

Name _____

Date ___/___/___

GENETICS

Genetic Mutations

Based on the tutorial: [Genetic Mutations](#)



Put a check mark (✓) on the blank if the statement is true. If not, correct it by replacing the underlined word/phrase with the appropriate word/phrase on the blank.

_____ 1. At the molecular level, genetic mutations are the consequence of a change in the DNA sequence of a single gene.

_____ 2. Point mutations are changes to a single base in the coding sequence of a gene.

_____ 3. A feature of the genetic code is that it is *redundant*, meaning some genes are specified by two or more codons.

_____ 4. A mutation that changes the DNA codon but does not change the amino acid is called a silent mutation.

_____ 5. A change in the DNA sequence causing an early termination of protein synthesis is called a missense mutation.

_____ 6. Mutations resulting from the insertion or deletion of one or more nucleotides in a DNA sequence are referred to as indels.

_____ 7. Frameshift mutation occurs when a mutation produces a shift in the reading frame.

_____ 8. A change in the GAG to GTG results in the replacement of the amino acid glutamate with the amino acid valine. This is an example of a silent mutation.

_____ 9. Cystic fibrosis is caused by the loss of a single amino acid phenylalanine in the *cystic fibrosis transmembrane conductance regulator protein*. This is an example of a deleterious gene duplication causing a loss of a single amino acid from a protein.

_____ 10. Huntington disease is a condition is associated with an increase in the length of the CAG repeat region in the Huntingtin protein from two dozen glutamines (Q), to 40 or more. This genetic disorder is an example of an indel mutation.