

Speciation

1. What mechanism that causes reproductive isolation refers to differences in anatomy or physiology of the reproductive organs such that mating is impossible?

- A) Behavioral isolation
- B) Temporal isolation
- C) Hybrid inviability
- D) Mechanical isolation
- E) Gamete isolation

2. *Lactuca graminifolia* flowers in early spring and *L. canadensis* flowers in the summer. Although they live together, these two species rarely form hybrids due to

- A) behavioral isolation
- B) temporal isolation
- C) hybrid inviability
- D) gamete isolation
- E) mechanical isolation

3. What occurs when male and female genitalia are structurally incompatible or when flower structures select for different pollinators?

- A) Mechanical isolation
- B) Hybrid inviability
- C) Mechanical isolation
- D) Hybrid sterility
- E) Behavioral isolation

4. What occurs when a species does not recognize another species as a mating partner because it does not perform the correct courtship rituals, display the proper visual signals, sing the correct mating songs, or release the proper chemicals?

- A) Habitat isolation
- B) Temporal isolation
- C) Mechanical isolation
- D) Behavioral isolation
- E) Hybrid breakdown

5. Biological factor that prevents interbreeding between different species

- A) survival of the fittest
- B) acquired characteristics
- C) common ancestry
- D) reproductive isolation
- E) convergence

6. Gamete isolation

- A) is the incompatibility between the gametes of two different species
- B) is the physical barrier between the gametes of two different species
- C) refers to anatomical and physiological differences in the reproductive organs of organisms
- D) causes interbreeding
- E) enables the formation of the zygote

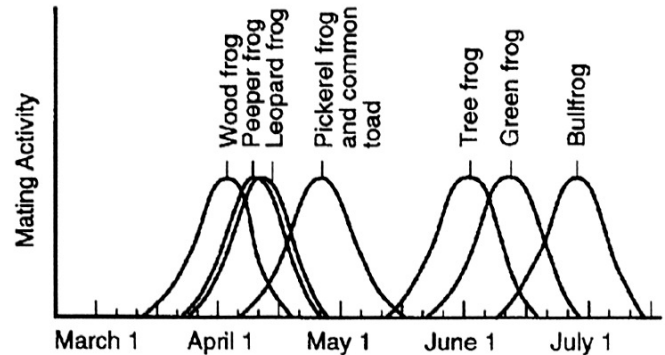
7. In terms of reproductive isolation, bird dance is an example of

- A) behavioral isolation
- B) temporal isolation
- C) mechanical isolation
- D) musical isolation
- E) hybrid inviability

8. Which of the following prevents individuals of different species living in the same community from interbreeding successfully?

- A) Reproductive isolation
- B) Sterility
- C) Conditioning
- D) Imprinting
- E) Temporal isolation

9. Base your answer on the diagram below.



Each of these populations of frogs belong to the same species and live in the same regions. Why is the Tree frog unable to mate with the Leopard frog?

- A) Temporal isolation
- B) Allopatric speciation
- C) Physical isolation
- D) Mechanical isolation
- E) A Tree frog cannot interbreed with a Leopard frog

10. Which of the following is the best example of mechanical isolation?

- A) Two species of garter snake, one living in water, the other on land.
- B) Flowering plants that are pollinated by certain insects or other animals.
- C) Characteristic courtship rituals among fireflies.
- D) Two parasites living on different hosts.
- E) The Western Spotted Skunk and the Eastern Spotted Skunk mating at different times of the day.

11. The Eastern Spotted Skunk and the Western Spotted Skunk are two species that inhabit the same geographic area. There is never interbreeding between the two skunk species because the Eastern Spotted Skunk mates during the summer, and the Western Spotted Skunk mates during the late winter.

This is an example of which prezygotic barrier?

- A) Gametic isolation
- B) Habitat isolation
- C) Behavioral isolation
- D) Temporal isolation
- E) Hybrid breakdown

Speciation

12. Two or more morphologically distinct forms in a population constitute a(n)

- A) cline
- B) genus
- C) inbreeding
- D) mutation
- E) polymorphism

13. Which statement about a mechanism of speciation is INCORRECT?

- A) Sympatric speciation occurs within a population and without geographical isolation
- B) Allopatric speciation is the formation of new species through the geographic isolation of groups from the parent population
- C) Sympatric speciation is rare in plants, but not in animals
- D) Allopatric speciation occurs through colonization
- E) Adaptive radiation is the formation of new species arising from a common ancestor resulting from their adaptation to different environments.

14. Which of the following is NOT an example of allopatric speciation?

- A) After a catastrophic event there not many survivors remaining in a community
- B) A few people colonize a new territory
- C) A group of organisms are separated from their parents so they start their own community
- D) Formation of a new species arising from a common ancestor resulting from their adaptation to different environments
- E) A geological disruption occurs

15. Some members of a given species are experimentally placed on the west side of a mountain while another group of members of the same species as the first are experimentally placed on the east side of a mountain. After many generations separated from one another, the two groups are rejoined but are now unable to mate with one another. This experiment demonstrated which evolutionary process?

- A) Allopatric speciation
- B) Sympatric speciation
- C) Adaptive radiation
- D) Genetic drift
- E) The bottleneck effect

16. Adaptive radiation refers to

- A) the genetic response of an organism to excessive exposure to radiation, whereby certain genes become more firmly expressed
- B) the genetic mutation inflicted upon an organism from long-term exposure to radiation
- C) the development of many species from a single ancestral population
- D) the development of totally unrelated organisms in the same manner because of adaptation to similar environments
- E) none of the above

17. The eyes of squids and vertebrates are physically and functionally similar; however, these animals do not share a recent common ancestor. This is an example of

- A) divergent evolution
- B) convergent evolution
- C) coevolution
- D) parallel evolution
- E) allopatric speciation

18. Phylogenies are useful for scientists because they

- A) reconstruct the evolutionary history and common ancestry of various organisms.
- B) they are indisputable evidence of past evolutionary patterns.
- C) calibrate how long ago two similar species diverged.
- D) measure the number of similarities between organisms.
- E) are based on morphological characteristics.

19. Groups of finches from given populations migrated and began occupying several habitats on the Galapagos Islands. The evolutionary pathway that accounts for the existence of many species of finch on a specific Galapagos Island is

- A) adaptive radiation
- B) punctuated equilibrium
- C) genetic drift
- D) isolation
- E) convergent evolution

20. Which of the following describes when populations resemble each other but are completely unrelated?

- A) directional selection
- B) stabilizing selection
- C) divergent evolution
- D) convergent evolution
- E) speciation

21. The scientific name *Homo sapiens* refers to an organism's

- A) genus and species designation
- B) class and genus designation
- C) order and species designation
- D) phylum and genus designation
- E) family and species designation

22. *Homo erectus*, *Homo habilis*, and *Homo sapiens* all have the same

- A) phylum
- B) species
- C) genus
- D) class
- E) family

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