

Lesson 7.5

Speciation

Name

Date

Period

Key Terms

Allopatric Speciation

Reproductive Isolation

Species

Speciation



Engage I



Iguana *iguana*

In the summer of 1995, at least 15 iguanas survived Hurricane Marilyn on a raft of uprooted trees. They rode the high seas for a month before colonizing the Caribbean island, Anguilla. These few individuals were perhaps the first of their species, *Iguana iguana*, to reach the island.

1. Will the descendents of these invaders have the same physical and behavior adaptations as their ancestors? Why or Why not?



Anguilla

2. Will the descendants be able to successfully breed with their ancestors? Why or Why not?



Explore I: Speciation Reading

Each student will receive four short articles.

As you read the articles take notes, **IN YOUR OWN WORDS.**

Remember the notes are to help you understand the key ideas in the article.

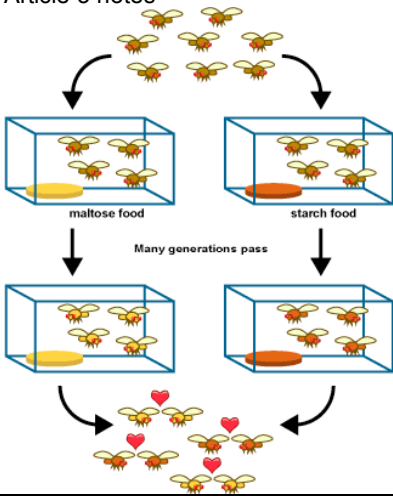
Article 1 notes



Article 2 notes



Article 3 notes



Article 4 notes



Explain I



3. What can happen to a population of organisms separated by a geographic barrier?
4. What is this process called?
5. Reflect on the iguanas that washed ashore on Anguilla, what do you predict will happen to their descendents?

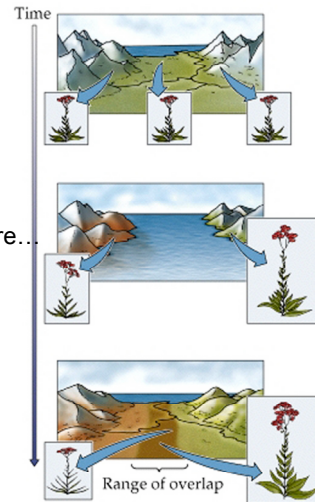


Brown Anole Lizards (*Anolis sagrei*) were introduced to 14 Bahaman islands from a single source island (Staniel Cay). The new islands had environments significantly different than Staniel Cay.

6. Their physical traits were studied over 10-14 years, and *significant* differences were observed between the physical traits of the lizards on the new islands after 10-14 years and original lizards from Staniel Cay. Explain why these changes in traits may have occurred, using the terms evolution, species, and allopatric *speciation* in your response.

7. Explain what process occurred with the plants to the right.

8. A mule is sterile offspring of a horse and a donkey. A horse and a donkey are...
 - a) members of the same species.
 - b) not members of the same species.
9. A Labrador dog and a beagle dog can produce fertile offspring. The Labrador and the beagle are....
 - a) members of the same species.
 - b) not members of the same species.



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10. Two organisms can be considered to be of different species if they

- | | |
|---|---|
| a) have genes drawn from the same gene pool | c) mutate at different rates depending on their environment |
| b) live in two different geographic areas | d) cannot mate with each other and produce fertile offspring. |

11. Two squirrel populations are prevented from mating only because they live on opposite sides of the Colorado River. These squirrels have acquired different physical and behavioral adaptations. They do not interbreed. The situation is an example of

- | | |
|---------------------------|--------------------------|
| a) reproductive isolation | c) adaptive radiation |
| b) natural selection | d) allopatric speciation |

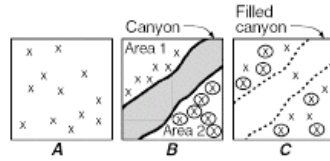
Use the information below for questions 12-13

The diagrams below represent the changes in the habitat containing a population of non-flying insects, represented by x, over a period of time.

Diagram A represents the distribution of these insects before a major canyon was formed.

Diagram B represents the distribution of insects after a canyon was formed.

Diagram C represents the insect distribution after the canyon was filled in as a result of a shift in the earth's surface.



12. Thousands of years after the canyon was formed, the insects in area 2 appeared different from those in area 1. This difference was probably due to...

- a) x and X acquiring adaptations related to their different environments
- b) insect migration across the canyon
- c) more atmospheric oxygen in area 2 than area 1
- d) x and X interbreeding freely

13. After the canyon was filled, x and X would no longer be considered the same species if

- a) they were different colors
- b) they were different sizes
- c) they could no longer interbreed and produce fertile offspring
- d) their feeding habits changed