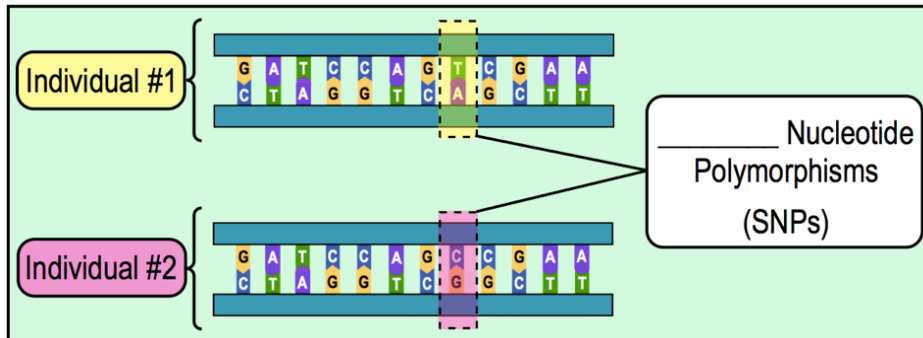


CONCEPT: DNA FINGERPRINTING

- **DNA** _____: technique that uses *genetic markers* in a genome to identify an individual.
- **Genetic** _____: sequences of DNA with a known location & are easily identifiable in a genome.
 - *Markers* are _____: completely *different* between the genomes of each individual.
 - Ex. **Single nucleotide polymorphisms (SNPs)**: *genetic markers* in a genome that differ by _____ *nucleotide*.

EXAMPLE: Single-nucleotide polymorphisms between two alleles of the same organism.

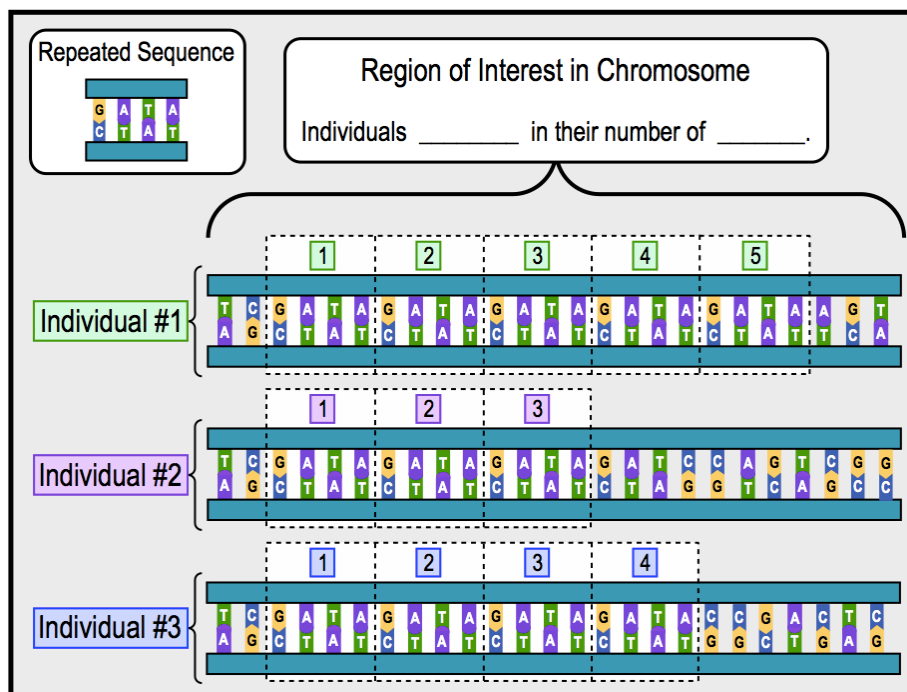


- **DNA** _____: the combination of all unique *genetic markers* in an individual's genome.

Short Tandem Repeats (STRs)

- *Genetic markers* used by researchers are generally made-up of short repeat sequences that vary in _____.
- **Short Tandem Repeats** (_____): *short repeated* sequences of DNA (2-5nts) in *specific* regions of a genome.
 - The *number* of STRs within a region of a genome is *polymorphic* (_____ for each person).

EXAMPLE: Short tandem repeat genetic markers are used to identify an individual in a crime scene.



CONCEPT: DNA FINGERPRINTING

PRACTICE: The goal of DNA fingerprinting is:

- a) To collect DNA samples from random individuals in a population.
- b) To diagnose diseases within closely related family members.
- c) To determine whether DNA samples collected from two different locations are from the same person.
- d) None of the above.

PRACTICE: Which of the following characteristics of short tandem repeats (STRs) makes it useful for DNA fingerprinting?

- a) The number of repeats is highly variable from person to person or organism to organism.
- b) The sequence of DNA that is repeated varies significantly from individual to individual.
- c) The sequence variation is acted upon differently by natural selection in different environments.
- d) Every racial and ethnic group has inherited a specific number of short tandem repeats.

PRACTICE: The gel below shows a region of STRs from a DNA sample taken from a crime scene. It also shows the same region of STRs from 4 suspects involved in the case. Which suspect' DNA was found at the crime scene?

- a) Suspect 1.
- b) Suspect 2.
- c) Suspect 3.
- d) Suspect 4.
- e) They are all innocent.

