Mutations Worksheet

Activities One and Two

Activity One: What is a Mutation?

1. Go to **learn.genetics.utah.edu/archive/mutations/index.html**
2. Read this page.
3. Click on the "Mutate a DNA Sequence Activity" (yellow box; upper right)
4. Read the yellow boxes to the right and define the following terms:

   Point mutation:

   Missense Mutation:

   Nonsense Mutation:

   Silent Mutation:

   Frameshift mutation (insertion/deletion):

5. Transcribe and translate the gene below. Use the genetic code I gave you. DO NOT USE THE GENETIC CODE ON THE WEBSITE! Use the definitions above to help you with the questions below.

   DNA SEQUENCE ⟶ GCATACGCTGCGAAAGTTTGGCTGACTGGGCAATTG

   RNA TRANSCIPT ⟶ _____ _____ _____ _____ _____ _____ _____ _____

a. What is the amino acid sequence encoded by the DNA sequence? *(assume this is in the middle of a gene)*

_____ - _____ - _____ - _____ - _____ - _____ - _____

b. What does a missense mutation look like? How does it change the amino acid sequence?

c. What does a nonsense mutation look like? How does it change the amino acid sequence?

d. How do frameshift mutations change the amino acid sequence?