

There are several types of mutation:

DELETION (a base is lost)

INSERTION (an extra base is added)

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 **AND** 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?

