Mutations Worksheet   Name _____ Date: _____ Per. _____

There are several types of mutation:

        DELETION (a base is lost)

        INSERTION (an extra base is inserted)

                Deletion and insertion may cause what's called a **FRAMESHIFT**, meaning the reading "frame" changes, changing the amino acid sequence.

        SUBSTITUTION (one base is substituted for another)

                If a substitution *changes* the amino acid, it's called a **MISSENSE** mutation.

                If a substitution *does not change* the amino acid, it's called a **SILENT** mutation.

                If a substitution *changes the amino acid to a "stop,"* it's called a **NONSENSE** mutation.

⇨ Complete the boxes below. Classify each as either Deletion, Insertion, or Substitution <u>**AND**</u> as either frameshift, missense, silent or nonsense (hint: deletion or insertion will always be frameshift).

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?