

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.

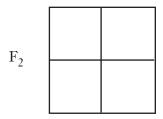
Key RR - red R'R' - white RR' - pink

F₁

genotype:

phenotype:

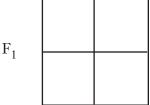
- **2.** When traits are inherited in an incomplete dominance pattern, what is true of the phenotype of the heterozygotes?
- **3.** Complete the Punnett square for a cross between two pink-flowered (RR') F_1 plants. Give the phenotype ratio of the offspring in the F_2 generation.



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



phenotype:



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Section 12.2 When Heredity Follows Different Rules, continued

For each statement below, write <u>true</u> or <u>false</u> .
6. Traits controlled by more than two alleles are said to have multiple alleles.
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.