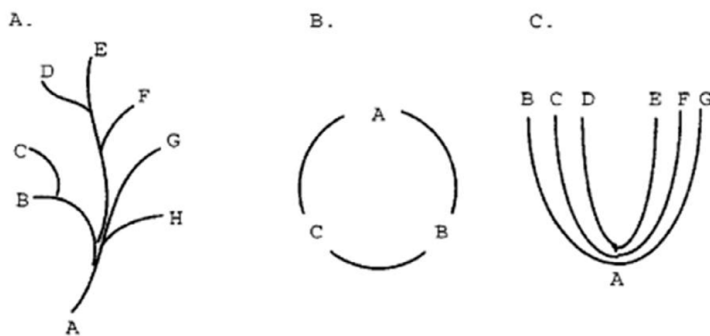


Student: _____

- In the process of speciation, a type of barrier between organisms is
 - hybridization.
 - mutation rate.
 - habitat preference.
 - All of these answers are true.
- The evolutionary explosion of new species from a common ancestor is
 - adaptive radiation.
 - convergent evolution.
 - divergent evolution.
 - gradualism.
- Over a period of many generations, a single species of snake has changed to the point that organisms from two different areas are no longer able to interbreed. This is an example of
 - divergent evolution.
 - polyploidy.
 - adaptive radiation.
 - convergent evolution.
- Which of the following would be homologous structures?
 - the wing of a bird and the wing of a bee
 - the wing of a bee and the wing of a bat
 - the wing of a bat and the arm of a human
 - All of these answers are correct.
- In the figure, the pattern of divergent evolution is best illustrated

Figure 13.1



by

- A.
 - B.
 - C.
 - None is a good illustration of divergent evolution.
- Which of the following would be analogous structures?
 - the wing of a bird and the wing of a bee
 - the wing of a bee and the wing of a bat
 - the wing of a bat and the wing of a bird
 - All of these answers are correct.

7. The several species of finches that developed on the group of islands in the Galápagos are an example of
 - A. convergent evolution.
 - B. adaptive radiation.
 - C. divergent evolution.
 - D. polyploidy.
8. Geographic isolation prevents
 - A. continental drift.
 - B. mating.
 - C. mutations.
 - D. polygenic inheritance.
9. The idea that species can remain unchanged for millions of years and then rapidly evolve within a short time is
 - A. adaptive radiation.
 - B. convergent evolution.
 - C. punctuated equilibrium.
 - D. gradualism.
10. Both bats and insects have wings; this is an example of
 - A. convergent evolution.
 - B. adaptive radiation.
 - C. divergent evolution.
 - D. polyploidy.
11. Of all of the species of organisms that have ever existed on Earth, it is estimated that about _____ percent have gone extinct.
 - A. 10
 - B. 50
 - C. 75
 - D. 99
12. If the embryos of a mating do not develop properly and die, thus preventing the offspring of two different species from continuing to reproduce, they are an example of
 - A. behavioral isolating mechanisms.
 - B. mechanical isolating mechanisms.
 - C. biochemical isolating mechanisms.
 - D. hybrid inviability.
13. New species may result from
 - A. polyploidy.
 - B. adaptive radiation.
 - C. divergent evolution.
 - D. All of these answers are true
14. Regarding the evolutionary history of organisms,
 - A. in most cases it is impossible to determine a species' close evolutionary relatives.
 - B. as new information is discovered, our understanding of the evolutionary history of organisms will change.
 - C. there are few techniques that allow us to develop evolutionary histories for organisms.
 - D. All of these answers are true.
15. Which of the following shows seasonal isolation?
 - A. Frogs mate in the spring and deer mate in the fall.
 - B. The pollen of different species of pine trees mature at different times.
 - C. The tulips bloom earlier in Tennessee than in New York.
 - D. None of these answers is correct.

16. The idea that evolution occurs in spurts of rapid change followed by long periods of little change is
- gradualism.
 - convergent evolution.
 - differential reproduction.
 - punctuated equilibrium.
17. Consider each of the following crosses and determine which pair of animals belongs to the same species.
- Horse × donkey—does not occur naturally; offspring sterile
 - Eastern milk snake × coastal plain milk snake—occurs naturally; offspring fertile
 - Lion × Tiger—does not occur naturally; offspring sterile
 - None of these answers is correct.
18. A geographic barrier
- is an isolating mechanism.
 - can stop gene flow.
 - is important for speciation to take place.
 - All of these answers are true.
19. The origin of the human species (*Homo sapiens*)
- begins with human-like organisms about 100 million years ago.
 - involved changes from a herbivore to carnivore way of life.
 - involved the direct development of humans from *Australopithecus*.
 - All of these answers are correct.
20. Two new species of plants that are morphologically similar (same leaf type, similar reproductive structures, etc.) are discovered. The botanist who discovers these plants determines that one species possesses sixteen chromosomes and the other species has thirty-two chromosomes. Both plants contain multiple sets of the same eight distinctly different chromosomes. The most probable explanation for these findings is that the second plant evolved from the first by
- divergent evolution.
 - convergent evolution.
 - adaptive radiation.
 - polyploidy.
21. Adaptive radiation results in which of the following?
- extinction in many cases
 - a divergence of body form and function
 - convergent evolution, for most cases
 - an increase in the amount of competition
22. Plants, unlike most animals, can occasionally form new species in one generation. The mechanism by which this happens is
- numerous mutations happening at once in an organism.
 - isolation.
 - punctuated equilibrium.
 - a doubling or a tripling of the chromosome numbers.
23. Whenever a species of an organism has been introduced into an area that contains a variety of unfilled niches, a variety of ecological opportunities are available and the descendants of this species evolve in a variety of ways. These variations permit the organisms to take advantage of these ecological opportunities. This illustrates
- the inheritance of characteristics that the individual developed as a response to the forces of the environment.
 - convergence.
 - polyploidy.
 - adaptive radiation.

