INHERITANCE.

→ GENETICS is the branch of biology that is about the study of inheritance.

→ INHERITANCE is the transmission of genetic information from one generation to the next, leading to continuity of the species & variations with it.

Genes from one generation are transmitted to the next in the gametes.
At fertilisation, the gametes fuse to form a zygote which contains the genetic information from both the parents.
A new individual grows from zygote – half of its genetic information comes from its male parent & half from its female parent.

⇒ CHROMOSOMES:

→ CHROMOSOMES are long, thread like structures that are seen in the nucleus of a cell.

→ There is a fixed number of chromosomes in each species. The number of chromosomes in a species is same in all of its body parts.

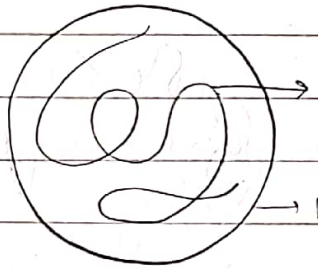
→ The chromosomes have different shapes & sizes.

→ The chromosomes are always in pairs. One chromosome of each pair comes from one parent.

→ The number of chromosomes in each body cell of plant or animal is called the diploid number (always even number).

→ If we could unravel a chromosome, it would form an extremely long thread
That long thread is made up of a long chain molecule - DNA (Dioxyribonucleic acid) & is called a CHROMATIN.

→ Chromatin is present in the cell nucleus when it is not dividing.



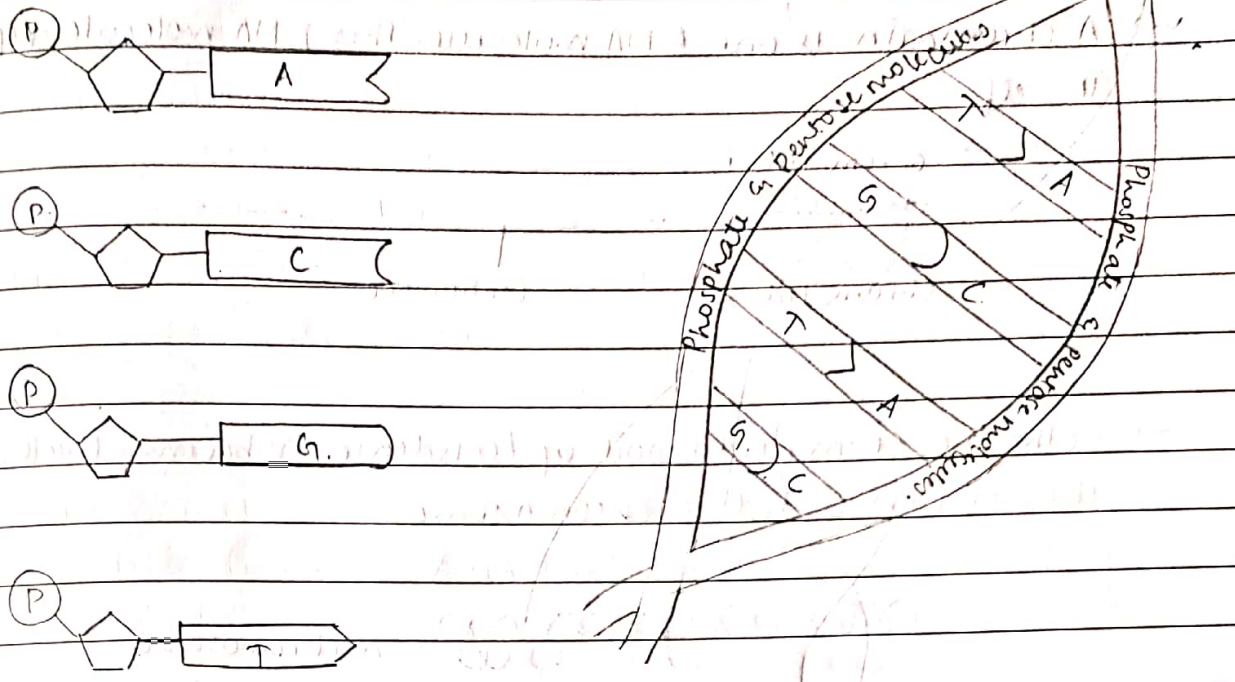
(basic) * GENE is a section of DNA which codes for the formation of a protein controlling specific characteristic of organism.

⇒ DNA (wound around protein molecules):
→ DNA is a polymer. Nucleotides are its monomers.

→ Each nucleotide consists of - Pentose sugar molecule
- Phosphate group
- Nitrogenous base.

→ The nitrogenous (organic) base could be - Adenine (A)
- Thymine (T)
- Cytosine (C)
- Guanine (G)

The phosphate & sugar molecules remain all the same through the chain.



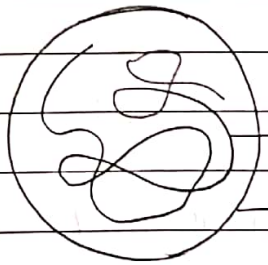
A is always attached to T (A-T)
C is always attached to G (C-G).

(basic) ★ ALLELES are different versions of each gene.

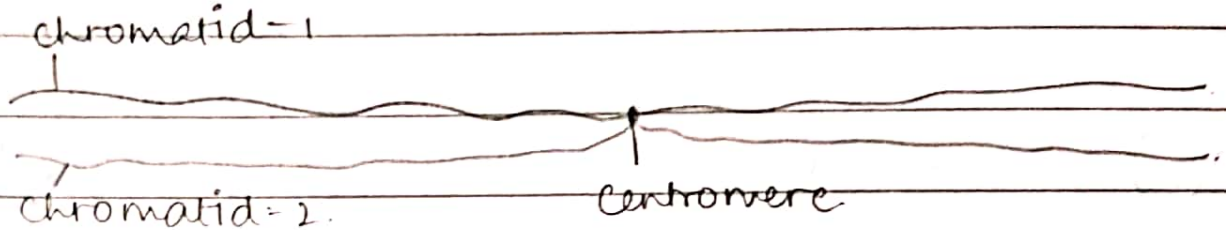
⇒ FORMATION OF CHROMOSOMES.

→ Chromosomes appear in cell nucleus just before the cell begins to divide

→ In a non dividing cell what we see is a chromatin.



→ A chromatin is one DNA molecule. This DNA molecule replicates it self



→ Both the cromatids coil up/condense to become thick. This is now called a chromosome.