

Chapter

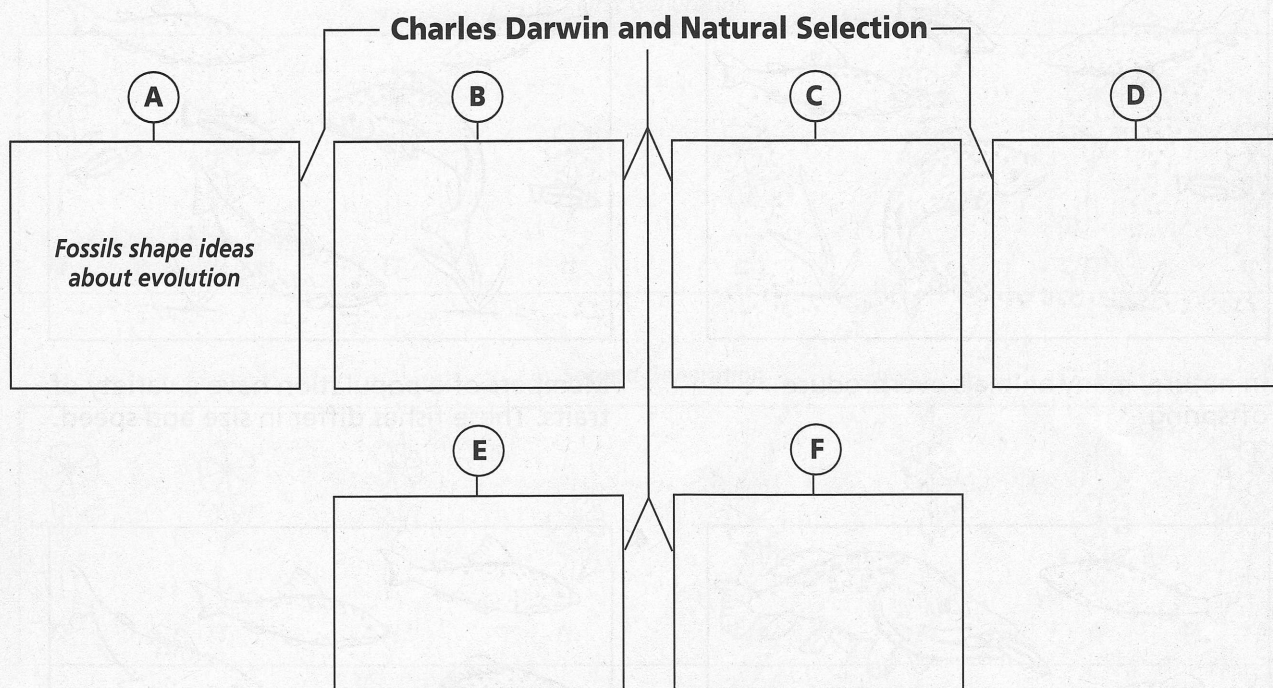
15

The Theory of Evolution

Content Mastery

Get the Big Picture

Find the blue headings in Section 15.1 of your textbook. Use a blue heading to fill in the rectangles in the organizer below. One rectangle has been filled in for you.



Each statement below goes with one of the headings in the rectangles above. Write the letter of each heading on the line in front of the statement it goes with.

- _____ 1. Darwin saw many life forms on the Galápagos Islands. He was convinced that species change over time.
- _____ 2. Darwin's theory of evolution by natural selection explains how populations change over time.
- _____ 3. Fossil records made scientists wonder if plant and animal species changed over time.
- _____ 4. In 1831, Darwin became a naturalist on a ship called HMS *Beagle*.
- _____ 5. Back in England, Darwin did more research. He learned that some plants and animals have traits that help them survive.
- _____ 6. Some people consider the fossil evidence for natural selection to be inconclusive because the fossil record is incomplete.

