

Chapter 12

Patterns of Heredity and Human Genetics

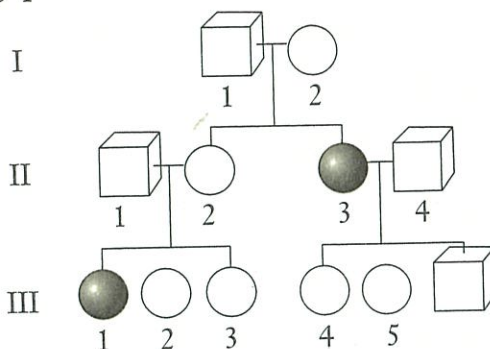
Reinforcement and Study Guide

Section 12.1 Mendelian Inheritance of Human Traits

In your textbook, read about making a pedigree.

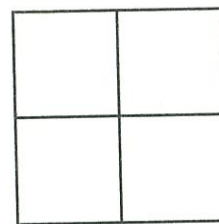
Examine the pedigree to the right. Then answer the following questions.

1. Is the trait being studied in the pedigree recessive or dominant? How do you know?



2. Are II-1 and II-2 carriers of the trait? How do you know?

3. What is the probability that II-1 and II-2 will produce an individual with the trait being studied? Draw a Punnett square to show your work.



4. What is the likely genotype of II-4 for the trait being studied in the pedigree?

In your textbook, read about simple recessive heredity and simple dominant heredity.

For each item in Column A, write the letter of the matching item from Column B.

Column A

- _____ 5. Recessive disorder that results from the absence of an enzyme required to break lipids down
- _____ 6. Lethal genetic disorder caused by a dominant allele
- _____ 7. Most common genetic disorder among white Americans
- _____ 8. Recessive disorder that results from the absence of an enzyme that converts one amino acid into another one
- _____ 9. Tongue curling and Hapsburg lip

Column B

- a. cystic fibrosis
- b. simple dominant traits
- c. Tay-Sachs disease
- d. Huntington's disease
- e. phenylketonuria

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: _____