STD 10-BIOLOGY-FIRST BELL-CLASS-39 Dated 23/12/2020
Chapter – 6
UNRAVELLING GENETIC MYSTERIES

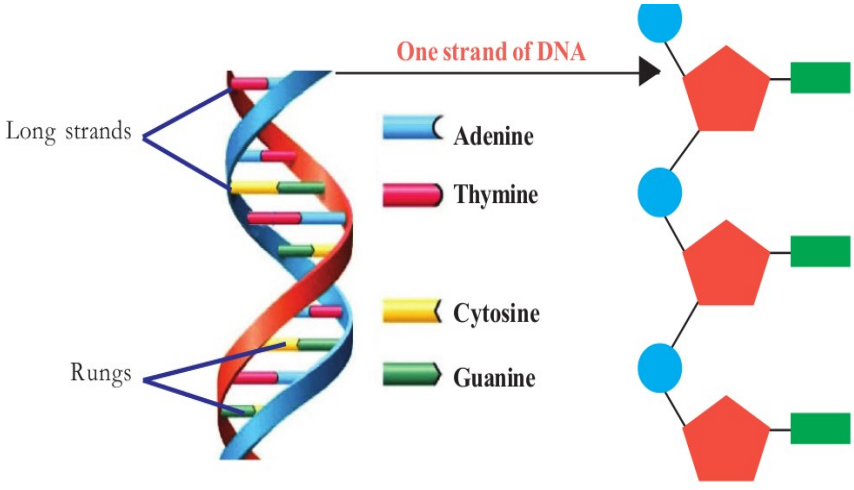
DNA (Deoxyribonucleic Acid)

- Two scientists, James Watson and Francis Crick, presented the double helical model of DNA in 1953.
- This model fetched wide acceptance in the scientific world, and they were awarded the Nobel Prize in 1962.

Double Helical Model of DNA

Parts of DNA

- 2 Strands
- Rungs

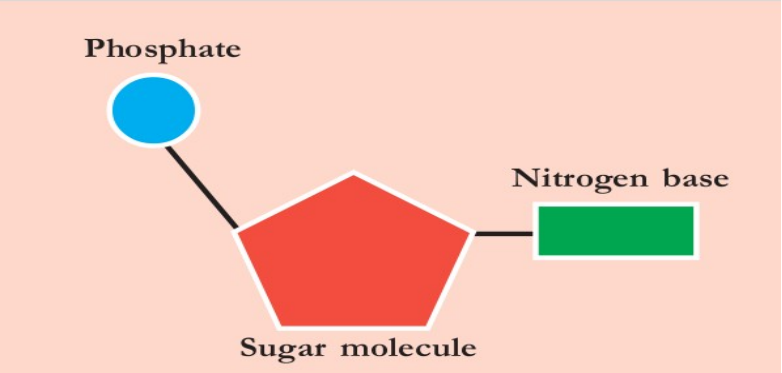


- As per the double helical model, DNA molecule contains two strands.
- A structure with two long strands made up of
- Sugar --- DNA contains de oxyribose sugar.
- Phosphate,
- Rungs with nitrogen bases

Nucleotide : The building blocks of DNA is called nucleotide

Components of nucleotide:

- Sugar molecule
- Phosphate
- Nitrogen base

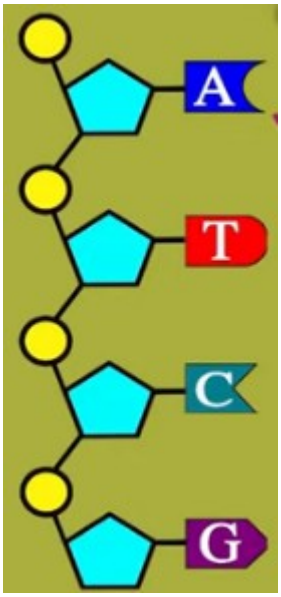


- DNA molecule is made up of units called nucleotides.
- A nucleotide contains a sugar molecule, a phosphate molecule and a nitrogen base.

Nitrogen bases

- Nitrogen bases are molecules that contain nitrogen and are alkaline in nature.

DNA has four kinds of nitrogen bases:

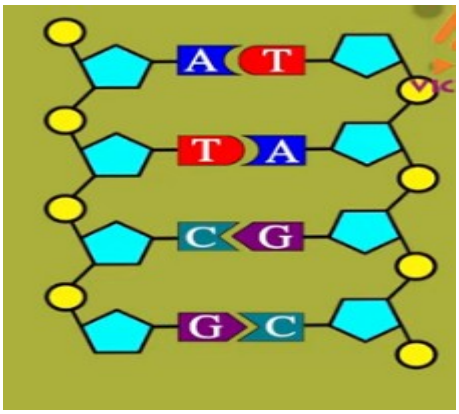


- Adenine,
- Thymine,
- Guanine
- Cytosine,

- DNA has four kinds of nucleotides too.
- Nitrogen bases, the building components of DNA, are molecules with great specificity.

