

Gene Mutations Study Sheet

1. Gene A segment of DNA that contains instructions for making a specific protein or performing a particular function in an organism.
2. DNA Deoxyribonucleic Acid. The molecule that carries genetic information in all living organisms. It consists of two long chains of nucleotides twisted into a double helix.
3. Mutation A change in the DNA sequence of a gene. Mutations can be caused by various factors and can have different effects on an organism.
4. Base Pair The building blocks of DNA, consisting of adenine (A) paired with thymine (T) and guanine (G) paired with cytosine (C).
5. Point Mutation A type of mutation that involves a change in a single nucleotide base pair in a gene's DNA sequence. Examples include substitutions, insertions, and deletions.
6. Substitution Mutation A type of point mutation where one nucleotide base is replaced by another in the DNA sequence.
7. Insertion Mutation A type of point mutation where an extra nucleotide base is added to the DNA sequence.
8. Deletion Mutation A type of point mutation where a nucleotide base is removed from the DNA sequence.
9. Frameshift Mutation A mutation that results in the reading frame of a gene being shifted, usually due to an insertion or deletion. This can lead to a completely different protein being produced.
10. Chromosome A long, thread-like structure found in the nucleus of a cell, composed of DNA and associated proteins. Genes are located on chromosomes.
11. Genotype The genetic makeup of an organism, which includes all the genes in its DNA.
12. Phenotype The physical or observable traits of an organism, which are influenced by its genotype and environmental factors.
13. Genetic Variation Differences in the DNA sequences of individuals within a population or species, which can result from mutations.
14. Heredity The passing of genetic information (traits) from one generation to the next.
15. Dominant Trait A genetic trait that is expressed when an individual has one copy of the dominant allele in their genotype.
16. Recessive Trait A genetic trait that is only expressed when an individual has two copies of the recessive allele in their genotype.
17. Carrier An individual who has one copy of a recessive allele for a genetic disorder but does not exhibit the disorder's symptoms.