GENETIC MUTATIONS

1. What is a karyotype?

2. Are all mutations harmful? If not, what are types of mutations are there?

3. 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.

1. Does the sentence still make sense?

2. What type of mutation is this an example of?

4. Below is the base sequence for the normal protein for normal hemoglobin and the base sequence for the sickle cell hemoglobin. Transcribe and translate the normal and sickle cell DNA.

Type of DNA	DNA Strand	Transcribed DNA (mRNA)	Translate into Protein Sequence (Amino Acid)
Normal	GGG CTT CTT TTT		
Sickel	GGG CAT CTT TTT		

1. Identify this as a point or frameshift mutation. Explain.

2. If the base sequence read GGG CTT CTT AAA instead, would this result in sickle cell hemoglobin? Explain.

_____ - _____ - _____

the original strand? _____

as the original strand? _____

from the original strand? _____

l would create the same protein or a

Why? _____

_____

_____

with an insertion mutation in the third

es below it.

spaces below.

11. _____ - _____ - _____

12. Was the number of amino acids the same as

13. How many of the amino acids were the sam

14. How many of the amino acids were differen

15. Do you believe that this mutated DNA stran

different protein as the original? _____

_____

_____

16. The following is the same piece of DNA but

codon. Write the complementary mRNA bas