

Biology Chapter 16-3, Pgs. 404-410  
The Process of Speciation

Objectives: Students will

- A) Define speciation.
- B) Identify and define the three types of isolation that leads to speciation.
- C) State the six steps to speciation.
- D) Summarize how episodic speciation, mass extinction, and biodiversity affects the survival of a species.

A) Define speciation.

**What is a SPECIES?**

Group of \_\_\_\_\_

- \_\_\_\_\_
- \_\_\_\_\_

Can \_\_\_\_\_  
successfully in nature

- \_\_\_\_\_ are \_\_\_\_\_
  - \_\_\_\_\_ are \_\_\_\_\_
- (can \_\_\_\_\_)



A) Define speciation.

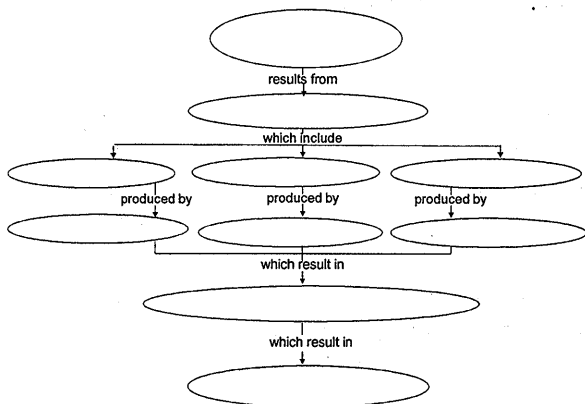
- \_\_\_\_\_
- **1) Evolution of \_\_\_\_\_ from a \_\_\_\_\_.**
- **2) \_\_\_\_\_ species can no longer \_\_\_\_\_ with \_\_\_\_\_**
- **Results from:**  
- \_\_\_\_\_ - 3 types
- 1. \_\_\_\_\_ = \_\_\_\_\_
- 2. \_\_\_\_\_ = \_\_\_\_\_
- 3. \_\_\_\_\_ = \_\_\_\_\_



B) Identify and define the three types of isolation that leads to speciation.

Vocabulary Word	Link Word	Picture
Divergent Evolution		
Convergent Evolution		
Adaptive Radiation		

B) Identify and define the three types of Isolation that leads to speciation.

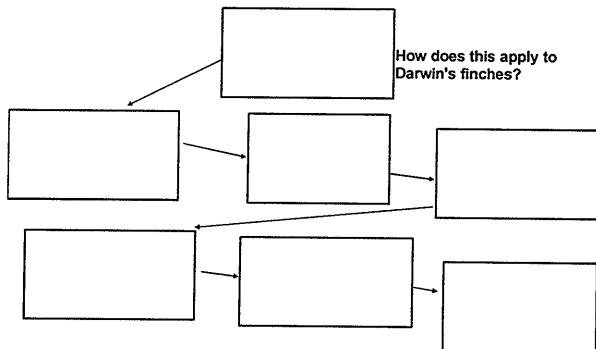


**Understanding Check**

Which of these would have the least effect on natural selection in a subspecies of giraffes that is geographically isolated from other subspecies of giraffes?

- A available niches
- B existing predators
- C chromosome number
- D available food resources

C) State the six steps to speciation.



D) Summarize how episodic speciation, mass extinction, and biodiversity affects the survival of a species.

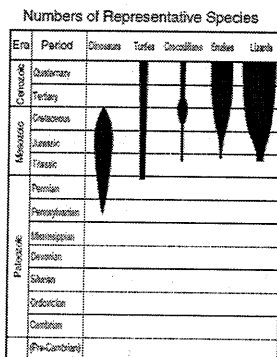
## Biodiversity

- \_\_\_\_\_ and \_\_\_\_\_ of a \_\_\_\_\_ in a \_\_\_\_\_.
- Ensures specie \_\_\_\_\_
- Example: If the world \_\_\_\_\_ and \_\_\_\_\_ varieties of birds exist = \_\_\_\_\_ chances of \_\_\_\_\_ bird surviving \_\_\_\_\_.

## STAR Prep

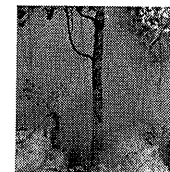
According to this information, which group demonstrated the greatest biodiversity during the Cretaceous period?

- A dinosaurs
- B crocodilians
- C snakes
- D lizards



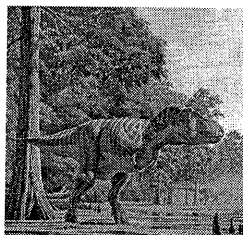
D) Summarize how episodic speciation, mass extinction, and biodiversity affects the survival of a species.

- Is a \_\_\_\_\_
- \_\_\_\_\_, volcanic eruption, flooding, \_\_\_\_\_
- Results
  - \_\_\_\_\_
  - New \_\_\_\_\_ to adapt to new \_\_\_\_\_
  - New open \_\_\_\_\_ (habitats)
  - Opportunity for \_\_\_\_\_ species to \_\_\_\_\_



D) Summarize how episodic speciation, mass extinction, and biodiversity affects the survival of a species.

- Is a sharp \_\_\_\_\_ in number of \_\_\_\_\_ in a \_\_\_\_\_
- Affects \_\_\_\_\_ species \_\_\_\_\_ at that time
- Results = \_\_\_\_\_ and/or drop in \_\_\_\_\_



– Example

- Cretaceous-Tertiary Extinction = \_\_\_\_\_

### Understanding Check – STAR Questions

A small population of chimpanzees lives in a habitat that undergoes no changes for a long period. How will genetic drift probably affect this population?

- A It will accelerate the appearance of new traits.
- B It will promote the survival of chimpanzees with beneficial traits.
- C It will increase the number of alleles for specific traits.
- D It will reduce genetic diversity.

If a paleontologist finds fossils of many different species existing in the same area at approximately the same time, the paleontologist can conclude that the ecosystem in this area had a high degree of \_\_\_\_\_

A small portion of a population that is geographically isolated from the rest of the population runs the risk of decreased \_\_\_\_\_

- A genetic drift
- B mutation rate.
- C natural selection.
- D genetic variation

- A climatic variation.
- B episodic speciation.
- C biological diversity.
- D geographic isolation.