DNA

DNA

Nucleotide

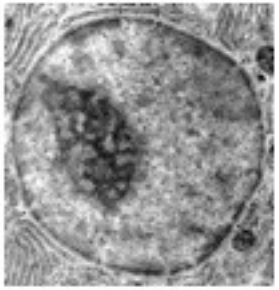
Nitrogenous Base

Antiparallel

Chromatin

What's In the Nucleus?

Life Science: Molecular



Deoxyribonucleic Acid

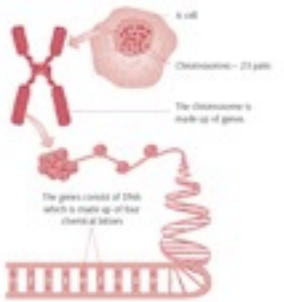
Deoxyribonucleic acid (DNA) is a nucleic acid that contains the instructions for building the proteins that make up a cell.

Deoxyribonucleic Acid

DNA is like a cook book, since it contains the instructions needed to construct all the parts of different cells.

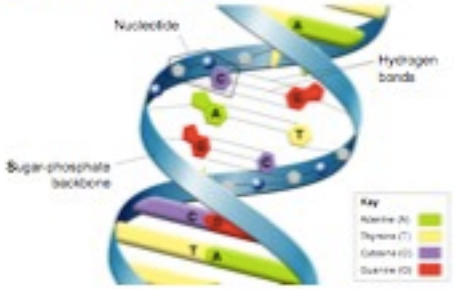
Deoxyribonucleic Acid

DNA encodes our genes.
Genes make proteins.
Proteins make us what we are.



Nucleotides

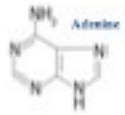
DNA is a polymer formed by combining nucleotides (the monomers of DNA), Nucleotides are composed of a sugar, a phosphate, and a base.

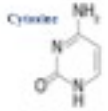


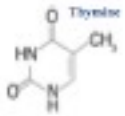
Nitrogenous Bases

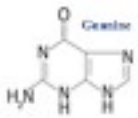
Nitrogenous bases are nitrogen containing molecules having the characteristics of a base. DNA is composed of only 4 different bases.

Adenine
Thymine
Cytosine
Guanine





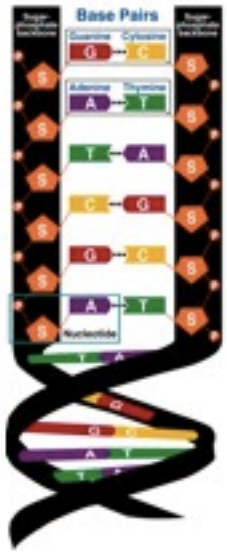




Complementary Bases

DNA bases are complementary; meaning...

Adenine always pairs with Thymine
Cytosine always pairs with Guanine



Deoxyribonucleic Acid

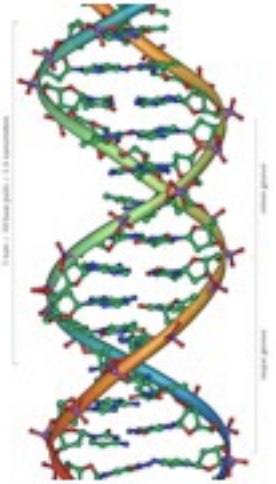
DNA is a macromolecule (very large) made up of many nucleotides.

Deoxyribonucleic Acid

The *sequence of bases* in the DNA encode the genetic information of an organism.

DNA Structure

DNA is a double helix composed of two strands of nucleotide polymers.



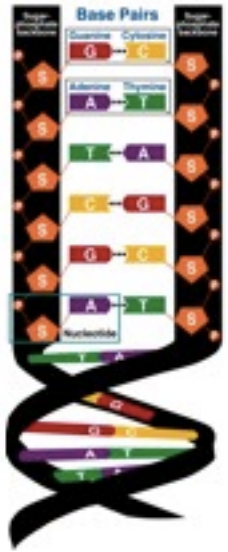
Double Helix

James Watson and Francis Crick discovered the structure of DNA in 1953.

Antiparallel Strands

The two strands are antiparallel, running in opposite directions.

DNA is read and copied from the 5' end to the 3' end.



DNA Organization

Within cells, DNA is packaged in the form of chromatin; DNA is wrapped around proteins called histones (compact and organized).