24. Many kinds of cactus and other desert plants, such as a *Euphorbia*, are remarkably similar in that they have fleshy plant bodies and spines. Their flower structures, however, show that they are not related. The process considered to be responsible for their similarity in structure is
- convergent evolution.
 - divergent evolution.
 - adaptive radiation.
 - speciation by polyploidy.
25. Various species of lightning bugs have their own characteristic patterns of light flashes. Females flash an answering code to the males' code, and mating follows the recognition. This is an example of a genetic isolating mechanism called
- habitat preference.
 - seasonal isolation.
 - behavioral isolation.
 - introgressive hybridization.
26. Some species of plants cannot interbreed by pollinating each other because the sexual structures of the one species ripen and mature at a different time from the other. This genetic isolating mechanism is
- geographic.
 - seasonal isolation.
 - habitat preference.
 - behavioral.
27. Divergent evolution
- is more common than convergent evolution.
 - results in organisms that are less alike as time goes on.
 - can be seen in a wide variety of habitats.
 - All of these statements are true.
28. You would reasonably expect to find the subspecies of a particular species
- incapable of interbreeding.
 - occupying slightly different habitats or even distinct habitats.
 - having distinct differences from each other, so as to be easily recognized by the untrained observer.
 - All of these answers are true.
29. Movement of new individuals into a population can result in
- speciation.
 - isolation.
 - gene flow.
 - polyploidy.
30. The geographical distribution of a species is its
- habitat.
 - environment.
 - niche.
 - range.
31. Animal A can breed with animal D and produce a fertile offspring, animal C. If animal A breeds with animal B, they have a sterile offspring, animal E. The animals that belong to the same species are
- A and E.
 - A and B.
 - A and C.
 - B and E.
32. Two animals can mate and produce fertile offspring if they are members of **different**
- species.
 - subspecies.
 - orders.
 - None of these answers is true.

33. An example of a habitat preference is shown if an animal will only breed
- in the spring.
 - after a spring migration.
 - at night.
 - in a swamp.
34. An increase in the number of chromosomes present in an organism is known as
- polyploidy.
 - gene flow.
 - convergent evolution.
 - punctuated equilibrium.
35. A new highway is built in an area. Half of a population of a certain species of animal is on one side of the highway and half on the other side. The animals are unable to cross the highway. The highway creates an example of
- behavioral isolation.
 - seasonal isolation.
 - geographic isolation.
 - polyploidy.
36. Structures that are similar in different species and have a common ancestor are
- analogous.
 - related.
 - revolutionary.
 - homologous.
37. Many cave-dwelling animals, although unrelated, possess poor eyesight and little skin pigment. This is an example of
- punctuated equilibrium.
 - convergent evolution.
 - adaptive radiation.
 - divergent evolution.
38. An examination of fossil records shows that three modern species all had a common ancestor. This is an example of
- polyploidy.
 - divergent evolution.
 - convergent evolution.
 - three subspecies.
39. The genes you inherited from your parents are an example of
- speciation.
 - evolution.
 - adaptive radiation.
 - gene flow.
40. The mating displays of a male mallard duck do not attract a female pintail duck. This is an example of
- seasonal isolation.
 - behavioral isolation.
 - habitat preference.
 - geographic isolation.
41. Unrelated birds that nest in holes in trees produce eggs with white shells, as opposed to eggs with speckled or colored shells. This is an example of
- polyploidy.
 - ecological isolation.
 - convergent evolution.
 - range.

