

Student: \_\_\_\_\_

1. In dogs it's called a breed. In other animals, it's a subspecies. But in plants, it's called a
  - A. clone.
  - B. strain.
  - C. variety.
  - D. division.
  
2. A genetic counselor could give help regarding inherited
  - A. animal life.
  - B. plant varieties.
  - C. human diseases.
  - D. All of these answers are true.
  
3. All of the following statements about the individuals in a population are TRUE except which one?
  - A. They belong to the same species.
  - B. They contain identical genes.
  - C. They belong to the same gene pool.
  - D. They live in the same geographic area.
  
4. Hybrid plants are produced by \_\_\_\_ reproduction.
  - A. cloning
  - B. asexual
  - C. vegetative
  - D. sexual
  
5. Interspecific hybrids differ from intraspecific hybrids in that
  - A. interspecific hybrids are common and intraspecific hybrids are rare.
  - B. interspecific hybrids are fertile and intraspecific hybrids are not.
  - C. interspecific hybrids can introduce new genetic material to a population and intraspecific hybrids cannot.
  - D. None of the choices is correct.
  
6. If 10% of the human population exhibited an undesirable recessive human trait, sterilizing all those showing the trait would completely eliminate this gene in humans in about \_\_\_\_ generation(s).
  - A. one
  - B. ten
  - C. ninety
  - D. It would never eliminate it.
  
7. One species of plant contains several different groups. Each group is slightly different from the others and capable of sexual reproduction. These groups are called
  - A. subspecies.
  - B. clones.
  - C. species.
  - D. mutations.
  
8. All of the genes found in the striped bass in San Francisco Bay represent a
  - A. gene frequency.
  - B. gene pool.
  - C. species.
  - D. subspecies.
  
9. If you want to obtain more plants that are exactly like the parent plant, reproduction would be done
  - A. by producing hybrids.
  - B. sexually.
  - C. with gametes.
  - D. asexually.
  
10. Genetic engineering has
  - A. reduced genetic diversity.
  - B. expanded scientists' ability to modify domesticated plants and animals.
  - C. created entirely new species.
  - D. produced interspecific hybrids.
  
11. Eugenic laws were enacted in an attempt to
  - A. prevent some individuals from reproducing.
  - B. eliminate "bad genes" from the human population.
  - C. improve the human gene pool.
  - D. All of these answers are true.
  
12. Populations of roses that have different gene frequencies from one another are
  - A. clones.
  - B. hybrids.
  - C. varieties.
  - D. communities.
  
13. Plants that are exactly alike genetically are
  - A. homozygous.
  - B. mutants.
  - C. clones.
  - D. highly genetically diverse.
  
14. A particular type of common water snake is only found on islands in Lake Erie. This represents a
  - A. recessive trait.
  - B. genetically distinct population.
  - C. clone.
  - D. hybrid.

15. An advantage of sexual reproduction is to \_\_\_\_ among offspring.
- produce new gene combinations
  - reduce genetic diversity
  - introduce new genes into a species
  - None of the choices is correct.
16. Amniocentesis is used **mainly** to obtain information about
- an unborn child.
  - the mother.
  - the father.
  - All of these answers are true.
17. Monoculture is associated with
- intraspecific hybrids.
  - clones.
  - single species.
  - All of these answers are true.
18. A genetic counselor could help people having a concern about
- smallpox.
  - measles.
  - sickle-cell anemia.
  - the common cold.
19. The island water snake is one of several subspecies within the species that includes the common water snake. The island water snake has the same relationship to the common water snake as
- two different breeds of dog (collie and St. Bernard).
  - a jellyfish to a goldfish.
  - a cat to a wolf.
  - a poisonous snake to a nonpoisonous snake.
20. A species is a group of organisms that
- can produce fertile offspring when mated.
  - all live in the same geographic region.
  - always look the same in size and color.
  - All of these answers are true.
21. Only one parent is needed for
- sexual reproduction.
  - identical twins.
  - intraspecific hybrids.
  - asexual reproduction.
22. The term used when specifically discussing how common a particular allele is in a population is
- population frequency.
  - population number.
  - allele number.
  - allele frequency.
23. If two populations of a species show significant structural differences, it is likely that
- there is little sexual reproduction between populations.
  - they are reproductively isolated.
  - each is specifically adapted to a certain environmental situation.
  - All of the choices are correct.
24. A population that differs significantly from other populations of the same species is known as a
- breed.
  - subspecies.
  - variety.
  - All of these answers are true.
25. A farmer practicing monoculture would plant
- several varieties of wheat.
  - one variety of corn.
  - small fields.
  - None of these answers is true.
26. Which of the following would have the LEAST genetic diversity?
- a population of mice adapted to a specific location
  - a species with a world-wide distribution
  - a population of intraspecific hybrid corn plants used by farmers
  - a population of mice that only has 10,000 individuals
27. An outcome of asexual reproduction is
- reduced genetic diversity in the offspring.
  - increased genetic diversity in the offspring.
  - reduced ability to reproduce.
  - new gene combinations in the offspring.
28. Eugenic laws were an attempt to
- introduce new genes into the human gene pool.
  - improve the human gene pool.
  - identify the genes in the human gene pool.
  - reduce the size of the human population.
29. Distinctly different groups **within** a species are known as
- varieties.
  - breeds.
  - subspecies.

D. All of these answers are true.

30. Controlled mating of two parents of the same species, with different genotypes, to get the best combination of traits results in

- A. a clone.
- B. a new species.
- C. an interspecific hybrid.
- D. an intraspecific hybrid.

