DNA2010

Forensic Science: School Year 2021-2022

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BELL-RINGER: True or False?

- The "funny bone" is not a bone, it is a nerve.
- The ashes of the average cremated person weigh nine pounds.
- Women's hearts beat faster than men's hearts.
- Our eyes are always the same size from birth, but our nose and ears never stop growing.

INTRODUCTION

- Deoxyribonucleic Acid (DNA)
- The genetic material found in the cells of all living organisms
- DNA is the fundamental building blocks for life. Nearly every cell (with a nucleus) in a person's body has the same DNA. Most DNA is located in the cell nucleus (where it is called nuclear DNA), but DNA can also be found in the mitochondria (where it is called mitochondrial DNA or mDNA).

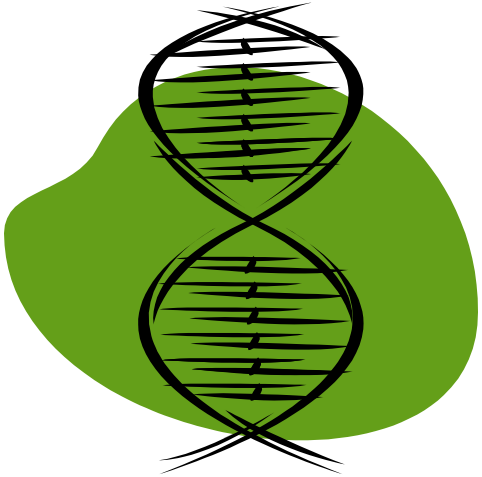
INTRODUCTION CONTINUED

- The information in DNA is made up of four bases which combine to form chains.
- These bases include two purines (Adenine and Guanine) and two pyrimidines (Cytosine and Thymine). These are commonly referred to as A, G, C and T respectively.

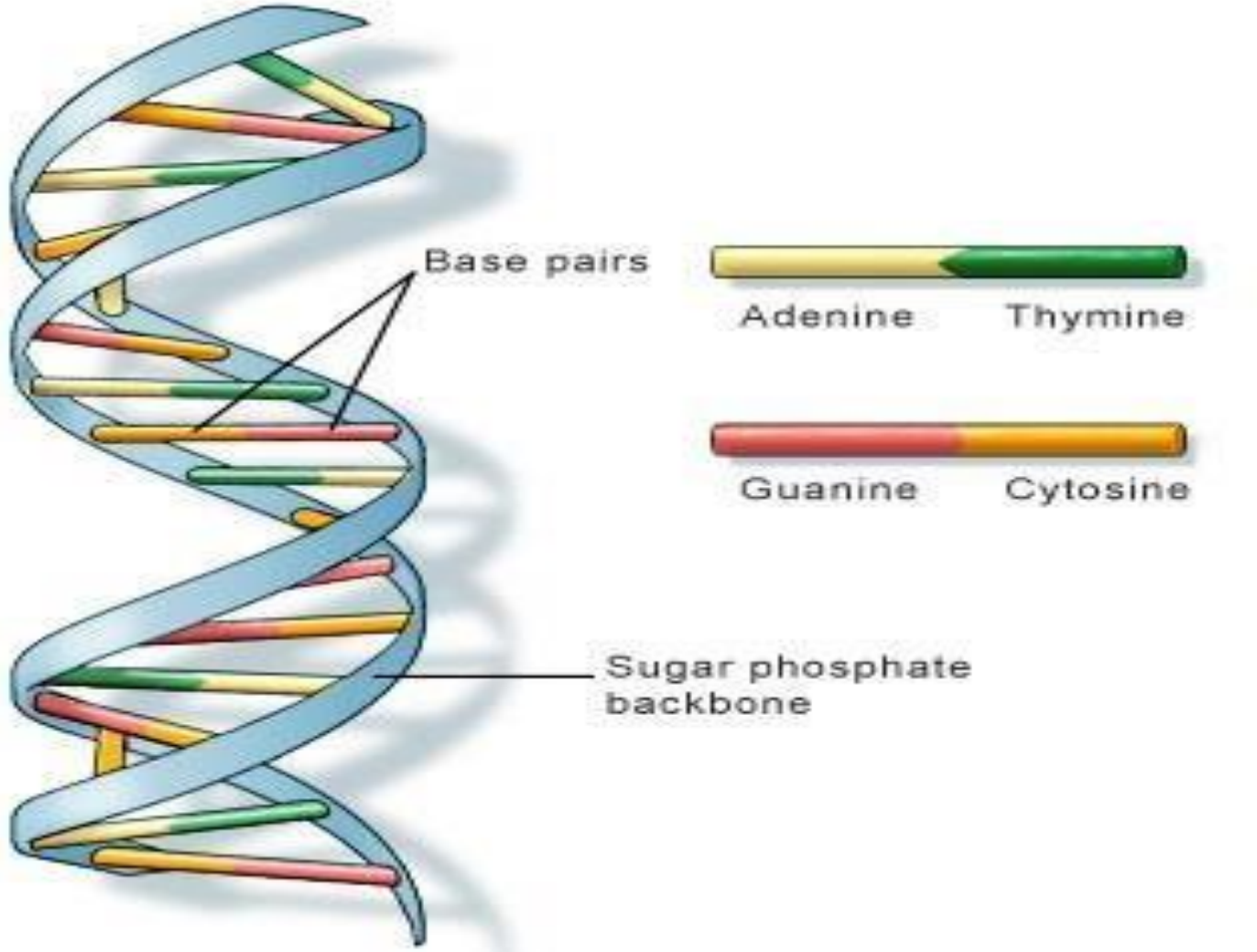
- Human DNA consists of about 3 billion bases, and more than 99 percent of those bases are the same in all people. It is the order, or sequence, of these bases which determines genetic characteristics.

