

26. What does the lack of a fossil record for some of the Earth's history mean to scientists?

EXAMINING ORGANISMS

27. In addition to fossils, how can scientists learn about an organism's ancestors?

28. List three things about whales that tell scientists that they are not fish.

3pts

29. What does a whale body have that hints it had an ancestor that lived on land?

30. What evidence did scientists find that ancient land mammals evolved into modern whales?

Directed Reading A *continued*

COMPARING ORGANISMS

- _____ **31.** If you compared two kinds of living organisms, what might you learn about their history?
- a.** how long ago they evolved
 - b.** whether they share a common ancestor
 - c.** whether they live in the same place
 - d.** whether they could mate and reproduce
- _____ **32.** What do organisms inherit from ancestors?
- a.** mammal characteristics
 - b.** traits and DNA
 - c.** hind limbs
 - d.** new traits
- _____ **33.** What makes the human hand similar to a dolphin's flipper or a bat's wing?
- a.** the ability to flap
 - b.** the structure of the skin
 - c.** the order of their evolution
 - d.** the structure and order of bones
- _____ **34.** What does the similarity between humans, dolphins, cats, and bats indicate?
- a.** that they all evolved recently
 - b.** that their ancestors lived in the same place
 - c.** that they share a common ancestor
 - d.** that they are becoming more alike over time
- _____ **35.** If organisms with similar traits evolve from a common ancestor, what will they share?
- a.** similar DNA
 - b.** similar arms and legs
 - c.** the ability to mate with each other
 - d.** similar fossils

Chapter 5 Section 2 Cells Heredity & Classification /40

Section: How Does Evolution Happen?

1. List three things that scientists learned about Earth beginning in the 1800s.

(3pts)

CHARLES DARWIN

- _____ 2. What did Darwin do in order to study plants and animals?

- a. He took a trip around the world.
- b. He studied theology.
- c. He formed theories.
- d. He became a doctor.

- _____ 3. What did Darwin do during his travels?

- a. He wrote a book about his theory.
- b. He collected thousands of plant and animal samples.
- c. He took photos of plants and animals.
- d. He visited all the continents.

4. Darwin noticed that the plants and animals on the _____ were similar to, but not the same as, those in Ecuador.

5. What was one way that finches on different islands differed from each other?

6. What was the beak of each finch adapted to?

DARWIN'S THINKING

- _____ 7. What puzzled Darwin about the Galápagos finches?

- a. They were so different.
- b. They should not have been there.
- c. They were too similar.
- d. They were similar, but had many differences.

Directed Reading A *continued*

- _____ **8.** A specific characteristic that can be passed from parent to offspring through genes is a(n)
- a.** species.
 - b.** breeding.
 - c.** trait.
 - d.** adaptation.

9. What hypothesis did Darwin develop about the Galápagos finches?

10. What did Darwin do before presenting his new ideas?

Match the correct definition with the correct term. Write the letter in the space provided.

- | | |
|---|-------------------------------|
| _____ 11. the idea that human populations can grow faster than the food supply | a. Lyell's theory |
| _____ 12. the idea that Earth had formed naturally over a long period of time | b. selective breeding |
| _____ 13. the practice of breeding plants and animals to have desired traits | c. Malthus's principle |

14. Why do farmers and breeders use selective breeding?

15. Why might selective breeding be used in horses?

16. Why might selective breeding be used in fruit trees?

Directed Reading A *continued*

17. After reading Malthus's theory, Darwin realized that any species can produce many _____.
18. The number of a species' offspring is limited by starvation, disease, predation, or _____.
19. Darwin had begun to think that species could _____ in their environment.
20. Darwin had begun to think that species could _____ over time.
21. What idea of Darwin's about species was supported by Charles Lyell's book?

DARWIN'S THEORY OF NATURAL SELECTION

22. What was the name of Darwin's famous book?

23. What theory did Darwin introduce in the book?

Match the correct description with the correct term. Write the letter in the space provided.

