Chapter 12

Patterns of Heredity and Human Genetics, *continued*

Reinforcement and Study Guide

Section 12.2 When Heredity Follows Different Rules

In your textbook, read about complex patterns of inheritance.

Answer the following questions.

1. Complete the Punnett square for a cross between a homozygous red-flowered snapdragon (*RR*) and a homozygous white-flowered snapdragon (*R′R′*). Give the genotype and phenotype of the offspring in the F_1 generation.

Key
RR - red
R′R′ - white
RR′ - pink

F_1

genotype: _____

phenotype: _____

2. When traits are inherited in an incomplete dominance pattern, what is true of the phenotype of the heterozygotes?

_____

3. Complete the Punnett square for a cross between two pink-flowered (*RR′*) F_1 plants. Give the phenotype ratio of the offspring in the F_2 generation.

F_2

phenotype ratio: _____

4. In what type of inheritance are both alleles expressed equally?

_____

5. Complete the Punnett square for a cross between a black chicken (*BB*) and a white chicken (*WW*). Give the phenotype of the offspring in the F_1 generation.

Key
BB - black
WW - white
BW - checkered

F_1

phenotype: _____

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Section 12.2 When Heredity Follows Different Rules, continued

For each statement below, write true or false.

_____ **6.** Traits controlled by more than two alleles are said to have multiple alleles.

_____ **7.** Multiple alleles can be studied only in individuals.

_____ **8.** In humans, there are 23 pairs of matching homologous chromosomes called autosomes.

_____ **9.** Two chromosomes called the sex chromosomes determine the sex of an individual.

_____ **10.** The sex chromosomes of a human male are XX, and the sex chromosomes of a human female are XY.

_____ **11.** Traits controlled by genes located on sex chromosomes are called sex-linked traits.

_____ **12.** The first known example of sex-linked inheritance was discovered in pea plants.

In your textbook, read about environmental influences.

Answer the following questions.

13. What characteristics of an organism can affect gene function?

_____

_____

14. Do the internal environments of males and females differ? Explain.

_____

_____

15. What are some environmental factors that can influence gene expression?

_____

_____

16. Give two examples of how an environmental factor can affect the expression of a phenotype.

_____

_____