31. All of the genes shared by a population are its

- A. gene frequency.
- B. gene pool.
- C. fitness.
- D. gene flow.

32. Each of the following events actually occurs. Which case would be included in the definition of sexual reproduction?

- A. The female sex cell of a flower develops into a new generation after receiving the male sex cell from the same flower.
- B. A female sex cell develops into a new individual without fertilization.
- C. Three new plants develop from three branches cut from a plant and placed in potting soil.
- D. Twins develop.

33. Which term below is LEAST like the others?

- A. species
- B. subspecies
- C. variety
- D. clone

34. For two types of organisms to belong to the same species, they must

- A. look alike.
- B. live in the same geographic region.
- C. be able to naturally produce fertile offspring.
- D. contain the same gene frequencies.

35. Which of the following could NOT cause a gene frequency change?

- A. migration into or out of a population
- B. random mating
- C. mutation
- D. widespread epidemic disease causing the death of 90% of the organisms

36. A situation in which a genetically distinct local population is established by a few colonizing individuals is known as

- A. fitness.
- B. gene pooling.
- C. genetic drift.
- D. the founder effect.

37. Our agricultural populations are maintained artificially. This means that

- A. mutation must be stopped.
- B. random mating is prohibited.
- C. gene frequencies are allowed to change.
- D. asexual reproduction must be prohibited.

38. A clone is a

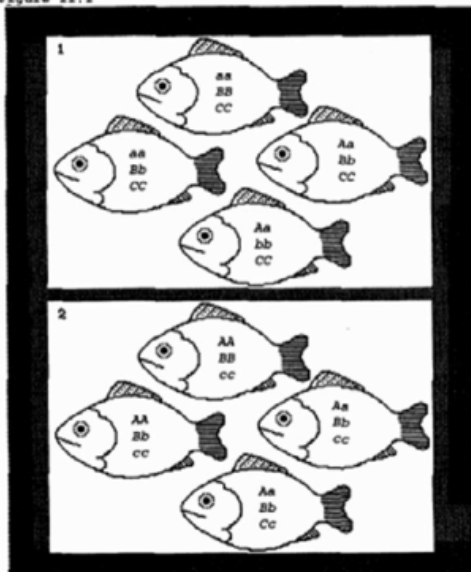
- A. species.
- B. mutation.
- C. new kind of organism.
- D. genetically distinct population.

39. The smaller a population, the

- A. more genetic diversity it contains.
- B. more likely it is that mutation will occur.
- C. more likely it is that random events will change the gene frequency.
- D. older the organisms are.

40. Boxes 1 and 2 of the figure most likely represent different

Figure 22.2

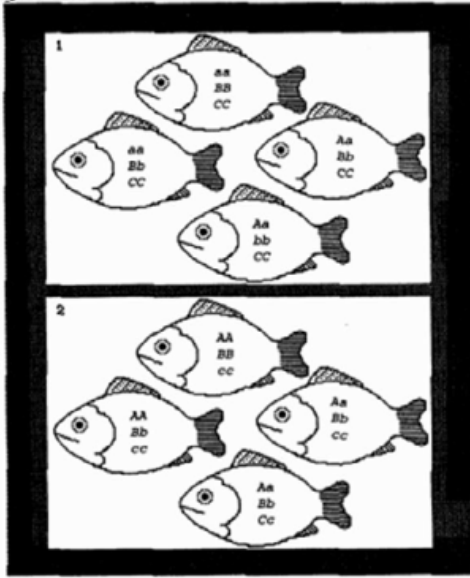


- A. species.
- B. clones.
- C. gene pools.
- D. communities.

41.

The two populations represented in boxes 1 and 2 of the figure

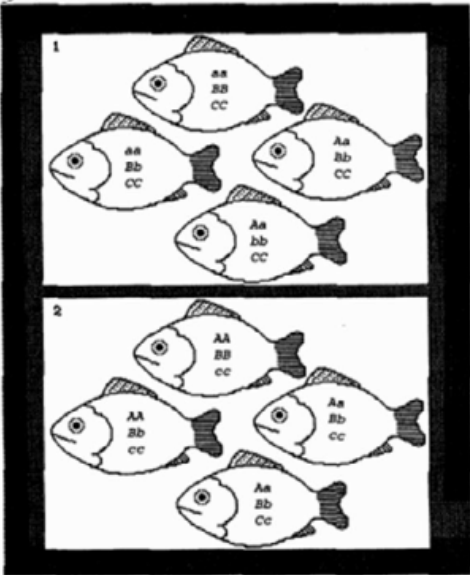
Figure 11.1



- A. have different allele frequencies.  
 B. are genetically identical.  
 C. contain the same alleles.  
 D. are probably different species.

42. The allele frequency of allele A for the collection of fish in box 2 of the figure is

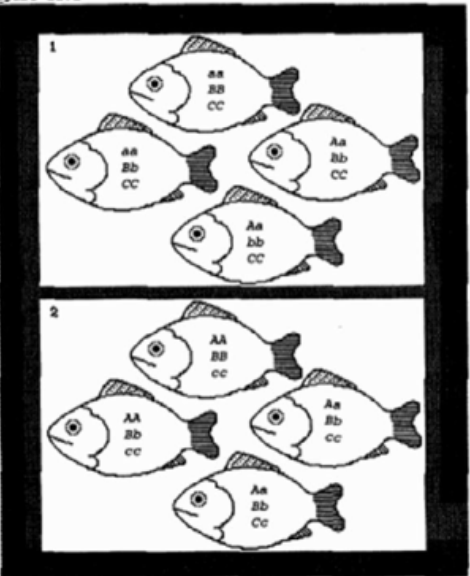
Figure 11.1



- A. 25%.  
 B. 50%.  
 C. 75%.  
 D. 100% and 50%.