42. The courtship rituals of many related animals are highly species-specific and prevent the related species from mating. This is an example of
- habitat preference.
 - ecological isolation.
 - seasonal isolation.
 - behavioral isolation.
43. The evolutionary explosion of new species from a common ancestor is
- adaptive radiation.
 - convergent evolution.
 - divergent evolution.
 - gradualism.
44. The theory that evolution occurred slowly and that changes accumulate over long time periods is
- gradualism.
 - punctuated equilibrium.
 - convergent evolution.
 - divergent evolution.
45. A polyploid organism contains ____ set(s) of chromosomes.
- no
 - one
 - two
 - multiple
46. Two similar species with different habitat preferences are isolated by ____ isolation.
- reproductive
 - ecological
 - behavioral
 - seasonal
47. Two kinds of mice live in the same area but one is black and the other is brown. Which of the following questions would be most valuable in determining if they are of the same species?
- Do members of the two kinds mate with one another and have offspring that reproduce?
 - Do the two kinds have other physical differences other than color?
 - Are the brown mice eaten more often by owls than black mice?
 - Do the brown mice climb trees more often than black mice?
48. Which of the following would constitute a species?
- all the birds that live in Michigan
 - all the mallard ducks in the world
 - you as an individual
 - the weeds in your yard
49. The evolution of new species
- always takes millions of years.
 - can take place in one generation.
 - is a rare event over hundreds of millions of years.
 - is not occurring today.
50. Which of the following is NOT considered to be well-accepted evidence related to human evolution?
- Several species of *Australopithecus* and *Paranthropus* are known from early hominid fossils. They were herbivores and walked upright. Their fossils are only found in Africa.
 - Only a single species of the genus *Homo* became prominent in Africa and appeared to have made a change from a primarily herbivorous diet to a carnivorous diet.
 - Fossils of *Homo erectus* are found throughout Africa, Europe, and Asia, but not in Australia or the Americas.
 - Based on fossil evidence it appears that the climate of Africa was becoming drier during the time that hominid evolution was occurring.

51. Which is true?
- A. Neandertals were probably a different species from other early humans.
 - B. Neandertals and *Homo erectus* were the same genus.
 - C. *Australopithecus* was first discovered in Central America.
 - D. Several species of Neandertals were discovered in Europe.
52. The structure of sharks, perch, and whales are an example of
- A. convergent evolution.
 - B. adaptive radiation.
 - C. closely related animals.
 - D. polyploidy.
53. The shapes of flowers may permit only certain animals to carry pollen from one flower to the next. The type of isolating mechanism displayed here is
- A. morphological.
 - B. habitat.
 - C. geographic.
 - D. All of these answers are correct.
54. Molecules on the outside of the egg or sperm may trigger events that prevent their union if they are not from the same species. The type of isolating mechanisms displayed here is
- A. morphological.
 - B. biochemical.
 - C. habitat.
 - D. polyploidy.
55. Which of the following is not a piece of evidence that supports the theory of evolution?
- A. Changes in the genetic makeup of an individual organism have no influence on evolution.
 - B. Different populations of the same species show adaptations suitable for their local conditions.
 - C. Changes in the characteristics displayed by species can be linked to environmental changes.
 - D. Selective breeding of domesticated plants and animals indicates that the shape, color, behavior, . metabolism, etc., of organisms can be selected for.
56. DNA studies can be used to suggest genetic relatedness because
- A. it is assumed that all members of the same species have the same DNA.
 - B. DNA is easily preserved in fossils.
 - C. mutations are rarely seen in DNA studies.
 - D. it is assumed that recently diverged organisms would have similar DNA.
57. In the evolution of humans,
- A. fossils of extinct prehumans are only found in Africa.
 - B. one theory suggests that there were two or more migrations of human or human-like ancestors from Africa to Europe and Asia.
 - C. the earliest fossils of human ancestors are all found in Africa.
 - D. All of these answers are correct.
58. In order for a new species to be established from a previous species,
- A. there must be genetic differences between the two groups.
 - B. the two groups must have similar habitat requirements.
 - C. they must live in different places.
 - D. All of these answers are true.

14 Key

1. In the process of speciation, a type of barrier between organisms is
- A. hybridization.
 - B. mutation rate.
 - C.** habitat preference.
 - D. All of these answers are true.

Blooms Level: 1. Remember
Enger - Chapter 14 #1
Learning Outcome: Describe the steps necessary for speciation to occur.
Section: 14.02
Section: 14.03
Topic: Evolution-Speciation

2. The evolutionary explosion of new species from a common ancestor is
- A.** adaptive radiation.
 - B. convergent evolution.
 - C. divergent evolution.
 - D. gradualism.

Blooms Level: 1. Remember
Enger - Chapter 14 #2
Learning Outcome: Explain three basic evolutionary patterns.
Section: 14.04
Topic: Evolution-Speciation

3. Over a period of many generations, a single species of snake has changed to the point that organisms from two different areas are no longer able to interbreed. This is an example of
- A.** divergent evolution.
 - B. polyploidy.
 - C. adaptive radiation.
 - D. convergent evolution.

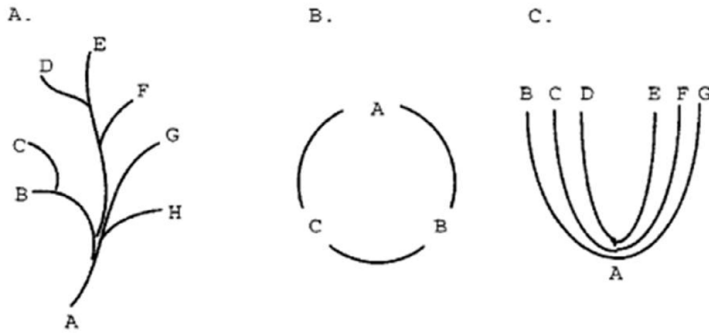
Blooms Level: 2. Understand
Enger - Chapter 14 #3
Learning Outcome: Explain three basic evolutionary patterns.
Section: 14.04
Topic: Evolution-Speciation

4. Which of the following would be homologous structures?
- A. the wing of a bird and the wing of a bee
 - B. the wing of a bee and the wing of a bat
 - C.** the wing of a bat and the arm of a human
 - D. All of these answers are correct.

