

SECTION
7.4

HUMAN GENETICS AND PEDIGREES
Reading Guide

KEY CONCEPT

A combination of methods is used to study human genetics.

VOCABULARY
pedigree
karyotype

MAIN IDEA: Human genetics follows the patterns seen in other organisms.

1. How does genetic inheritance follow similar patterns in all sexually reproducing organisms?

2. How are single-gene traits useful in studying human genetics?

MAIN IDEA: Females can carry sex-linked genetic disorders.

3. Who can be carriers of autosomal disorders?

4. Why can females, but not males, be carriers of sex-linked genetic disorders?

MAIN IDEA: A pedigree is a chart for tracing genes in a family.

5. What is a pedigree?

6. How are phenotypes used in pedigree analysis?

7. What information on a pedigree can tell you whether a gene is on an autosome or on a sex chromosome?

READING GUIDE, CONTINUED

8. Complete the chart to follow the logic necessary to fill out a pedigree for a sex-linked gene. Use X^D and X^d for the dominant and recessive X-linked genes, respectively.

Tracing Sex-Linked Genes

Phenotype	must have	Genotype
Female, recessive phenotype	must have	<input type="text"/>
Male, recessive phenotype	must have	<input type="text"/>
<input type="text"/>	must have	$X^D X^d$

Parental Phenotype	must have	Parental Genotype	could have	Offspring Genotypes
Female carrier, normal male	must have	<input type="text"/>	could have	<input type="text"/>
Female carrier, male with recessive phenotype	must have	<input type="text"/>	could have	<input type="text"/>
Female with recessive phenotype, normal male	must have	<input type="text"/>	could have	<input type="text"/>
Female with recessive phenotype, male with recessive phenotype	must have	<input type="text"/>	could have	<input type="text"/>

MAIN IDEA: Several methods help map human chromosomes.

9. What are two methods that are used to directly study human chromosomes?

10. What does a karyotype show about chromosomes?

Vocabulary Check

11. What is a karyotype?