43. The allele frequency of allele b for the collection of fish in box 1 of the figure is

Figure 11.1



- A. 25%.  
 B. 50%.  
 C. 75%.  
 D. 1:2:1.

44. Which of the following are used to distinguish species from one another?

- A. differences in the physical characteristics of organisms  
 B. differences in behavior  
 C. differences in metabolism  
 D. All of the choices are correct.

45. A danger associated with the use of specially developed plants in agriculture is that they

- A. are likely to escape and become pests.  
 B. often show great genetic diversity.  
 C. often have little genetic diversity.  
 D. typically cannot reproduce.

46. A small group of white-tailed deer cross the frozen water of Lake Michigan and establish a population on a remote island. This small group of deer can best be described as

- A. renegades.  
 B. a founding population.  
 C. a newly formed species.  
 D. a new gene pool.

47. A way for a **new** genetic characteristic to be introduced into a species is through
- migration.
  - mutation.
  - sexual reproduction within the species.
  - All of the choices are correct.
48. Which one of the following would have the greatest genetic diversity?
- an organism
  - a population
  - a species
  - All could have similar genetic diversity.
49. A term used to describe genetic differences among members of a population is
- species.
  - genetic diversity.
  - community.
  - biome.
50. Which of the following is **false** concerning eugenics?
- The eugenics movement passed laws meant to eliminate bad genes from the human gene pool.
  - Supporters of eugenics encouraged sterilization of the unfit.
  - Eugenics methods have been highly successful in reducing the frequencies of bad recessive alleles from the human population.
  - Eugenics methods have been unsuccessful, because recessive alleles are hidden in the heterozygous condition and can be passed on to offspring.
51. Which one of the following is **false** concerning intraspecific hybrids?
- An intraspecific hybrid is the offspring of two separate genetic lines.
  - Intraspecific hybrids result from asexual reproduction.
  - Selective breeding produces intraspecific hybrids for improved agricultural yields.
  - An intraspecific hybrid can contain desirable characteristics from two different strains.
52. You are studying populations of a certain species of frog in two ponds five kilometers apart. There are no other ponds in the area. In pond A all the frogs are small and have a few black spots on them. In pond B most of the frogs are large and lack spots but a few are small without spots and a few are large with spots. Which of the following is the most likely cause of the genetic diversity seen in pond B?
- The small frogs and spotted frogs in pond B are mutations.
  - Pond A frogs resulted from individuals migrating from pond B.
  - The small frogs and spotted frogs in pond B probably are the result of some frogs migrating from pond A to pond B.
  - Meiosis generated more genetic diversity in pond B than in pond A.
53. Which of the following populations will have the smallest number of genetically different individuals in it?
- a population of asexually reproducing lizards initiated by one female
  - a small island population of water snakes
  - a large cornfield of hybrid corn in Iowa
  - the robin population of Michigan
54. Which of the following would tend to produce populations with little genetic diversity?
- sexual reproduction between different subspecies
  - increasing the size of the population
  - encouraging the immigration of individuals into the population
  - producing a population from two original parents
55. Which of the following would generate new genes for a species?
- inbreeding among a small number of individuals
  - crossing over during meiosis
  - independent assortment during anaphase I of meiosis
  - mutations in the gametes
56. Which of the following would have the **greatest** genetic diversity?
- a subspecies
  - a local population of a species
  - a species
  - a population produced by asexual reproduction
57. Tay Sachs disease is more common in people with a certain Jewish ethnic background because
- mutations are more common in people with that ethnic background.
  - the frequency of the allele for Tay Sachs is higher in people with that ethnic background.
  - they only marry within their group.
  - the population has little genetic diversity.
58. Two kinds of mice live in the same area but one is black and the other is brown. The answer to 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?
59. You are studying two populations of a certain species of frog in two ponds five kilometers apart. There are no other ponds in the area. In pond A all the frogs are small and have a few black spots on them. In pond B most of the frogs are large and lack spots but a few are small without spots and a few are large with spots. Because of the differences in these two populations
- the distance between ponds is probably a barrier.
  - there is probably little interbreeding between the two populations.
  - the population in pond A could have gone through a genetic bottleneck.
  - All of the choices could be correct.
60. All of the following can increase the genetic diversity of a population except
- migration of individuals into a population from another population.
  - sexual reproduction.
  - asexual reproduction.
  - mutation.
61. Genetic drift is associated with

- A. asexually reproducing populations.
- B. the size of the population.
- C. increased genetic diversity in a population.
- D. All of the choices are correct.

62. Some local populations, and occasionally entire species, have reduced genetic diversity because their populations were severely reduced in the past. This is called a

- A. genetic bottleneck.
- B. frequency loss effect.
- C. genetic drift.
- D. population drain.

63. This term indicates that nearly all the individuals in the population have the same alleles.

- A. genetic bottleneck
- B. frequency loss effect
- C. low genetic diversity
- D. genetic drift

64. Using structural characteristics to differentiate species on the basis of key physical characteristics is called the

- A. morphological species concept.
- B. fitness concept.
- C. gene frequency concept.
- D. biological species concept.

## 12 KEY

1. In dogs it's called a breed. In other animals, it's a subspecies. But in plants, it's called a

- A. clone.
- B. strain.
- C.** variety.
- D. division.

*Blooms Level: 1. Remember  
Enger - Chapter 12 #1  
Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02  
Topic: Evolution—Population Genetics*

2. A genetic counselor could give help regarding inherited

- A. animal life.
- B. plant varieties.
- C.** human diseases.
- D. All of these answers are true.