Blooms Level: 1. Remember
Enger - Chapter 14 #4
Learning Outcome: Describe three kinds of evidence that support the concept of evolution.
Section: 14.04
Topic: Evolution-Speciation

5. In the figure, the pattern of divergent evolution is best illustrated

Figure 13.1



by

- A.** A.
 B. B.
 C. C.
 D. None is a good illustration of divergent evolution.

*Blooms Level: 5. Evaluate
 Enger - Chapter 14 #5*

*Learning Outcome: Explain three basic evolutionary patterns.
 Section: 14.04*

Topic: Evolution-Speciation

6. Which of the following would be analogous structures?

- A. the wing of a bird and the wing of a bee
 B. the wing of a bee and the wing of a bat
 C. the wing of a bat and the wing of a bird
D. All of these answers are correct.

*Blooms Level: 2. Understand
 Enger - Chapter 14 #6*

*Learning Outcome: Describe three kinds of evidence that support the concept of evolution.
 Section: 14.04*

Topic: Evolution-Speciation

7. The several species of finches that developed on the group of islands in the Galápagos are an example of

- A. convergent evolution.
B. adaptive radiation.
 C. divergent evolution.
 D. polyploidy.

*Blooms Level: 1. Remember
 Enger - Chapter 14 #7*

*Learning Outcome: Describe the steps necessary for speciation to occur.
 Section: 14.04*

Topic: Evolution-Speciation

8. Geographic isolation prevents

- A. continental drift.
B. mating.
 C. mutations.
 D. polygenic inheritance.

*Blooms Level: 1. Remember
 Enger - Chapter 14 #8*

*Learning Outcome: Describe the steps necessary for speciation to occur.
 Section: 14.02*

Section: 14.04

Topic: Evolution-Speciation

9. The idea that species can remain unchanged for millions of years and then rapidly evolve within a short time is
- A. adaptive radiation.
 - B. convergent evolution.
 - C. punctuated equilibrium.**
 - D. gradualism.

*Blooms Level: 1. Remember
Enger - Chapter 14 #9*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Learning Outcome: Describe three kinds of evidence that support the concept of evolution.
Section: 14.04*

Topic: Evolution-Speciation

10. Both bats and insects have wings; this is an example of
- A. convergent evolution.**
 - B. adaptive radiation.
 - C. divergent evolution.
 - D. polyploidy.

*Blooms Level: 1. Remember
Enger - Chapter 14 #10*

*Section: 14.04
Topic: Evolution-Speciation*

11. Of all of the species of organisms that have ever existed on Earth, it is estimated that about _____ percent have gone extinct.
- A. 10
 - B. 50
 - C. 75
 - D. 99**

*Blooms Level: 1. Remember
Enger - Chapter 14 #11*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Section: 14.04*

Topic: Evolution-Speciation

12. If the embryos of a mating do not develop properly and die, thus preventing the offspring of two different species from continuing to reproduce, they are an example of
- A. behavioral isolating mechanisms.
 - B. mechanical isolating mechanisms.
 - C. biochemical isolating mechanisms.
 - D. hybrid inviability.**

*Blooms Level: 2. Understand
Enger - Chapter 14 #12*

*Learning Outcome: Explain why reproductive isolation is important to the process of speciation.
Section: 14.03*

Topic: Evolution-Speciation

13. New species may result from
- A. polyploidy.
 - B. adaptive radiation.
 - C. divergent evolution.
 - D. All of these answers are true**

*Blooms Level: 2. Understand
Enger - Chapter 14 #13*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Section: 14.01
Section: 14.02*

Topic: Evolution-Speciation

14. Regarding the evolutionary history of organisms,
A. in most cases it is impossible to determine a species' close evolutionary relatives.
B. as new information is discovered, our understanding of the evolutionary history of organisms will change.
C. there are few techniques that allow us to develop evolutionary histories for organisms.
D. All of these answers are true.

Blooms Level: 1. Remember

Enger - Chapter 14 #14

Learning Outcome: Describe two examples of new discoveries that have refined our understanding of evolution without refuting it.

Section: 14.06

Topic: Evolution-Speciation

15. Which of the following shows seasonal isolation?
A. Frogs mate in the spring and deer mate in the fall.
B. The pollen of different species of pine trees mature at different times.
C. The tulips bloom earlier in Tennessee than in New York.
D. None of these answers is correct.

Blooms Level: 1. Remember

Enger - Chapter 14 #15

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.03

Topic: Evolution-Speciation

16. The idea that evolution occurs in spurts of rapid change followed by long periods of little change is
A. gradualism.
B. convergent evolution.
C. differential reproduction.
D. punctuated equilibrium.