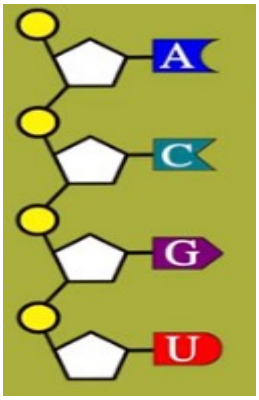
Pairing of Nitrogen bases

- In DNA, the base **Adenine** pairs only with **Thymine**
- **Guanine** pairs only with **Cytosine**



RNA (Ribonucleic acid)

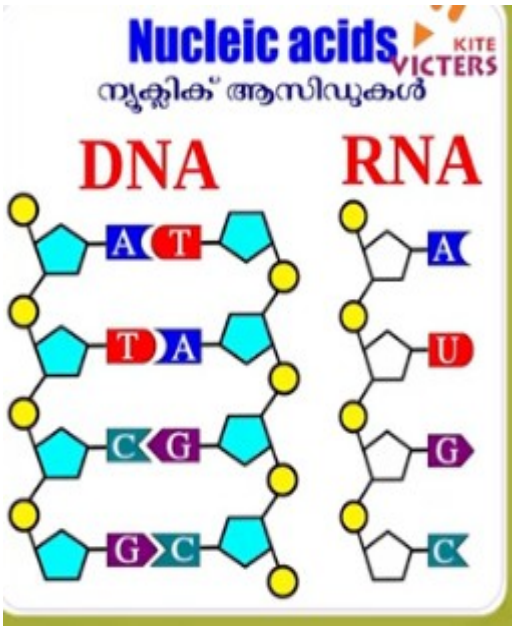
- RNA is another nucleic acid like DNA.
- RNA is also formed of nucleotides.
- Ribose sugar is present in RNA.
- In RNA, the nitrogen base **uracil** is seen instead of **thymine.**
- Majority of RNAs have only a single strand.



Comparison between DNA and RNA

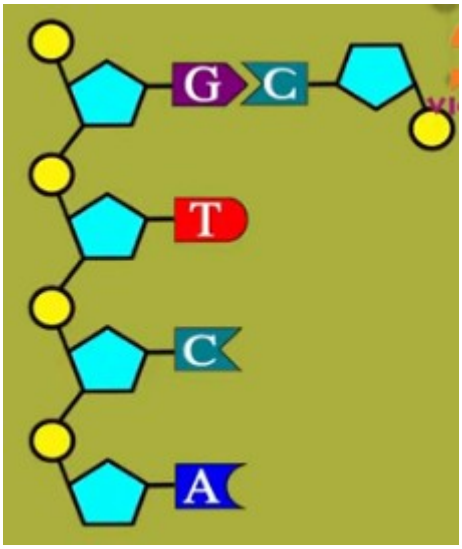
	Number of strands	Type of sugar	Nitrogen bases
DNA	TWO	DEOXY RIBOSE SUGAR	ADENINE THYMINE GUANINE CYTOSINE
RNA	ONE	RIBOSE SUGAR	ADENINE URACIL GUANINE CYTOCINE

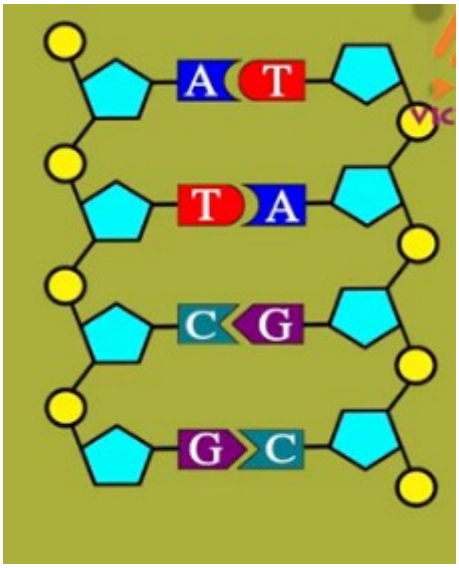
Two Types Of Nucleic Acids



EVALUATION

Redraw the illustration and complete its second strand





2) Prepare models of DNA using locally available materials