*Blooms Level: 1. Remember  
Enger - Chapter 12 #2  
Learning Outcome: Describe why certain diseases are more common in some groups of people than in others.  
Section: 12.07  
Topic: Evolution—Population Genetics*

3. All of the following statements about the individuals in a population are TRUE except which one?

- A. They belong to the same species.
- B.** They contain identical genes.
- C. They belong to the same gene pool.
- D. They live in the same geographic area.

*Blooms Level: 1. Remember  
Enger - Chapter 12 #3  
Learning Outcome: State why all organisms of a species are not the same.  
Section: 12.01  
Section: 12.04  
Topic: Evolution—Population Genetics*

4. Hybrid plants are produced by \_\_\_\_ reproduction.

- A. cloning
- B. asexual
- C. vegetative
- D.** sexual

*Blooms Level: 1. Remember  
Enger - Chapter 12 #4  
Learning Outcome: Explain how hybrid plants and animals are produced.  
Section: 12.05  
Topic: Evolution—Population Genetics*

5. Interspecific hybrids differ from intraspecific hybrids in that

- A. interspecific hybrids are common and intraspecific hybrids are rare.
- B. interspecific hybrids are fertile and intraspecific hybrids are not.
- C. interspecific hybrids can introduce new genetic material to a population and intraspecific hybrids cannot.
- D.** None of the choices is correct.

*Blooms Level: 2. Understand  
Enger - Chapter 12 #5  
Learning Outcome: Explain how hybrid plants and animals are produced.  
Section: 12.05  
Topic: Evolution—Population Genetics*

6. If 10% of the human population exhibited an undesirable recessive human trait, sterilizing all those showing the trait would completely eliminate this gene in humans in about \_\_\_\_ generation(s).

- A. one
- B. ten
- C. ninety
- D.** It would never eliminate it.

*Blooms Level: 4. Analyze  
Enger - Chapter 12 #6  
Learning Outcome: Describe how a lack of understanding about population genetics contributed to the eugenics movements.  
Section: 12.07  
Section: 12.08  
Topic: Evolution—Population Genetics*

7. One species of plant contains several different groups. Each group is slightly different from the others and capable of sexual reproduction. These groups are called

- A.** subspecies.
- B. clones.
- C. species.
- D. mutations.

*Blooms Level: 1. Remember  
Enger - Chapter 12 #7  
Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02  
Topic: Evolution—Population Genetics*

8. All of the genes found in the striped bass in San Francisco Bay represent a

- A. gene frequency.
- B.** gene pool.
- C. species.
- D. subspecies.

*Blooms Level: 1. Remember  
Enger - Chapter 12 #8  
Learning Outcome: Distinguish between gene pool and genetic diversity.  
Section: 12.01  
Topic: Evolution—Population Genetics*

9. If you want to obtain more plants that are exactly like the parent plant, reproduction would be done

- A. by producing hybrids.
- B. sexually.
- C. with gametes.
- D.** asexually.

*Blooms Level: 2. Understand  
Enger - Chapter 12 #9  
Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
Section: 12.05  
Topic: Evolution—Population Genetics*

10. Genetic engineering has

- A. reduced genetic diversity.  
**B.** expanded scientists' ability to modify domesticated plants and animals.  
 C. created entirely new species.  
 D. produced interspecific hybrids.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #10  
 Learning Outcome: Describe how genetic engineering differs from the development of intraspecific hybrids and clones.  
 Section: 12.05  
 Topic: Evolution—Population Genetics

11. Eugenetic laws were enacted in an attempt to

- A. prevent some individuals from reproducing.  
 B. eliminate "bad genes" from the human population.  
 C. improve the human gene pool.  
**D.** All of these answers are true.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #11  
 Learning Outcome: Describe how a lack of understanding about population genetics contributed to the eugenics movements.  
 Section: 12.07  
 Section: 12.08  
 Topic: Evolution—Population Genetics

12. Populations of roses that have different gene frequencies from one another are

- A. clones.  
 B. hybrids.  
**C.** varieties.  
 D. communities.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #12  
 Learning Outcome: State why all organisms of a species are not the same.  
 Section: 12.02  
 Topic: Evolution—Population Genetics

13. Plants that are exactly alike genetically are

- A. homozygous.  
 B. mutants.  
**C.** clones.  
 D. highly genetically diverse.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #13  
 Learning Outcome: Describe how genetic engineering differs from the development of intraspecific hybrids and clones.  
 Section: 12.05  
 Topic: Evolution—Population Genetics

14. A particular type of common water snake is only found on islands in Lake Erie. This represents a

- A. recessive trait.  
**B.** genetically distinct population.  
 C. clone.  
 D. hybrid.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #14  
 Learning Outcome: Distinguish between gene pool and genetic diversity.  
 Section: 12.04  
 Topic: Evolution—Population Genetics

15. An advantage of sexual reproduction is to \_\_\_\_ among offspring.

- A.** produce new gene combinations  
 B. reduce genetic diversity  
 C. introduce new genes into a species  
 D. None of the choices is correct.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #15  
 Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
 Section: 12.02  
 Topic: Evolution—Population Genetics

16. Amniocentesis is used **mainly** to obtain information about

- A.** an unborn child.  
 B. the mother.  
 C. the father.  
 D. All of these answers are true.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #16  
 Learning Outcome: Discuss the ethics matters in relation to human population genetics.  
 Section: 12.08  
 Topic: Evolution—Population Genetics

17. Monoculture is associated with

- A. intraspecific hybrids.  
 B. clones.  
 C. single species.  
**D.** All of these answers are true.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #17  
 Learning Outcome: Describe the value and potential danger of the practice of monoculture.  
 Section: 12.05  
 Topic: Evolution—Population Genetics

18. A genetic counselor could help people having a concern about

- A. smallpox.  
 B. measles.  
**C.** sickle-cell anemia.  
 D. the common cold.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #18  
 Learning Outcome: Discuss the ethics matters in relation to human population genetics.  
 Section: 12.08  
 Topic: Evolution—Population Genetics

19. The island water snake is one of several subspecies within the species that includes the common water snake. The island water snake has the same relationship to the common water snake as

- A.** two different breeds of dog (collie and St. Bernard).  
 B. a jellyfish to a goldfish.  
 C. a cat to a wolf.  
 D. a poisonous snake to a nonpoisonous snake.



