CHROMOSOML BASIS OF INHERITANCE AND SEX DETERMINATION

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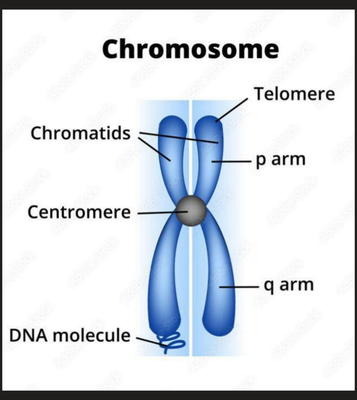
CROMOSOME:

- **Dna molecule in the nucleus of each cell is packed into thread like structure called CHROMOSOME.**
- **Each chromosome is made up of DNA which is coiled tightly many times around the protein molecules called HISTONE that support it's structure.**
- **Each chromosome also bears a single constriction point called centromere that tends to divide chromosome into its two sections/arms.**
- **The short arms of the chromosome is labelled as the P-arm while the long arm of the chromosome is labelled as the Q- arm.**



STRUCTURE OF CHROMATIN AND CHROMOSOME:

- The nucleosome is a bead-like structure of chromatin fibres.
- It contains 200bp of DNA, organised by an octamer of small basic proteins called HISTONE.
- The nucleosome provides the first level of organisation, giving a packing ratio of ~6.
- The second level of organisation is the coiling of the series of nucleosome into a helical array to constitute the fibre of diameter~ 30nm (interphase chromatin).
- In chromatin, this brings the packing ratio of DNA to ~40.
- The final packing ratio is determined by the third level of organisation, the packaging of the 30nm fibre.
- This gives an overall packing ratio of ~ 1000 in euchromatin.