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 Class : Deg. I (Subs.)
 Topic : Structure of DNA
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• Structure of DNA:

DNA is the deoxyribonucleic Acid, predominantly found in the nucleus. DNA is the genetic material of most organisms including many viruses.

• Occurrence:

DNA is generally confined to the chromosomes, although, it is also found in mitochondria and chloroplasts also.

• Molecular structure of DNA:

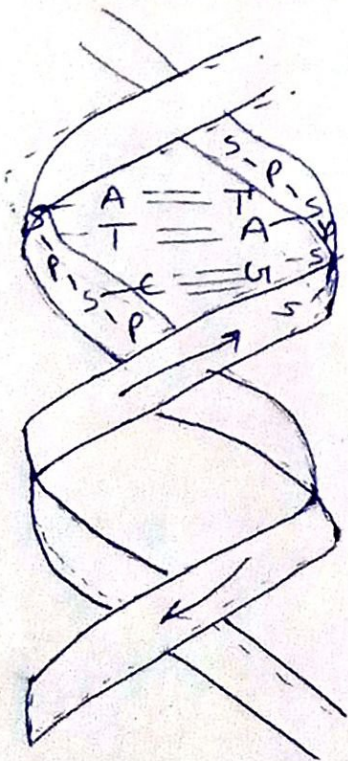
→ The most widely accepted molecular model of DNA is the double helix structure proposed by Watson and Crick (1953). This model is popularly known as Watson and Crick model.

• According to this model, the DNA molecule consists of two helically twisted strands connected together by steps.

• Each strand consists of alternating molecules of deoxyribose (a pentose sugar) and phosphate group.

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- Each step is made up of a double ring Purine base and a single ring Pyrimidine base.
- The Purine and Pyrimidine bases are connected to deoxyribose sugar molecules.
- The two strands are intertwined in clockwise direction, i.e., in a right hand helix and run in opposite direction. The strand completes a turn each 3.4 Å.
- Each nucleotide occupies 3.4 Å.
- Thus there are 10 nucleotides per turn. Each nucleotide turns 36 degrees in horizontal plane.
- The width of DNA molecule is 20 Å.
- The twisting of the strands results in the formation of deep and shallow spiral grooves.



(Fig: Watson and Crick model of DNA)

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