Blooms Level: 2. Understand  
Enger - Chapter 12 #19

Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02

Topic: Evolution—Population Genetics

20. A species is a group of organisms that

- A. can produce fertile offspring when mated.
- B. all live in the same geographic region.
- C. always look the same in size and color.
- D. All of these answers are true.

Blooms Level: 1. Remember  
Enger - Chapter 12 #20

Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02

Topic: Evolution—Population Genetics

21. Only one parent is needed for

- A. sexual reproduction.
- B. identical twins.
- C. intraspecific hybrids.
- D. asexual reproduction.

Blooms Level: 1. Remember  
Enger - Chapter 12 #21

Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
Section: 12.05

Topic: Evolution—Population Genetics

22. The term used when specifically discussing how common a particular allele is in a population is

- A. population frequency.
- B. population number.
- C. allele number.
- D. allele frequency.

Blooms Level: 1. Remember  
Enger - Chapter 12 #22

Learning Outcome: Describe three processes that could result in different populations of the same species having different gene combinations.  
Section: 12.02

Topic: Evolution—Population Genetics

23. If two populations of a species show significant structural differences, it is likely that

- A. there is little sexual reproduction between populations.
- B. they are reproductively isolated.
- C. each is specifically adapted to a certain environmental situation.
- D. All of the choices are correct.

Blooms Level: 2. Understand  
Enger - Chapter 12 #23

Learning Outcome: State why all organisms of a species are not the same.  
Section: 12.02

Topic: Evolution—Population Genetics

24. A population that differs significantly from other populations of the same species is known as a

- A. breed.
- B. subspecies.
- C. variety.
- D. All of these answers are true.

Blooms Level: 1. Remember  
Enger - Chapter 12 #24

Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02

Topic: Evolution—Population Genetics

25. A farmer practicing monoculture would plant

- A. several varieties of wheat.
- B. one variety of corn.
- C. small fields.
- D. None of these answers is true.

Blooms Level: 1. Remember  
Enger - Chapter 12 #25

Learning Outcome: Describe the value and potential danger of the practice of monoculture.  
Section: 12.05

Topic: Evolution—Population Genetics

26. Which of the following would have the LEAST genetic diversity?

- A. a population of mice adapted to a specific location
- B. a species with a world-wide distribution
- C. a population of intraspecific hybrid corn plants used by farmers
- D. a population of mice that only has 10,000 individuals

Blooms Level: 2. Understand  
Enger - Chapter 12 #26

Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.  
Section: 12.03

Topic: Evolution—Population Genetics

27. An outcome of asexual reproduction is

- A. reduced genetic diversity in the offspring.
- B. increased genetic diversity in the offspring.
- C. reduced ability to reproduce.
- D. new gene combinations in the offspring.

Blooms Level: 2. Understand  
Enger - Chapter 12 #27

Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
Section: 12.05

Topic: Evolution—Population Genetics

28. Eugenic laws were an attempt to

- A. introduce new genes into the human gene pool.
- B. improve the human gene pool.
- C. identify the genes in the human gene pool.
- D. reduce the size of the human population.

Blooms Level: 1. Remember  
Enger - Chapter 12 #28

Section: 12.08  
Topic: Evolution—Population Genetics

29. Distinctly different groups **within** a species are known as

- A. varieties.
- B. breeds.
- C. subspecies.
- D.** All of these answers are true.

Blooms Level: 1. Remember  
Enger - Chapter 12 #29  
Learning Outcome: Describe how a lack of understanding about population genetics contributed to the eugenics movements.  
Section: 12.02  
Topic: Evolution—Population Genetics

30. Controlled mating of two parents of the same species, with different genotypes, to get the best combination of traits results in

- A. a clone.
- B. a new species.
- C. an interspecific hybrid.
- D.** an intraspecific hybrid.

Blooms Level: 2. Understand  
Enger - Chapter 12 #30  
Learning Outcome: Explain how hybrid plants and animals are produced.  
Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
Section: 12.05  
Topic: Evolution—Population Genetics

31. All of the genes shared by a population are its

- A. gene frequency.
- B.** gene pool.
- C. fitness.
- D. gene flow.

Blooms Level: 1. Remember  
Enger - Chapter 12 #31  
Learning Outcome: Distinguish between gene pool and genetic diversity.  
Section: 12.01  
Topic: Evolution—Population Genetics

32. Each of the following events actually occurs. Which case would be included in the definition of sexual reproduction?

- A.** The female sex cell of a flower develops into a new generation after receiving the male sex cell from the same flower.
- B. A female sex cell develops into a new individual without fertilization.
- C. Three new plants develop from three branches cut from a plant and placed in potting soil.
- D. Twins develop.

