

## 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? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

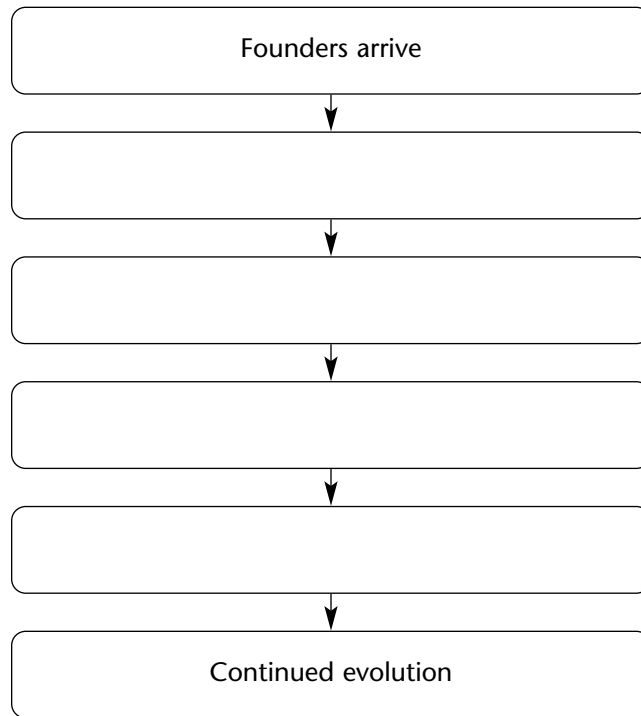
### Testing Natural Selection in Nature (pages 406–407)

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

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? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 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 .