Blooms Level: 1. Remember

Enger - Chapter 14 #16

Learning Outcome: Describe three kinds of evidence that support the concept of evolution.

Section: 14.04

Topic: Evolution-Speciation

17. Consider each of the following crosses and determine which pair of animals belongs to the same species.
A. Horse × donkey—does not occur naturally; offspring sterile
B. Eastern milk snake × coastal plain milk snake—occurs naturally; offspring fertile
C. Lion × Tiger—does not occur naturally; offspring sterile
D. None of these answers is correct.

Blooms Level: 2. Understand

Enger - Chapter 14 #17

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.01

Section: 14.03

Topic: Evolution-Speciation

18. A geographic barrier
A. is an isolating mechanism.
B. can stop gene flow.
C. is important for speciation to take place.
D. All of these answers are true.

Blooms Level: 1. Remember

Enger - Chapter 14 #18

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.02

Topic: Evolution-Speciation

19. The origin of the human species (*Homo sapiens*)
A. begins with human-like organisms about 100 million years ago.
B. involved changes from a herbivore to carnivore way of life.
C. involved the direct development of humans from *Australopithecus*.
D. All of these answers are correct.

Blooms Level: 1. Remember

Enger - Chapter 14 #19

Learning Outcome: State evidence that suggests humans originated in Africa.

Section: 14.07

Topic: Evolution-Speciation

20. Two new species of plants that are morphologically similar (same leaf type, similar reproductive structures, etc.) are discovered. The botanist who discovers these plants determines that one species possesses sixteen chromosomes and the other species has thirty-two chromosomes. Both plants contain multiple sets of the same eight distinctly different chromosomes. The most probable explanation for these findings is that the second plant evolved from the first by
- A. divergent evolution.
 - B. convergent evolution.
 - C. adaptive radiation.
 - D. polyploidy.**

*Blooms Level: 2. Understand
Enger - Chapter 14 #20*

*Learning Outcome: Describe how a study of chromosomes could determine if a species is a polyploid.
Section: 14.02*

Topic: Evolution-Speciation

21. Adaptive radiation results in which of the following?
- A. extinction in many cases
 - B. a divergence of body form and function**
 - C. convergent evolution, for most cases
 - D. an increase in the amount of competition

*Blooms Level: 1. Remember
Enger - Chapter 14 #21*

*Learning Outcome: Explain three basic evolutionary patterns.
Section: 14.04*

Topic: Evolution-Speciation

22. Plants, unlike most animals, can occasionally form new species in one generation. The mechanism by which this happens is
- A. numerous mutations happening at once in an organism.
 - B. isolation.
 - C. punctuated equilibrium.
 - D. a doubling or a tripling of the chromosome numbers.**

*Blooms Level: 2. Understand
Enger - Chapter 14 #22*

*Learning Outcome: Describe how polyploidy can result in the production of new species.
Section: 14.02*

Topic: Evolution-Speciation

23. Whenever a species of an organism has been introduced into an area that contains a variety of unfilled niches, a variety of ecological opportunities are available and the descendants of this species evolve in a variety of ways. These variations permit the organisms to take advantage of these ecological opportunities. This illustrates
- A. the inheritance of characteristics that the individual developed as a response to the forces of the environment.
 - B. convergence.
 - C. polyploidy.
 - D. adaptive radiation.**

*Blooms Level: 2. Understand
Enger - Chapter 14 #23*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Learning Outcome: Explain three basic evolutionary patterns.*

Section: 14.04

Topic: Evolution-Speciation

24. Many kinds of cactus and other desert plants, such as a *Euphorbia*, are remarkably similar in that they have fleshy plant bodies and spines. Their flower structures, however, show that they are not related. The process considered to be responsible for their similarity in structure is
- A. convergent evolution.**
 - B. divergent evolution.
 - C. adaptive radiation.
 - D. speciation by polyploidy.

*Blooms Level: 2. Understand
Enger - Chapter 14 #24*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Learning Outcome: Explain three basic evolutionary patterns.*

Section: 14.04

Topic: Evolution-Speciation

25. Various species of lightning bugs have their own characteristic patterns of light flashes. Females flash an answering code to the males' code, and mating follows the recognition. This is an example of a genetic isolating mechanism called
- A. habitat preference.
 - B. seasonal isolation.
 - C. behavioral isolation.**
 - D. introgressive hybridization.

Blooms Level: 2. Understand

Enger - Chapter 14 #25

Learning Outcome: Explain why reproductive isolation is important to the process of speciation.

Section: 14.02

Topic: Evolution-Speciation

26. Some species of plants cannot interbreed by pollinating each other because the sexual structures of the one species ripen and mature at a different time from the other. This genetic isolating mechanism is
- A. geographic.
 - B. seasonal isolation.**
 - C. habitat preference.
 - D. behavioral.

Blooms Level: 2. Understand

Enger - Chapter 14 #26

Learning Outcome: Explain why reproductive isolation is important to the process of speciation.