Blooms Level: 4. Analyze  
Enger - Chapter 12 #32  
Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
Section: 12.03  
Topic: Evolution—Population Genetics

33. Which term below is LEAST like the others?

- A.** species
- B. subspecies
- C. variety
- D. clone

Blooms Level: 2. Understand  
Enger - Chapter 12 #33  
Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02  
Topic: Evolution—Population Genetics

34. For two types of organisms to belong to the same species, they must

- A. look alike.
- B. live in the same geographic region.
- C.** be able to naturally produce fertile offspring.
- D. contain the same gene frequencies.

Blooms Level: 1. Remember  
Enger - Chapter 12 #34  
Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02  
Section: 12.06  
Topic: Evolution—Population Genetics

35. Which of the following could NOT cause a gene frequency change?

- A. migration into or out of a population
- B.** random mating
- C. mutation
- D. widespread epidemic disease causing the death of 90% of the organisms

Blooms Level: 2. Understand  
Enger - Chapter 12 #35  
Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.  
Section: 12.03  
Section: 12.04  
Topic: Evolution—Population Genetics

36. A situation in which a genetically distinct local population is established by a few colonizing individuals is known as

- A. fitness.
- B. gene pooling.
- C. genetic drift.
- D.** the founder effect.

Blooms Level: 1. Remember  
Enger - Chapter 12 #36  
Learning Outcome: Describe three processes that could result in different populations of the same species having different gene combinations.  
Section: 12.04  
Topic: Evolution—Population Genetics

37. Our agricultural populations are maintained artificially. This means that

- A. mutation must be stopped.
- B.** random mating is prohibited.
- C. gene frequencies are allowed to change.
- D. asexual reproduction must be prohibited.

Blooms Level: 1. Remember  
Enger - Chapter 12 #37  
Learning Outcome: Describe the value and potential danger of the practice of monoculture.  
Section: 12.05  
Topic: Evolution—Population Genetics

38. A clone is a

- A. species.
- B. mutation.
- C. new kind of organism.
- D.** genetically distinct population.

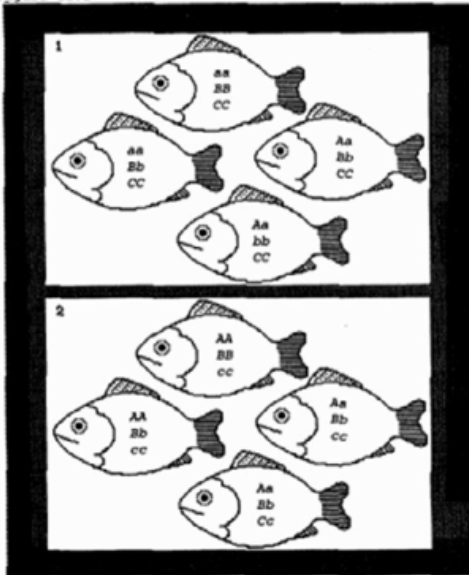
Blooms Level: 1. Remember  
 Enger - Chapter 12 #38  
 Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
 Section: 12.05  
 Topic: Evolution—Population Genetics

39. The smaller a population, the
- more genetic diversity it contains.
  - more likely it is that mutation will occur.
  - C.** more likely it is that random events will change the gene frequency.
  - older the organisms are.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #39  
 Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.  
 Section: 12.03  
 Section: 12.04  
 Topic: Evolution—Population Genetics

40. Boxes 1 and 2 of the figure most likely represent different

Figure 21.2

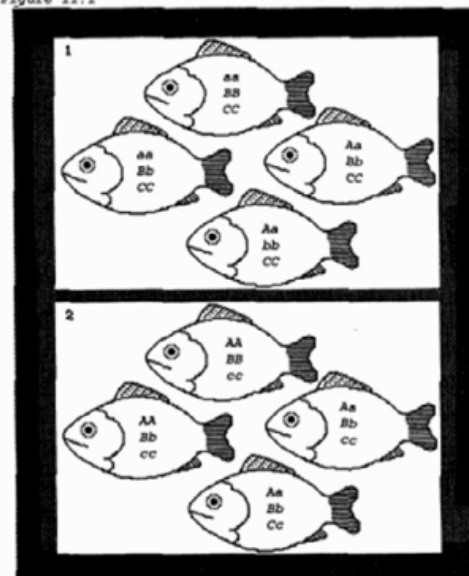


- species.
- clones.
- C.** gene pools.
- communities.

Blooms Level: 4. Analyze  
 Enger - Chapter 12 #40  
 Learning Outcome: Distinguish between gene pool and genetic diversity.  
 Section: 12.01  
 Topic: Evolution—Population Genetics

41. The two populations represented in boxes 1 and 2 of the figure

Figure 21.3

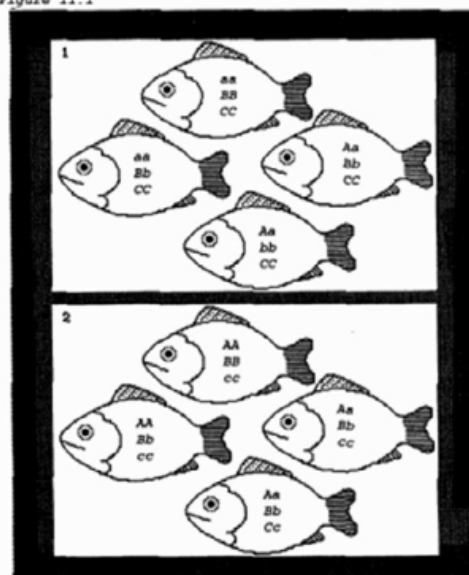


- A.** have different allele frequencies.
- are genetically identical.
- contain the same alleles.
- are probably different species.