Chapter

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The Theory of Evolution, *continued*

Content Mastery

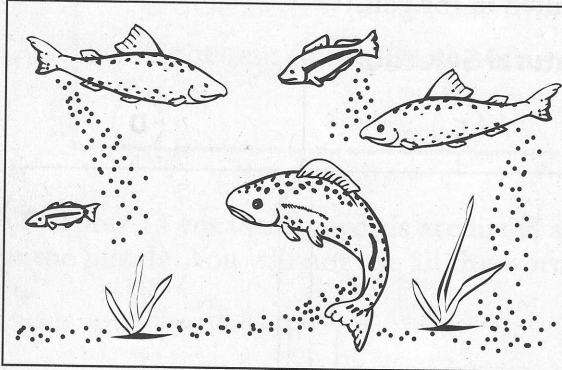
Section 15.1 Natural Selection and the Evidence for Evolution

Section 15.2 Mechanisms of Evolution

Study the Diagrams

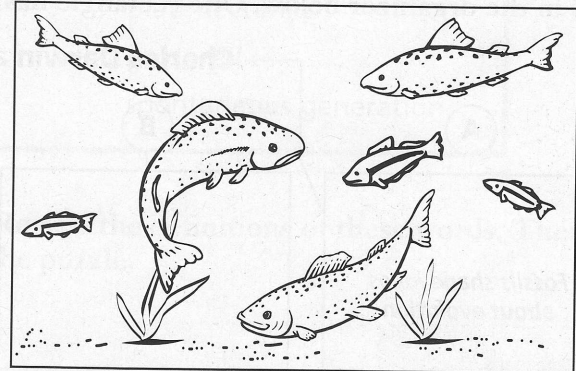
Study the diagrams. Then answer the questions that follow.

1.



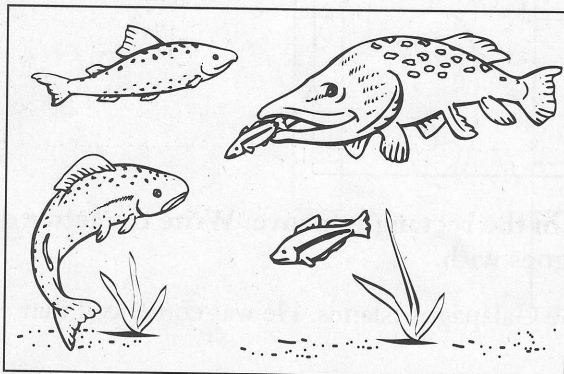
In nature, many animals overproduce offspring.

2.



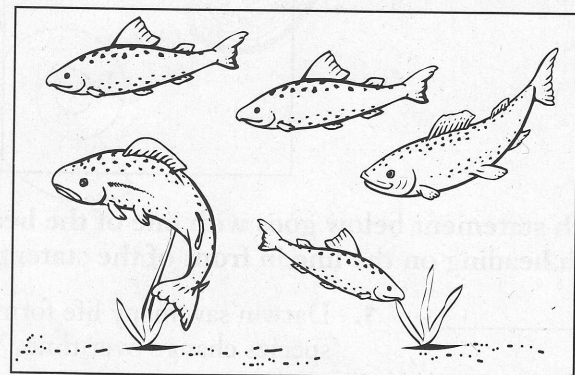
Members of a population have a variety of traits. These fishes differ in size and speed.

3.



Fishes that are slow and small usually get eaten by predators. Faster, larger fishes can get away from predators.

4.



