

5. What blood type is the universal acceptor? What type is the universal donor?

(*skip ahead in your book to page 1060 for the next two questions)

51.7 - Antibodies in Medical Treatment and Disease

1. What is the Rh blood group antigen? Which phenotype is more common, Rh+ or Rh-? Which allele is recessive - Rh+ or Rh-?

2. What happens if an Rh- mother's blood interacts with the blood of her Rh+ fetus?

(*move to page 342 for the next two questions)

17.5 - Medical Applications - Gene Therapy

1. Why were initial attempts at gene therapy unsuccessful?

2. What are some diseases that may someday be treated with gene therapy?

(*Turn to page 238 to continue with your questions)

13.1 - Sex linkage and the chromosomal theory of inheritance

1. What is a sex-linked trait? Why are males more likely to get recessive disorders that are sex-linked?

2. Why can two alleles located on the same chromosome still appear to have independent assortment? (In other words, why might two alleles on the same chromosome not be inherited together?)

Answer: Crossing over can occur, where two chromosomes to exchange segments.

3. What are sex chromosomes?

13.2 - Sex chromosomes and sex determination

1. What are autosomes?

2. What is a Barr body?

13.3 - Exceptions to the chromosomal theory of inheritance

Read this section.

13.4 - Genetic Mapping

1. How are the distances between genes determined for a genetic map?

2. What are linked genes?

3. What are single nucleotide polymorphisms (SNPs, pronounced “snips”)

13.5 - Selected human genetic disorders

1. What is the difference between normal hemoglobin and the hemoglobin of individuals with sickle cell anemia?
2. Why is the allele for sickle cell anemia relatively common in people of African descent?
3. What is nondisjunction?
4. What is the chromosomal abnormality that leads to Down syndrome?
5. What sex chromosomes does a person with Klinefelter's syndrome have? Is this person a male or female? How does this individual's phenotype vary from normal?
6. What sex chromosomes does a person with Turner's syndrome have? Is this person a male or female? How does this individual's phenotype vary from normal?
7. Name and describe two techniques that are used to test a fetus for genetic disorders.

Step 2: Textbook Publisher's Web Activities

Complete the following activities on textbook publisher's website. Answer the related questions below. (Note: Only complete the activities listed below, not all of the activities for each text chapter.)

13.2 - Exploration – Heredity in families. This exercise is great practice!

Click "How to use this exploration" to read the directions.

From looking at a pedigree, you should be able to determine if a genetic disorder is autosomal or sex-linked, and determine if the allele for the disorder is dominant or recessive.

(Notes about pedigree analysis: If a disorder is autosomal, males and females are affected equally. If a disorder is sex-linked, males more commonly express the disorder. If a disorder is recessive, two normal parents can have an affected offspring – the disorder can skip a generation. If a disorder is dominant, one parent must be affected in order to have an affected offspring – the disorder is seen in every generation.)

13.2 – Exploration – Gene segregation within families. Another great exercise for practice!

Click "How to use this exploration" to read the directions.

From looking at the genotypes of two people and knowing the type of genetic disorder, you should be able to determine the chances of having an affected child.

In this exercise, you'll set the genotypes of the parents, the number of children. You'll estimate the number of affected children based upon the type of disorder (dominant/recessive, autosomal or sex-linked) and determine if your estimate is correct.

13.2 – Art Quiz – Patterns of inheritance

13.2 – Art Quiz – Sickle cell anemia and malaria

13.3 – Exploration - Constructing a genetic map (Optional but recommended)

Make sure you understand how a gene's position on the chromosome affects the likelihood of recombination.

13.3 – Introduction to chromosomes

1. All chromosomes contain _____ arranged linearly at specific location, called _____.

13.3 – Recombination

1. What is recombination?

13.3 – Sex Chromosomes

Be able to complete a Punnett square for a sex-linked trait and determine the probability of affected male offspring and affected female offspring.

13.3 – Abnormal Chromosomes

1. At what steps during meiosis can nondisjunction occur?

13.3 – Art Quiz – Barr bodies

13.3 – Art Quiz – Nondisjunction and sex chromosomes