In your textbook, read about mutation—a change in DNA.

Circle the letter of the choice that best completes the statement.

1. A mutation is any mistake or change in the
   a. cell.                c. ribosomes.                d. nucleus.
   b. DNA sequence.

2. A point mutation is a change in
   a. several bases in mRNA.           b. several bases in tRNA.
   c. a single base pair in DNA.

3. A mutation in which a single base is added to or deleted from DNA is called
   a. a frameshift mutation.  b. a point mutation.  c. translocation.  d. nondisjunction.

4. Chromosomal mutations are especially common in
   a. humans.        b. animals.       c. bacteria.       d. plants.

5. Few chromosome mutations are passed on to the next generation because
   a. the zygote usually dies.
   b. the mature organism is sterile.
   c. the mature organism is often incapable of producing offspring.
   d. all of the above.

6. When part of one chromosome breaks off and is added to a different chromosome, the result is a(n)
   a. translocation.  b. insertion.  c. inversion.  d. deletion.

7. Many chromosome mutations result when chromosomes fail to separate properly during
   a. mitosis.  b. meiosis.  c. crossing over.  d. linkage.

8. The failure of homologous chromosomes to separate properly is called
   a. translocation.  b. disjunction.  c. nondisjunction.  d. deletion.

9. Mutations that occur at random are called
   a. spontaneous mutations.  b. nonspontaneous mutations.
   c. nonrandom mutations.

10. An agent that can cause a change in DNA is called a(n)
    a. zygote.  b. inversion.  c. mutation.
    d. mutagen.

11. Mutations in body cells can sometimes result in
    a. new species.  b. cancer.  c. sterile offspring.  d. hybrids.

1. In transparency 19a, how does the protein labeled point mutation differ from the normal protein? What is the effect of this difference?

2. In transparency 19a, how does the protein chain labeled frameshift mutation differ from the normal protein? What is the effect of this difference?

3. Which of the two mutations shown in transparency 19a is likely to have the more serious effect on body functions? Explain your answer.

4. What type of gene mutation not shown in transparency 19a would also change every amino acid after that mutation?

5. Why are chromosomal mutations potentially serious?

6. Look at transparency 19b. Describe the chromosomal mutation known as deletion.

7. What happens as a result of insertion?

8. What is inversion?

9. What happens during translocation?