Instructions:

Please make sure you have read through all of the information in the "Questions" and "Mutation Guide". If you come upon terms that are unfamiliar to you, please refer to your textbook for further explanation or search the word here:

http://encarta.msn.com/encnet/features/dictionary/dictionaryhome.aspx

When you are ready, please close out the "Mutation Guide" and click the "Mutate" button that appears on the new page to begin the activity.

You will see the following:

an "Original sequence" of mRNA that has been translated properly into its corresponding amino acid sequence

a "Mutated sequence" that is blank

a "Mutation Rules" block of information

Part 1:

Mutation rule: _____

The mutation rule can be found on the bottom left of the main lab screen. (example: "The third A becomes a C.")

Original Sequence:

      mRNA

      Protein

Mutated Sequence:

      mRNA

      Protein

Part 2: Please answer the following questions in complete sentences.

1. Briefly describe the process of transcription. What occurs during this process?

2. Distinguish between silent mutations, point mutations and frameshift mutations.

3. John believes that not all mutations are necessarily harmful. Is his belief correct? Why or why not? Explain.

4. What is the function of a stop codon? Give at least two examples of stop codons.

5. Does changing the sequence of nucleotides always result in a different amino acid sequence? Explain. Give an example.

6. Briefly describe amino acids and protein sequences.