Section: 14.02

Topic: Evolution-Speciation

27. Divergent evolution
- A. is more common than convergent evolution.
 - B. results in organisms that are less alike as time goes on.
 - C. can be seen in a wide variety of habitats.
 - D. All of these statements are true.**

Blooms Level: 1. Remember

Enger - Chapter 14 #27

Learning Outcome: Explain three basic evolutionary patterns.

Learning Outcome: Give examples that explain why the rate of evolution can be different for different species.

Section: 14.04

Topic: Evolution-Speciation

28. You would reasonably expect to find the subspecies of a particular species
- A. incapable of interbreeding.
 - B. occupying slightly different habitats or even distinct habitats.**
 - C. having distinct differences from each other, so as to be easily recognized by the untrained observer.
 - D. All of these answers are true.

Blooms Level: 2. Understand

Enger - Chapter 14 #28

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.01

Section: 14.02

Topic: Evolution-Speciation

29. Movement of new individuals into a population can result in
- A. speciation.
 - B. isolation.
 - C. gene flow.**
 - D. polyploidy.

Blooms Level: 2. Understand

Enger - Chapter 14 #29

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.01

Section: 14.02

Topic: Evolution-Speciation

30. The geographical distribution of a species is its
A. habitat.
B. environment.
C. niche.
D. range.

*Blooms Level: 1. Remember
Enger - Chapter 14 #30*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Section: 14.01
Section: 14.02*

*Topic: Evolution-Speciation
Topic: General*

31. Animal A can breed with animal D and produce a fertile offspring, animal C. If animal A breeds with animal B, they have a sterile offspring, animal E. The animals that belong to the same species are
A. A and E.
B. A and B.
C. A and C.
D. B and E.

*Blooms Level: 2. Understand
Enger - Chapter 14 #31*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Learning Outcome: Explain why reproductive isolation is important to the process of speciation.
Section: 14.01
Section: 14.02
Section: 14.03*

Topic: Evolution-Speciation

32. Two animals can mate and produce fertile offspring if they are members of **different**
A. species.
B. subspecies.
C. orders.
D. None of these answers is true.

*Blooms Level: 2. Understand
Enger - Chapter 14 #32*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Learning Outcome: Explain why reproductive isolation is important to the process of speciation.
Section: 14.01
Section: 14.02
Section: 14.03*

Topic: Evolution-Speciation

33. An example of a habitat preference is shown if an animal will only breed
A. in the spring.
B. after a spring migration.
C. at night.
D. in a swamp.

*Blooms Level: 2. Understand
Enger - Chapter 14 #33*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Section: 14.01
Section: 14.02*

Topic: Evolution-Speciation

34. An increase in the number of chromosomes present in an organism is known as
A. polyploidy.
B. gene flow.
C. convergent evolution.
D. punctuated equilibrium.

*Blooms Level: 1. Remember
Enger - Chapter 14 #34*

*Learning Outcome: Describe how a study of chromosomes could determine if a species is a polyploid.
Learning Outcome: Describe how polyploidy can result in the production of new species.
Section: 14.02*

Topic: Evolution-Speciation

35. A new highway is built in an area. Half of a population of a certain species of animal is on one side of the highway and half on the other side. The animals are unable to cross the highway. The highway creates an example of
- A. behavioral isolation.
 - B. seasonal isolation.
 - C.** geographic isolation.
 - D. polyploidy.

*Blooms Level: 2. Understand
Enger - Chapter 14 #35*

*Learning Outcome: Explain why reproductive isolation is important to the process of speciation.
Section: 14.02
Topic: Evolution-Speciation*

36. Structures that are similar in different species and have a common ancestor are
- A. analogous.
 - B. related.
 - C. revolutionary.
 - D.** homologous.

*Blooms Level: 1. Remember
Enger - Chapter 14 #36*

*Learning Outcome: Describe three kinds of evidence that support the concept of evolution.
Section: 14.04
Topic: Evolution-Speciation*

37. Many cave-dwelling animals, although unrelated, possess poor eyesight and little skin pigment. This is an example of
- A. punctuated equilibrium.
 - B.** convergent evolution.
 - C. adaptive radiation.
 - D. divergent evolution.

*Blooms Level: 2. Understand
Enger - Chapter 14 #37*

*Learning Outcome: Explain three basic evolutionary patterns.
Section: 14.04
Topic: Evolution-Speciation*

38. An examination of fossil records shows that three modern species all had a common ancestor. This is an example of
- A. polyploidy.
 - B.** divergent evolution.
 - C. convergent evolution.
 - D. three subspecies.

*Blooms Level: 2. Understand
Enger - Chapter 14 #38*

*Learning Outcome: Explain three basic evolutionary patterns.
Section: 14.04
Topic: Evolution-Speciation*

39. The genes you inherited from your parents are an example of
- A. speciation.
 - B. evolution.
 - C. adaptive radiation.
 - D.** gene flow.

*Blooms Level: 1. Remember
Enger - Chapter 14 #39*

*Learning Outcome: Describe the steps necessary for speciation to occur.
Section: 14.01
Topic: Evolution-Speciation*

40. The mating displays of a male mallard duck do not attract a female pintail duck. This is an example of
- A. seasonal isolation.
 - B.** behavioral isolation.
 - C. habitat preference.
 - D. geographic isolation.