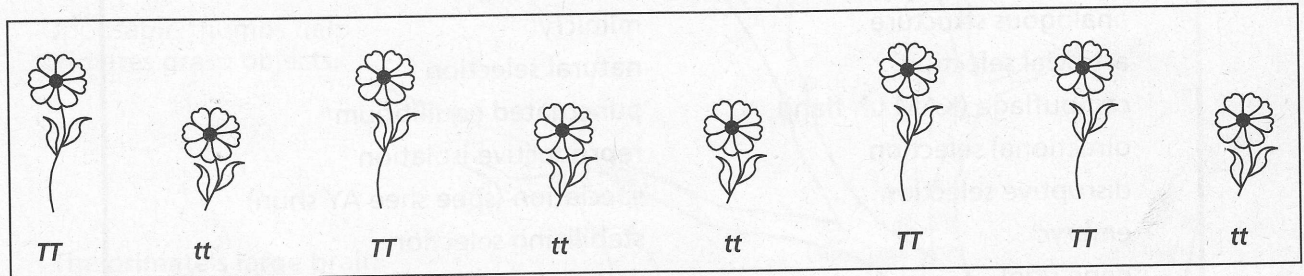
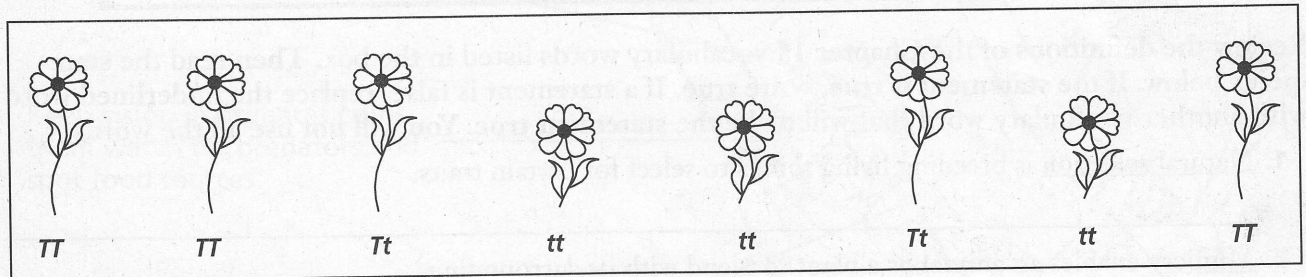
Offspring of surviving fishes make up a larger part of the new population.

1. Why is a fast fish more likely to survive than a slow fish?

2. **True or false?** Natural selection happens when traits that help an organism survive are passed from generation to generation.

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Study the diagrams. Then answer the questions that follow.

Flower Population
First Generation

Second Generation


3. Two genotypes—gene types—are present in the first generation population. One is TT . What is the other?
- _____

Allelic frequency tells how often an allele occurs in a population. In the first generation, 8 out of 16 alleles are the T allele. The T allele is present one-half of the time, so the allelic frequency for the T allele is 50%. The allelic frequency for the t allele is also 50%.

4. What is the allelic frequency for each allele in the second generation?
- a. T _____
- b. t _____

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Content Mastery
Review the Vocabulary

adaptive radiation	genetic equilibrium
allelic frequency	homologous structure
analogous structure	mimicry
artificial selection	natural selection
camouflage (KAM uh flahj)	punctuated equilibrium
directional selection	reproductive isolation
disruptive selection	speciation (spee shee AY shun)
embryo	stabilizing selection
gene pool	vestigial structure (veh SYTIHJ ee yul)
genetic drift	

Review the definitions of the Chapter 15 vocabulary words listed in the box. Then read the statements below. If the statement is true, write true. If a statement is false, replace the underlined word with another vocabulary word that will make the statement true. You will not use all the words.

1. Natural selection is breeding living things to select for certain traits.

2. Mimicry enables an animal or a plant to blend with its surroundings.

3. Homologous structures are similar structures found in groups of related organisms.

4. Genetic equilibrium happens when allelic frequencies stay the same from generation to generation.

5. The allelic frequency is the entire collection of genes in a population.

Use the vocabulary words in the box below. Review the definitions of these words. Then draw a line to match each word in the box with its definition.

- | |
|---|
| <ol style="list-style-type: none"> a. divergent evolution b. geographic isolation c. convergent evolution d. polyploid e. gradualism |
|---|

6. When a physical barrier divides a population into groups
7. Any organism that has multiple sets of chromosomes
8. The idea that species form by gradual change over time
9. When two or more similar species become more unlike each other over time
10. When distantly related life forms develop similar traits