Name _____ Class _____ Date _____

INHERITANCE PATTERNS AND HUMAN GENETICS

Section 12-1: Chromosomes and Inheritance

Read the passage below, which covers topics from your textbook. Answer the questions that follow.

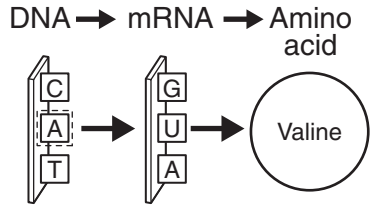
The substitution, addition, or removal of a single nucleotide is a **point mutation,** which is a change that occurs within a single gene or other segment of DNA on a chromosome. In a **substitution,** one nucleotide replaces another. If this substitution occurs in a codon, the amino acid can be changed. In a deletion mutation, one or more nucleotides in a gene are lost. This loss can cause incorrect grouping of the remaining codons, called a **frameshift mutation,** making all amino acids downstream change. This mutation, in turn, can have a disastrous effect on the protein's function. In **insertion mutations,** one or more nucleotides are added to a gene, which can also result in a frameshift mutation.

Write your answers in the spaces provided.

SKILL: Interpreting Graphics

1. Identify the type of mutation illustrated by the figure.

_____



Read the question and write your answer in the space provided.

SKILL: Vocabulary Development

2. The term *mutation* is derived from the Latin word *mutare,* which means "to change." What other terms can be traced to the Latin word *mutare*?

_____

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

3. A point mutation can be caused by

a. substitution.
b. addition.
c. deletion.
d. All of the above