

Name \_\_\_\_\_ Per \_\_\_\_\_

## MUTATIONS

There are three main types of mutations: point missense mutations, point nonsense mutations, and frameshift mutations.

1. Missense mutation: leads to an amino acid change.
2. Nonsense mutation: causes premature stop-codon before the protein is complete.
3. Frameshift mutation: (insertion/deletion/duplication) changes the reading frame, alters protein.
4. Silent mutation: nucleotide change, but no change in amino acid

In each of the following DNA sequences, you will use the mRNA and amino acid sequences to identify the mutation that occurred and the effects of each on, if any. Look and analyze carefully!

**Original DNA Sequence:** T A C A C C T T G G C G A C G A C T  
**mRNA Sequence:** \_\_\_\_\_  
**Amino Acid Sequence:** \_\_\_\_\_

Mutated DNA Sequence #1: T A C A T C T T G G C G A C G A C T

What's the mRNA sequence? (Circle the change) \_\_\_\_\_

What will be the amino acid sequence? \_\_\_\_\_

Will there likely be effects? \_\_\_\_\_

What kind of mutation is this?

Mutated DNA Sequence #2: T A C G A C C T T G G C G A C G A C T

What's the mRNA sequence? (Circle the change) \_\_\_\_\_

What will be the amino acid sequence? \_\_\_\_\_

Will there likely be effects? \_\_\_\_\_

What kind of mutation is this?

Mutated DNA Sequence #3: T A C A C C T T A G C G A C G A C T

What's the mRNA sequence? (Circle the change) \_\_\_\_\_

What will be the amino acid sequence? \_\_\_\_\_

Will there likely be effects? \_\_\_\_\_

What kind of mutation is this?

Mutated DNA Sequence #4: T A C A C C T T G G C G A C T A C T

What's the mRNA sequence? (Circle the change) \_\_\_\_\_

What will be the amino acid sequence? \_\_\_\_\_

Will there likely be effects? \_\_\_\_\_

What kind of mutation is this?