**Vocabulary: DNA Profiling**



**Vocabulary**

* DNA polymerase – an enzyme that synthesizes (builds) DNA from nucleotides.
* DNA profiling – a forensic technique used to identify individuals based on their DNA.
* The DNA profiles of suspects and evidence are compared to look for matches.
* This technique is also called DNA fingerprinting.
* Gel electrophoresis – a technique used to separate molecules (such as DNA) by size.
* Charged molecules move through a gel as an electric current is passed across it.
* Smaller molecules migrate through the porous gel farther than larger molecules.
* Gene – a segment of DNA that gives instructions for building a protein.
* Other than some small variations, the genes of different individuals are usually close to identical and of the same length.
* Mutation – a change in the DNA.
* A mutation in a gene may change the function of that gene. Mutations in non-coding regions often have no effect on traits.
* Non-coding region – a region of DNA that does not code instructions to build a protein.
* Non-coding regions make up 99% of the DNA in the genome, while genes only account for about 1% of the DNA.
* Some non-coding regions contain short tandem repeats (STRs).
* Polymerase chain reaction (PCR) – a technique used to make multiple copies of a specific segment of DNA.
* Primers (short segments of DNA) bind to either side of a region of interest.
* DNA polymerase is then used to copy the DNA between the primers during a series of heating and cooling cycles.
* Primer – a short DNA sequence that provides a starting point for DNA synthesis.
* A primer is designed to be complimentary to a specific region of DNA.
* Two primers that surround a region of interest in the genome can be used to amplify (copy) that region of DNA.
* Short tandem repeat (STR) – a short sequence of DNA, usually 2-7 nucleotides in length that repeat multiple times in a row. STRs are also called microsatellites.
* The number of repeats varies between different individuals.
* Some examples of STRs are AATG, TA, AGAT and GATA