Blooms Level: 2. Understand

Enger - Chapter 14 #40

Learning Outcome: Explain why reproductive isolation is important to the process of speciation.

Section: 14.02

Topic: Evolution-Speciation

41. Unrelated birds that nest in holes in trees produce eggs with white shells, as opposed to eggs with speckled or colored shells. This is an example of
- A. polyploidy.
 - B. ecological isolation.
 - C.** convergent evolution.
 - D. range.

Blooms Level: 1. Remember

Enger - Chapter 14 #41

Learning Outcome: Explain three basic evolutionary patterns.

Section: 14.04

Topic: Evolution-Speciation

42. The courtship rituals of many related animals are highly species-specific and prevent the related species from mating. This is an example of
- A. habitat preference.
 - B. ecological isolation.
 - C. seasonal isolation.
 - D.** behavioral isolation.

Blooms Level: 2. Understand

Enger - Chapter 14 #42

Learning Outcome: Explain three basic evolutionary patterns.

Section: 14.02

Topic: Evolution-Speciation

43. The evolutionary explosion of new species from a common ancestor is
- A.** adaptive radiation.
 - B. convergent evolution.
 - C. divergent evolution.
 - D. gradualism.

Blooms Level: 1. Remember

Enger - Chapter 14 #43

Learning Outcome: Explain three basic evolutionary patterns.

Section: 14.04

Topic: Evolution-Speciation

44. The theory that evolution occurred slowly and that changes accumulate over long time periods is
- A.** gradualism.
 - B. punctuated equilibrium.
 - C. convergent evolution.
 - D. divergent evolution.

Blooms Level: 2. Understand

Enger - Chapter 14 #44

Learning Outcome: Give examples that explain why the rate of evolution can be different for different species.

Section: 14.02

Section: 14.05

Topic: Evolution-Speciation

45. A polyploid organism contains ____ set(s) of chromosomes.
A. no
B. one
C. two
D. multiple

*Blooms Level: 1. Remember
Enger - Chapter 14 #45*

*Learning Outcome: Describe how a study of chromosomes could determine if a species is a polyploid.
Learning Outcome: Describe how polyploidy can result in the production of new species.*

*Section: 14.01
Section: 14.02*

Topic: Evolution-Speciation

46. Two similar species with different habitat preferences are isolated by ____ isolation.
A. reproductive
B. ecological
C. behavioral
D. seasonal

*Blooms Level: 2. Understand
Enger - Chapter 14 #46*

*Learning Outcome: Explain why reproductive isolation is important to the process of speciation.
Section: 14.02*

Topic: Evolution-Speciation

47. Two kinds of mice live in the same area but one is black and the other is brown. Which of the following questions would be most valuable in determining if they are of the same species?
A. Do members of the two kinds mate with one another and have offspring that reproduce?
B. Do the two kinds have other physical differences other than color?
C. Are the brown mice eaten more often by owls than black mice?
D. Do the brown mice climb trees more often than black mice?

*Blooms Level: 3. Apply
Enger - Chapter 14 #47*

Section: 14.03

Topic: Evolution-Speciation

48. Which of the following would constitute a species?
A. all the birds that live in Michigan
B. all the mallard ducks in the world
C. you as an individual
D. the weeds in your yard

*Blooms Level: 2. Understand
Enger - Chapter 14 #48*

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.01

Section: 14.02

Topic: Evolution-Speciation

49. The evolution of new species
A. always takes millions of years.
B. can take place in one generation.
C. is a rare event over hundreds of millions of years.
D. is not occurring today.

*Blooms Level: 1. Remember
Enger - Chapter 14 #49*

Learning Outcome: Describe the steps necessary for speciation to occur.

Learning Outcome: Give examples that explain why the rate of evolution can be different for different species.

Section: 14.02

Section: 14.05

Topic: Evolution-Speciation

50. Which of the following is NOT considered to be well-accepted evidence related to human evolution?

- A. Several species of *Australopithecus* and *Paranthropus* are known from early hominid fossils. They were herbivores and walked upright. Their fossils are only found in Africa.
- B.** Only a single species of the genus *Homo* became prominent in Africa and appeared to have made a change from a primarily herbivorous diet to a carnivorous diet.
- C. Fossils of *Homo erectus* are found throughout Africa, Europe, and Asia, but not in Australia or the Americas.
- D. Based on fossil evidence it appears that the climate of Africa was becoming drier during the time that hominid evolution was occurring.

Blooms Level: 5. Evaluate

Enger - Chapter 14 #50

Learning Outcome: Describe current scientific theories for the evolution of modern humans.

Section: 14.07

Topic: Evolution-Speciation

51. Which is true?

- A.** Neandertals were probably a different species from other early humans.
- B. Neandertals and *Homo erectus* were the same genus.
- C. *Australopithecus* was first discovered in Central America.
- D. Several species of Neandertals were discovered in Europe.

