Mutations Worksheet **Name** Key

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: AUG UGG AAC CGC UGC UGA

Amino Acid Sequence: met - trp - asp - arg - cys - Stop

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) AUG UAG AAC CGC UGC UGA

What will be the amino acid sequence? met - (Stop) - asp - arg - cys - stop

Will there likely be effects? Yes

What kind of mutation is this? Point / Substitution

Mutated DNA Sequence #2: T A C (add G) A C C T T G G C G A C G A C T

What's the mRNA sequence? (Circle the change) AUG (C)UG GAA CCG CUG A.....

What will be the amino acid sequence? met - leu - Glu - pro - leu ? ....

Will there likely be effects? Yes

What kind of mutation is this? Frameshift Insertion

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) AUG UGG AA(U) CGC UGC UGA

What will be the amino acid sequence? met - trp - asp - arg - cys - Stop

Will there likely be effects? NO same amino acid

What kind of mutation is this? Point / Sub Wobble = more than one way to get same amino acid

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) AUG UGG AAC CGC UG(A) UGA

What will be the amino acid sequence? met - trp - asp - arg - Stop - Stop

Will there likely be effects? Yes (stops early)

What kind of mutation is this? Point / Sub

Mutated DNA Sequence #1: T A C A C C T T G (?) G A C G A C T

What will be the corresponding mRNA sequence? AUG UGG AAC (CCU) GCU GA...

What will be the amino acid sequence? met - trp - asp - pro - ala ....

Will there likely be effects? Yes

What kind of mutation is this? Frameshift Deletion