Blooms Level: 4. Analyze  
 Enger - Chapter 12 #41  
 Learning Outcome: State why all organisms of a species are not the same.  
 Section: 12.02  
 Topic: Evolution—Population Genetics

42. The allele frequency of allele A for the collection of fish in box 2 of the figure is

Figure 21.2



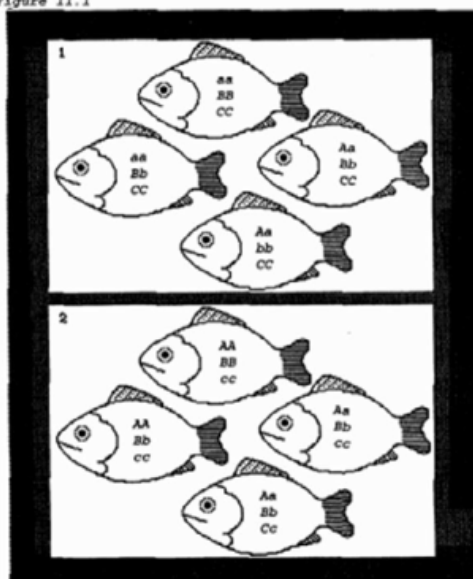
- A.** 25%.

- B. 50%.  
**C.** 75%.  
 D. 100% and 50%.

Blooms Level: 4. Analyze  
 Enger - Chapter 12 #42  
 Learning Outcome: State why all organisms of a species are not the same.  
 Section: 12.02  
 Topic: Evolution—Population Genetics

43. The allele frequency of allele b for the collection of fish in box 1 of the figure is

Figure 12.1



- A. 25%.  
**B.** 50%.  
 C. 75%.  
 D. 1:2:1.

Blooms Level: 4. Analyze  
 Enger - Chapter 12 #43  
 Learning Outcome: State why all organisms of a species are not the same.  
 Section: 12.02  
 Topic: Evolution—Population Genetics

44. Which of the following are used to distinguish species from one another?

- A. differences in the physical characteristics of organisms  
 B. differences in behavior  
 C. differences in metabolism  
**D.** All of the choices are correct.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #44  
 Learning Outcome: List three methods used to distinguish species from one another.  
 Section: 12.02  
 Topic: Evolution—Population Genetics

45. A danger associated with the use of specially developed plants in agriculture is that they

- A. are likely to escape and become pests.  
 B. often show great genetic diversity.  
**C.** often have little genetic diversity.  
 D. typically cannot reproduce.

Blooms Level: 2. Understand  
 Enger - Chapter 12 #45  
 Learning Outcome: Describe the value and potential danger of the practice of monoculture.  
 Section: 12.05  
 Topic: Evolution—Population Genetics

46. A small group of white-tailed deer cross the frozen water of Lake Michigan and establish a population on a remote island. This small group of deer can best be described as

- A. renegades.  
**B.** a founding population.  
 C. a newly formed species.  
 D. a new gene pool.

Blooms Level: 2. Understand  
 Enger - Chapter 12 #46  
 Learning Outcome: Describe three processes that could result in different populations of the same species having different gene combinations.  
 Section: 12.04  
 Topic: Evolution—Population Genetics

47. A way for a **new** genetic characteristic to be introduced into a species is through

- A. migration.  
**B.** mutation.  
 C. sexual reproduction within the species.  
 D. All of the choices are correct.

Blooms Level: 2. Understand  
 Enger - Chapter 12 #47  
 Learning Outcome: Describe three processes that could result in different populations of the same species having different gene combinations.  
 Section: 12.04  
 Topic: Evolution—Population Genetics

48. Which one of the following would have the greatest genetic diversity?

- A. an organism  
 B. a population  
**C.** a species  
 D. All could have similar genetic diversity.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #48  
 Learning Outcome: Distinguish between gene pool and genetic diversity.  
 Section: 12.04  
 Topic: Evolution—Population Genetics

49. A term used to describe genetic differences among members of a population is

- A. species.  
**B.** genetic diversity.  
 C. community.  
 D. biome.

Blooms Level: 1. Remember  
 Enger - Chapter 12 #49  
 Learning Outcome: Distinguish between gene pool and genetic diversity.

50. Which of the following is **false** concerning eugenics?

- A. The eugenics movement passed laws meant to eliminate bad genes from the human gene pool.
- B. Supporters of eugenics encouraged sterilization of the unfit.
- C.** Eugenics methods have been highly successful in reducing the frequencies of bad recessive alleles from the human population.
- D. Eugenics methods have been unsuccessful, because recessive alleles are hidden in the heterozygous condition and can be passed on to offspring.

Blooms Level: 2. Understand  
Enger - Chapter 12 #50

Learning Outcome: Describe how a lack of understanding about population genetics contributed to the eugenics movements.  
Section: 12.08  
Topic: Evolution—Population Genetics

51. Which one of the following is **false** concerning intraspecific hybrids?

- A. An intraspecific hybrid is the offspring of two separate genetic lines.
- B.** Intraspecific hybrids result from asexual reproduction.
- C. Selective breeding produces intraspecific hybrids for improved agricultural yields.
- D. An intraspecific hybrid can contain desirable characteristics from two different strains.

Blooms Level: 2. Understand  
Enger - Chapter 12 #51

Learning Outcome: Describe how genetic engineering differs from the development of intraspecific hybrids and clones.  
Section: 12.05  
Topic: Evolution—Population Genetics

52. You are studying populations of a certain species of frog in two ponds five kilometers apart. There are no other ponds in the area. In pond A all the frogs are small and have a few black spots on them. In pond B most of the frogs are large and lack spots but a few are small without spots and a few are large with spots. Which of the following is the most likely cause of the genetic diversity seen in pond B?

