

Name: \_\_\_\_\_ Date \_\_\_\_\_ Period: \_\_\_\_\_

## Biology Worksheet -- DNA Mutations (PAP)

Directions: Transcribe & translate each of the 3 mutations. Fill in the mutation type for DNA sequences A, B & C. Use the mutation's letter to answer questions 1-3

Original gene			A		B		C	
	Base Sequence	Amino acid	Base Sequence	Amino acid	Base Sequence	Amino acid	Base Sequence	Amino acid
1	A		A		A		A	
2	U		U		U		U	
3	G		G		G		G	
4	A		C		A		A	
5	C		A		C		C	
6	A		A		A		A	
7	A		A		A		A	
8	A		G		A		A	
9	G		A		C		G	
10	A		G		G		U	
11	G		G		A		G	
12	G				G		G	

List all that apply: Write the letter (A, B, C)

- Which type of mutation is responsible for new variations (alleles) of a trait? \_\_\_\_\_
- Which type of mutation results in abnormal amino acid sequence? \_\_\_\_\_
- Which type of mutation stop the translation of the mRNA? \_\_\_\_\_
- Examine your genetic code chart. Name one amino acid that has more than one codon. Name an amino acid that has only one codon.  
 \_\_\_\_\_

5. Look at the following sequence: THE FAT CAT ATE THE RAT.

Delete the first H and regroup the letters in groups of three- write out the new groups of three.

\_\_\_\_\_

Does the sentence still make sense? \_\_\_\_\_ What type of mutation is this an example of? \_\_\_\_\_

## Mutations Worksheet

Name \_\_\_\_\_

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

Transcribe the mRNA sequence. (Circle the change) \_\_\_\_\_

Translate 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

Transcribe the mRNA sequence. (Circle the change) \_\_\_\_\_

Translate 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

Transcribe the mRNA sequence? (Circle the change) \_\_\_\_\_

Translate 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

Transcribe the mRNA sequence. (Circle the change) \_\_\_\_\_

Translate the amino acid sequence. \_\_\_\_\_

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

What kind of mutation is this? \_\_\_\_\_

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

What will be the corresponding mRNA sequence? \_\_\_\_\_

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

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

What kind of mutation is this? \_\_\_\_\_