

Concept 11.2

Nucleic acids store information in their sequences of chemical units.

The building Blocks of DNA:

- Deoxyribonucleic acid (DNA) - a kind of nucleic acid, a polymer built from monomers called nucleotides.
- Nucleotides - are the building blocks (the monomers) of nucleic acid polymers. Only four types of nucleotides make up DNA.

Each nucleotide has three parts :

1. A ring-shaped sugar called deoxyribose.
2. A phosphate group.
3. A Nitrogenous base.

Nitrogenous Bases:

Pyrimidines, a single ring-structure
(T) thymine and (C) cytosine

Purines, larger double-ring structures
(A) adenine and (G) guanine

DNA Strands:

- Nucleotides are joined to one another by covalent bonds that connect the sugar on one nucleotide to the phosphate group of the next. This repeating pattern of sugar-phosphate is called a sugar-phosphate “backbone”. The nitrogenous bases are lined up along this backbone.

DNA's Structure:

The Double Helix

- James Watson and Francis Crick created a model in which two strands of nucleotides wound about each other. With the “backbone” on the outside of the double helix and the nitrogenous bases on the inside. The aligned bases formed hydrogen bonds.

Complementary Base Pairs

A pairs with T

G pairs with C