- A. The small frogs and spotted frogs in pond B are mutations.
- B. Pond A frogs resulted from individuals migrating from pond B.
- C.** The small frogs and spotted frogs in pond B probably are the result of some frogs migrating from pond A to pond B.
- D. Meiosis generated more genetic diversity in pond B than in pond A.

Blooms Level: 5. Evaluate  
Enger - Chapter 12 #52

Learning Outcome: State why all organisms of a species are not the same.  
Section: 12.02  
Section: 12.03  
Topic: Evolution—Population Genetics

53. Which of the following populations will have the smallest number of genetically different individuals in it?

- A.** a population of asexually reproducing lizards initiated by one female
- B. a small island population of water snakes
- C. a large cornfield of hybrid corn in Iowa
- D. the robin population of Michigan

Blooms Level: 2. Understand  
Enger - Chapter 12 #53

Learning Outcome: Relate cloning and hybridization to asexual and sexual reproduction.  
Section: 12.05  
Topic: Evolution—Population Genetics

54. Which of the following would tend to produce populations with little genetic diversity?

- A. sexual reproduction between different subspecies
- B. increasing the size of the population
- C. encouraging the immigration of individuals into the population
- D.** producing a population from two original parents

Blooms Level: 5. Evaluate  
Enger - Chapter 12 #54

Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.  
Section: 12.03  
Section: 12.05  
Topic: Evolution—Population Genetics

55. Which of the following would generate new genes for a species?

- A. inbreeding among a small number of individuals
- B. crossing over during meiosis
- C. independent assortment during anaphase I of meiosis
- D.** mutations in the gametes

Blooms Level: 2. Understand  
Enger - Chapter 12 #55

Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.  
Section: 12.03  
Section: 12.05  
Topic: Evolution—Population Genetics

56. Which of the following would have the **greatest** genetic diversity?

- A. a subspecies
- B. a local population of a species
- C.** a species
- D. a population produced by asexual reproduction

Blooms Level: 2. Understand  
Enger - Chapter 12 #56

Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.  
Section: 12.03  
Topic: Evolution—Population Genetics

57. Tay Sachs disease is more common in people with a certain Jewish ethnic background because

- A. mutations are more common in people with that ethnic background.
- B.** the frequency of the allele for Tay Sachs is higher in people with that ethnic background.
- C. they only marry within their group.
- D. the population has little genetic diversity.

Blooms Level: 1. Remember  
Enger - Chapter 12 #57

Learning Outcome: Describe why certain diseases are more common in some groups of people than in others.  
Section: 12.07  
Topic: Evolution—Population Genetics

58. Two kinds of mice live in the same area but one is black and the other is brown. The answer to 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: 4. Analyze  
Enger - Chapter 12 #58

Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.  
Section: 12.02  
Topic: Evolution—Population Genetics

59. You are studying two populations of a certain species of frog in two ponds five kilometers apart. There are no other ponds in the area. In pond A all the frogs are small and have a few black spots on them. In pond B most of the frogs are large and lack spots but a few are small without spots and a few are large with spots. Because of the differences in these two populations
- the distance between ponds is probably a barrier.
  - there is probably little interbreeding between the two populations.
  - the population in pond A could have gone through a genetic bottleneck.
  - D.** All of the choices could be correct.

*Blooms Level: 5. Evaluate*  
*Enger - Chapter 12 #59*

*Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.*  
*Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.*  
*Section: 12.02*  
*Section: 12.03*  
*Topic: Evolution—Population Genetics*

60. All of the following can increase the genetic diversity of a population except

- migration of individuals into a population from another population.
- sexual reproduction.
- C.** asexual reproduction.
- mutation.

*Blooms Level: 2. Understand*  
*Enger - Chapter 12 #60*

*Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.*  
*Section: 12.03*  
*Section: 12.05*  
*Topic: Evolution—Population Genetics*

61. Genetic drift is associated with

- asexually reproducing populations.
- B.** the size of the population.
- increased genetic diversity in a population.
- All of the choices are correct.

*Blooms Level: 1. Remember*  
*Enger - Chapter 12 #61*

*Learning Outcome: Describe three processes that could result in different populations of the same species having different gene combinations.*  
*Section: 12.04*  
*Topic: Evolution—Population Genetics*

62. Some local populations, and occasionally entire species, have reduced genetic diversity because their populations were severely reduced in the past. This is called a

- A.** genetic bottleneck.
- frequency loss effect.
- genetic drift.
- population drain.

*Blooms Level: 2. Understand*  
*Enger - Chapter 12 #62*

*Learning Outcome: Describe three processes that could result in different populations of the same species having different gene combinations.*  
*Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.*  
*Section: 12.04*  
*Topic: Evolution—Population Genetics*

63. This term indicates that nearly all the individuals in the population have the same alleles.

- genetic bottleneck
- frequency loss effect
- C.** low genetic diversity
- genetic drift

*Blooms Level: 2. Understand*  
*Enger - Chapter 12 #63*

*Learning Outcome: Explain how each of the following affects the genetic diversity within populations: mutation, sexual reproduction, population size, and migration.*  
*Section: 12.03*  
*Topic: Evolution—Population Genetics*

64. Using structural characteristics to differentiate species on the basis of key physical characteristics is called the

- A.** morphological species concept.
- fitness concept.
- gene frequency concept.
- biological species concept.

*Blooms Level: 1. Remember*  
*Enger - Chapter 12 #64*

*Learning Outcome: Explain the difference between the biological species concept and the morphological species concept.*  
*Section: 12.02*  
*Topic: Evolution—Population Genetics*



## **12 Summary**

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