BASES

- The number of purine bases in DNA is equal to the number of pyrimidines. This is due to the law of complimentary base pairing:
- Thymine (T) can only pair with Adenine (A), and Guanine (G) can only pair with Cytosine (C).
- Knowing this rule, we could predict the base sequence of one DNA strand if we knew the sequence of bases in the complimentary strand.



- Each base is attached to a Sugar (S) molecule and a Phosphate (P) molecule.
- Together, a base, sugar, and phosphate are called a nucleotide. **Nucleotides** are arranged in two long strands that form a spiral called a double helix.
- The structure of the **double helix** is somewhat like a ladder, with the base pairs forming the ladder's rungs and the sugar and phosphate molecules forming the vertical sidepieces of the ladder.



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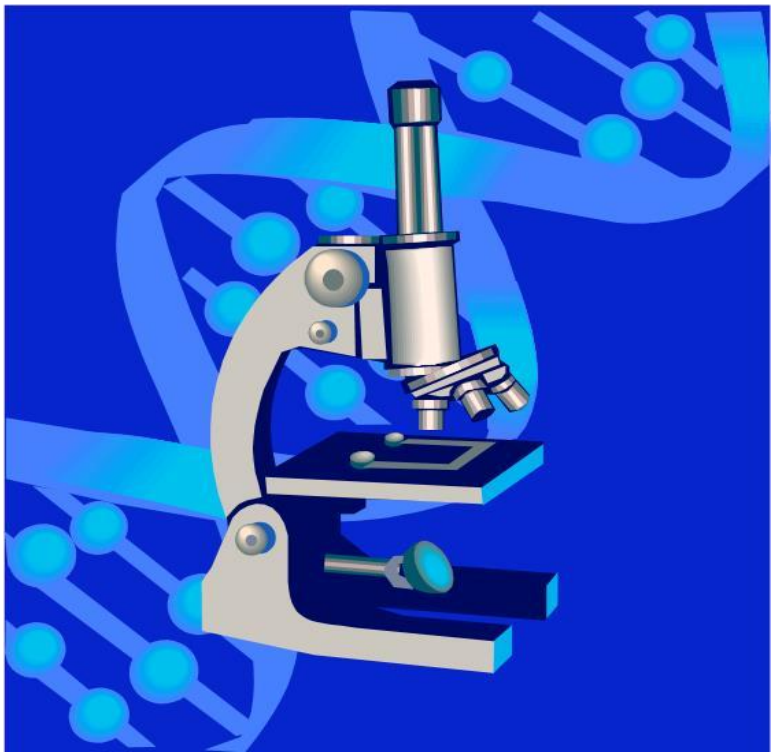
WHERE IS DNA FOUND IN THE HUMAN BODY?

- DNA is contained in blood, skin cells, hair, semen, bones, teeth, saliva, perspiration, fingernails, tissue, muscles, brain cells, organs, mucus, urine, feces, vomit, etc...



Questions and Comments