Name_____ Class_____ Date_____

Section 16–3 The Process of Speciation (pages 404–410)

This section explains how species evolve and describes the process of speciation in the Galápagos Islands.

Introduction (page 404)

1. What is speciation? _____

Isolating Mechanisms (pages 404–405)

2. Is the following sentence true or false? Individuals in different species can have the same gene pool. _____
3. What does it mean for two species to be reproductively isolated from each other?

   _____

   _____
4. What must happen in order for new species to evolve? _____

   _____
5. List three ways that reproductive isolation occurs.

   a. _____ **c.** _____

   b. _____
6. When does behavioral isolation occur? _____

   _____

   _____
7. Is the following sentence true or false? Eastern and Western meadowlarks are an example of behavioral isolation. _____
8. When does geographic isolation occur? _____

   _____

   _____
9. Abert and Kaibab squirrels in the Southwest are an example of _____ isolation.
10. Is the following sentence true or false? Geographic barriers guarantee the formation of new species. _____
11. What is an example of temporal isolation? _____

    _____

    _____

Testing Natural Selection in Nature (pages 406–407)

12. Is the following sentence true or false? The basic mechanisms of evolutionary change cannot be observed in nature. _____

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13. Circle the letter of each hypothesis about the evolution of Galápagos finches that was tested by the Grants.

a. The finches' beak size and shape has enough inheritable variation to provide raw material for natural selection.

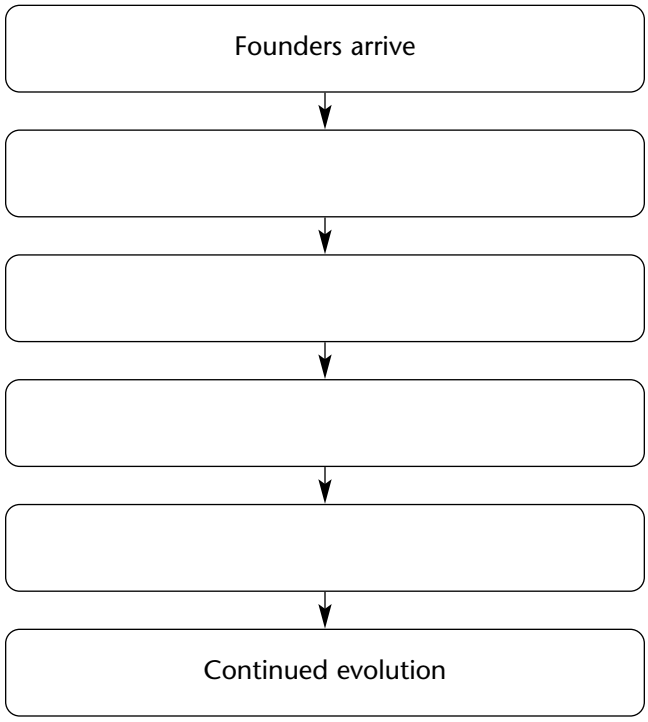
b. The different finch species are the descendants of a common mainland ancestor.

c. Differences in the finches' beak size and shape produce differences in fitness that cause natural selection to occur.

d. The evolution of the finches is proceeding slowly and gradually.

Speciation in Darwin's Finches (pages 408–410)

14. Complete the flowchart to show how speciation probably occurred in the Galápagos finches.



15. How could differences in beak size lead to reproductive isolation? _____

_____

_____

_____

Studying Evolution Since Darwin (page 410)

16. Why is the study of evolution important? _____

_____

_____

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WordWise

Test your knowledge of vocabulary terms from Chapter 16 by solving the clues. Then, copy the numbered letters in order to reveal the hidden message.

Clues	Vocabulary Terms
Type of isolation that prevents Eastern and Western meadowlarks from interbreeding	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 1 2 3 4
Type of selection that acts against individuals of an intermediate type	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 5 6 7
Term that means the formation of new species	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 8 9
Type of selection that causes an increase in individuals at one end of the curve	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 10
Type of selection that keeps the center of the curve at its current position	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 11 12
Kind of pool that contains all the genetic information in a population	___ ___ ___ ___ 13 14 15
Type of isolation that prevents species from interbreeding	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 16 17
Type of isolation that led to the evolution of the Kaibab squirrel	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 18
Type of equilibrium that occurs when allele frequencies do not change	___ ___ ___ ___ ___ ___ ___ 19
Name of the principle stating that allele frequencies will remain constant unless factors cause them to change	___ ___ ___ ___ ___ – ___ ___ ___ ___ ___ ___ ___ ___ 20 21 22 23
Type of trait produced by more than one gene	___ ___ ___ ___ ___ ___ ___ ___ ___ 24

Hidden Message:

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

___ ___ ___ ___ ___ ___ .

19 20 21 22 23 24