Blooms Level: 5. Evaluate

Enger - Chapter 14 #51

Learning Outcome: Explain three differences between *Australopithecus* and members of the genus *Homo erectus*.

Section: 14.07

Topic: Evolution-Speciation

52. The structure of sharks, perch, and whales are an example of

- A.** convergent evolution.
- B. adaptive radiation.
- C. closely related animals.
- D. polyploidy.

Blooms Level: 2. Understand

Enger - Chapter 14 #52

Learning Outcome: Explain three basic evolutionary patterns.

Section: 14.04

Topic: Evolution-Speciation

53. The shapes of flowers may permit only certain animals to carry pollen from one flower to the next. The type of isolating mechanism displayed here is

- A.** morphological.
- B. habitat.
- C. geographic.
- D. All of these answers are correct.

Blooms Level: 2. Understand

Enger - Chapter 14 #53

Learning Outcome: Explain why reproductive isolation is important to the process of speciation.

Section: 14.04

Topic: Evolution-Speciation

54. Molecules on the outside of the egg or sperm may trigger events that prevent their union if they are not from the same species. The type of isolating mechanisms displayed here is

- A. morphological.
- B.** biochemical.
- C. habitat.
- D. polyploidy.

Blooms Level: 1. Remember

Enger - Chapter 14 #54

Learning Outcome: Explain why reproductive isolation is important to the process of speciation.

Section: 14.04

Topic: Evolution-Speciation

55. Which of the following is not a piece of evidence that supports the theory of evolution?
A. Changes in the genetic makeup of an individual organism have no influence on evolution.
B. Different populations of the same species show adaptations suitable for their local conditions.
C. Changes in the characteristics displayed by species can be linked to environmental changes.
D Selective breeding of domesticated plants and animals indicates that the shape, color, behavior, metabolism, etc., of organisms can be selected for.

*Blooms Level: 5. Evaluate
Enger - Chapter 14 #55*

Learning Outcome: Describe three kinds of evidence that support the concept of evolution.

Learning Outcome: Describe two examples of new discoveries that have refined our understanding of evolution without refuting it.

Section: 14.01

Section: 14.02

Section: 14.04

Section: 14.05

Section: 14.06

Topic: Evolution-Speciation

56. DNA studies can be used to suggest genetic relatedness because
A. it is assumed that all members of the same species have the same DNA.
B. DNA is easily preserved in fossils.
C. mutations are rarely seen in DNA studies.
D. it is assumed that recently diverged organisms would have similar DNA.

*Blooms Level: 2. Understand
Enger - Chapter 14 #56*

Learning Outcome: Describe the steps necessary for speciation to occur.

Learning Outcome: Describe three kinds of evidence that support the concept of evolution.

Section: 14.01

Section: 14.04

Topic: Evolution-Speciation

57. In the evolution of humans,
A. fossils of extinct prehumans are only found in Africa.
B. one theory suggests that there were two or more migrations of human or human-like ancestors from Africa to Europe and Asia.
C. the earliest fossils of human ancestors are all found in Africa.
D. All of these answers are correct.

*Blooms Level: 1. Remember
Enger - Chapter 14 #57*

Learning Outcome: Describe current scientific theories for the evolution of modern humans.

Learning Outcome: State evidence that suggests humans originated in Africa.

Section: 14.07

Topic: Evolution-Speciation

58. In order for a new species to be established from a previous species,
A. there must be genetic differences between the two groups.
B. the two groups must have similar habitat requirements.
C. they must live in different places.
D. All of these answers are true.

*Blooms Level: 2. Understand
Enger - Chapter 14 #58*

Learning Outcome: Describe the steps necessary for speciation to occur.

Section: 14.01

Section: 14.02

Section: 14.03

Topic: Evolution-Speciation

14 Summary

<u>Category</u>	<u># of Questions</u>
Blooms Level: 1. Remember	25
Blooms Level: 2. Understand	28
Blooms Level: 3. Apply	1
Blooms Level: 5. Evaluate	4
Enger - Chapter 14	58
Learning Outcome: Describe current scientific theories for the evolution of modern humans.	2
Learning Outcome: Describe how a study of chromosomes could determine if a species is a polyploid.	3
Learning Outcome: Describe how polyploidy can result in the production of new species.	3
Learning Outcome: Describe the steps necessary for speciation to occur.	22
Learning Outcome: Describe three kinds of evidence that support the concept of evolution.	7
Learning Outcome: Describe two examples of new discoveries that have refined our understanding of evolution without refuting it	2
.	
Learning Outcome: Explain three basic evolutionary patterns.	13
Learning Outcome: Explain three differences between Australopiths and members of the genus Homo erectus.	1
Learning Outcome: Explain why reproductive isolation is important to the process of speciation.	10
Learning Outcome: Give examples that explain why the rate of evolution can be different for different species.	3
Learning Outcome: State evidence that suggests humans originated in Africa.	2
Section: 14.01	14
Section: 14.02	25
Section: 14.03	8
Section: 14.04	25
Section: 14.05	3
Section: 14.06	2
Section: 14.07	4
Topic: Evolution-Speciation	58
Topic: General	1