- | | |
|--|-----------------------------------|
| _____ 24. Many more offspring are produced than will survive. | a. inherited variation |
| _____ 25. No two offspring are alike. | b. struggle to survive |
| _____ 26. Many offspring will be killed before reproducing. | c. overproduction |
| _____ 27. The best adapted organisms will have many offspring. | d. successful reproduction |

28. List two things that Darwin did not know in relation to his theory.

(2pts)

Directed Reading A *continued*

- 29.** Today, scientists explain natural selection in terms of changes in _____.
- 30.** Changes in genes occur when organisms produce _____.
- 31.** When organisms carry genes that make them more likely to survive to reproduce, the process called _____ occurs.
- 32.** Turn to page 109 and read the definition for SPECIES. A dog and a cat are both members of the same species, True or False? Why or why not?
- 33.** A lion and a cougar are both members of the same species, True or false? Why or why not?
- 34.** On page 109 find the definition for ADAPTATION. A polar bear possesses a thick coat in order to live in the Arctic. Is this an adaptation? Why or why not?
- 35.** Some dogs' tails can wag very quickly. Is this an adaptation? Why or why not?
- 36.** What does evolution mean?

Chapter 5 Section 3 Cells Heredity & Classification /20

Section: Natural Selection in Action

- _____ 1. Bacteria passing resistance to a medicine on to offspring is an example of
- | | |
|---|---|
| <p>a. natural selection.</p> <p>b. chemical action.</p> | <p>c. genetic change.</p> <p>d. overproduction.</p> |
|---|---|

CHANGES IN POPULATIONS

- _____ 2. What does natural selection explain about a population?
- a. how long it has been since it evolved
 - b. how it changes in response to its environment
 - c. how it resists change
 - d. how likely its members are to leave fossils
- _____ 3. Which individuals in a population are most likely to survive and reproduce?
- a. the largest ones
 - b. the ones with the most DNA
 - c. the best adapted ones
 - d. the oldest ones
- _____ 4. The growing rate of tuskless elephants in Uganda is an example of
- | | |
|---|---|
| <p>a. selective breeding.</p> <p>b. luck.</p> | <p>c. adaptation.</p> <p>d. speciation.</p> |
|---|---|
5. Why are tuskless elephants becoming more likely to reproduce than ones with tusks?

6. The ability of some insect species to resist chemicals is called insecticide _____.
7. The period of time between the birth of one generation and the birth of the next is known as the _____.
8. Insect species can develop resistance quickly because they have short _____.
9. Survival is only a part of natural selection. The other part takes place when organisms _____.

Directed Reading A *continued*

10. When competition for mates is intense, many organisms develop _____ to help attract mates.

FORMING A NEW SPECIES

Match the correct description with the correct term. Write the letter in the space provided.

- | | |
|--|----------------------|
| _____ 11. the formation of new species | a. adaptation |
| _____ 12. changes in response to the environment | b. division |
| _____ 13. the loss of ability of separated groups to interbreed | c. separation |
| _____ 14. the moving apart of populations | d. speciation |

15. Describe the process of forming a new species.

(3pts)

16. When a portion of a population becomes isolated, _____ often begins.

17. Through adaptation, members of separated groups may develop different _____.

18. If environmental conditions differ, _____ will also differ.

19. When members of related groups can no longer interbreed, they have become members of different _____.

Vocabulary Activity

Charles Darwin's Legacy

After you finish reading the chapter, give this puzzle a try! Use the clues to unscramble each word below and write it in the space provided.

1. SISEPCE a group of organisms that are closely related and can mate to produce fertile offspring _ _ _ _ _
2. CATEISPOIN the formation of a new species as a result of evolution _ _ _ _ _ _ _
3. ATRIT a genetically determined characteristic _ _ _ _
4. SVELETICE the human practice of breeding animals or plants that have certain desired characteristics _ _ _ _ _ _
DEGBENRI _ _ _ _ _
5. TAPATIDONA a structural, physiological, or behavioral characteristic that improves an individual's ability to survive and reproduce _ _ _ _ _ _
6. ALTRUAN the process by which individuals that are better adapted to their environment survive and reproduce more successfully than less well adapted individuals do _ _ _ _ _ _ _ _
LEOCSINET _ _ _ _ _
7. TEENOGANIR the period between the birth of one generation and the birth of the next generation _ _ _ _ _ _ _
METI _ _ _ _ _
8. SLOFIS the remains or physical evidence of an organism preserved by geological processes _ _ _ _ _
9. IFSOLS a historical sequence of life indicated by fossils found in layers of the Earth's crust _ _ _ _ _
CEDROR _ _ _ _ _

Now unscramble the circled letters to find Darwin's legacy.

10.