Name_____ Class_____ Date_____

Section 16–2 Evolution as Genetic Change (pages 397–402)

TEKS SUPPORT: 12D Survival of species dependent on limited resource base

This section explains how natural selection affects different types of traits. It also describes how populations can change genetically by chance as well as the conditions that prevent populations from changing genetically.

Natural Selection on Single-Gene Traits (pages 397–398)

1. Is the following sentence true or false? Natural selection on single-gene traits cannot lead to changes in allele frequencies. _____

2. If a trait made an organism less likely to survive and reproduce, what would happen to the allele for that trait? _____

_____

_____

3. If a trait had no effect on an organism's fitness, what would happen to the allele for that trait? _____

_____

_____

Natural Selection on Polygenic Traits (pages 398–399)

4. List the three ways that natural selection can affect the distributions of phenotypes.

a. _____ **c.** _____

b. _____

Match the type of selection with the situation in which it occurs.

Type of Selection	Situation
_____ **5.** Directional	**a.** Individuals at the upper and lower ends of the curve have higher fitness than individuals near the middle.
_____ **6.** Stabilizing	**b.** Individuals at one end of the curve have higher fitness than individuals in the middle or at the other end.
_____ **7.** Disruptive	**c.** Individuals near the center of the curve have higher fitness than individuals at either end.

8. An increase in the average size of beaks in Galápagos finches is an example of _____ selection.

9. Is the following sentence true or false? The weight of human infants at birth is under the influence of disruptive selection. _____

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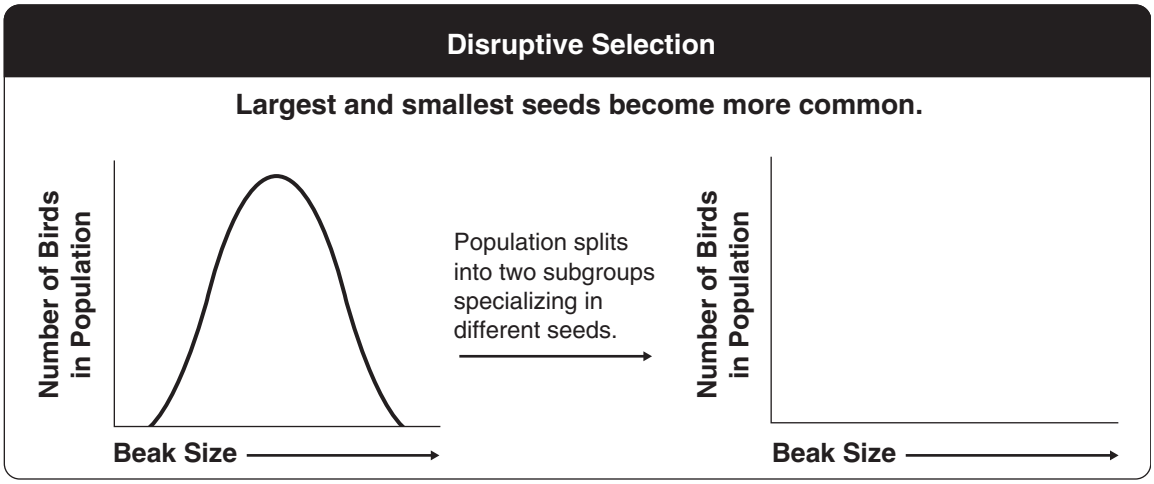
10. Draw the missing graph to show how disruptive selection affects beak size.



Genetic Drift (page 400)

11. Is the following sentence true or false? Natural selection is the only source of evolutionary change. _____

12. Random change in allele frequencies in small populations is called _____.

13. A situation in which allele frequencies change as a result of the migration of a small subgroup of a population is known as the _____.

14. What is an example of the founder effect? _____

_____

_____

Evolution Versus Genetic Equilibrium (pages 401–402)

15. What does the Hardy-Weinberg principle state? _____

_____

_____

16. The situation in which allele frequencies remain constant is called _____.

17. List the five conditions required to maintain genetic equilibrium.

a. _____ **d.** _____

b. _____ **e.** _____

c. _____

18. Why is large population size important in maintaining genetic equilibrium?

_____

_____