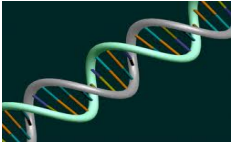


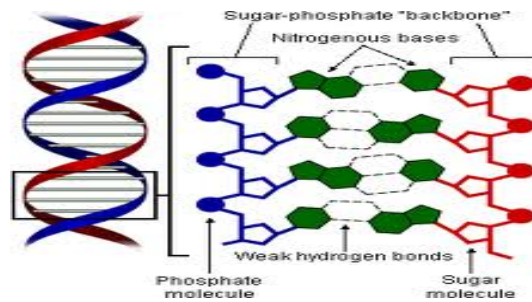
What is DNA?

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Deoxyribo Nucleic Acid



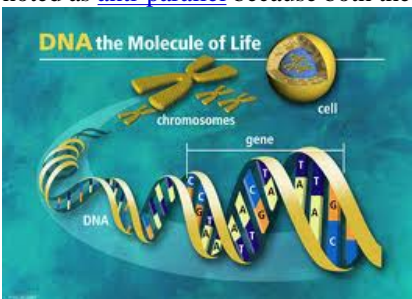
DNA is [nucleic acid](#) which contains the genetic instructions essential for the growth and evolution of all living organisms. DNA is commonly called genetic material. Viruses don't have DNA. Long-term storage of genetic information is DNA's main role. DNA has the genetic instructions which are very essential to make cells components like proteins.



DNA – The Molecule of Life

[Genes](#) are the segments of DNA, and it carries the genetic or gene information over generations. Except the genes, the rest of the DNA sequences are involved in many other regulatory processes.

DNA is made up of two [nucleotides](#), with a sugar backbones and phosphate groups joined by ester bonds. These two strands are noted as [anti-parallel](#) because both the strands run in opposite directions to each other. There are



4 bases in the DNA. The bases are the molecules attached to sugar backbone to encode

information. This encoded information is termed as [genetic code](#) which specifies the sequence of the amino acids within proteins.

Within cells, DNA is made of [chromosomes](#) inside the cell. During cell division these chromosomes get doubled. And this phenomenon is called as [DNA replication](#). DNA is stored in the nucleus, mitochondria and chloroplast in Eukaryotes. But in prokaryotes it is only stored in the [cytoplasm](#).



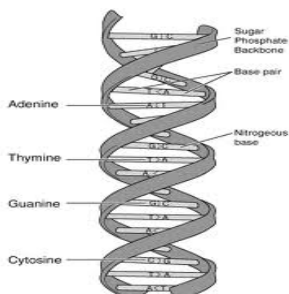
Discovery of DNA

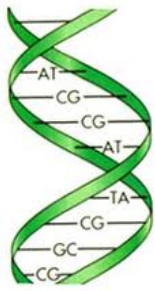
DNA was first discovered by [James D. Watson](#) and [Francis Crick](#). They have proved the double helical structure of DNA in all organisms.

DNA exist as a pair of molecules that are held together tightly in living organisms. These two long strands are in the shape of a [double helix](#). A base linked to a sugar is called [nucleoside](#) is the base linked to a sugar molecule and [nucleotide](#) is linked to a sugar and one or more phosphate groups. Because of the presence of the more number of nucleotides it is called as a polynucleotide.

Properties of DNA:

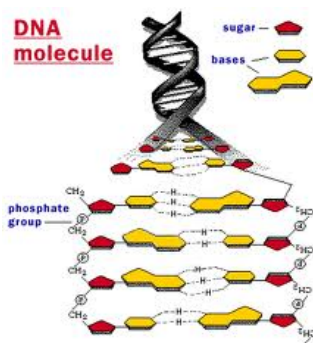
In the anti parallel helix DNA has the [5'](#) and [3'](#) ends, in which the 5' end has a terminal phosphate group and 3' end has a terminal hydroxyl group. Th sugar molecule of DNA is different from that of RNA. DNA is stabilized by [hydrogen bonds](#) and [base-stacking](#) interactions.





The four bases of DNA

1. [Adenine](#) (A)
2. [Cytosine](#) (C)
3. [Guanine](#) (G)



4. [Thymine](#) (T)

These four bases are attached to the sugar or phosphate to form the complete nucleotide. Adenine and guanine are of purines and the thymine and cytosine are the pyrimidine bases.

Want to know more about DNA? [Click here](#) to schedule live online session with e Tutor!

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Reference Links:

- <http://en.wikipedia.org/wiki/DNA>
- http://en.wikipedia.org/wiki/Watson_and_Crick
- http://www.blc.arizona.edu/molecular_graphics/dna_structure/dna_tutorial.html
- <http://www.johnkyrk.com/DNAanatomy.html>
- <http://www.youtube.com/watch?v=qy8dk5iS1f0>

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