

Meiosis

- The term meiosis was coined by Farmer and Moore in (1905)
- The cell which under goes meiosis is known as meiocyte.
- Meiosis causes reduction in chromosome, so also known as Reduction division.
- Meiosis is a special types of cell division a diploid cell divides into four haploid cells
- Meiosis involves two divisions of nucleus and one division of chromosomes
- Meiosis is the specialized pair of cell division that reduced the chromosome number from diploid ($2n$) to haploid (n) during gamet formation. An organ produces gametes
- Meiosis occurs in Reproductive cells of Gonads.
- Meiosis is divided into two main Phases:-

① Meiotic - I (Heterotypic division)

② Meiotic - II (Homotypic division)

① Meiotic-I (Heterotypic division)

- It is divided into two division

[A] Karyokinesis - Nuclear division

[B] Cytokinesis - Cytoplasmic division

[A] Karyokinesis :-

- It is divided into four Phases:-

i) Prophase-I

ii) Metaphase-I

iii) Anaphase-I

iv) Telophase-I

i) Prophase - I

- It is longest stage of ~~Pro~~ Meiosis.
- It is divided in five sub Phases.

<i> Leptotene

<ii> Zygotene

<iii> Pachytene

<iv> Diplotene

<v> Diakinesis

<i> Leptotene :-

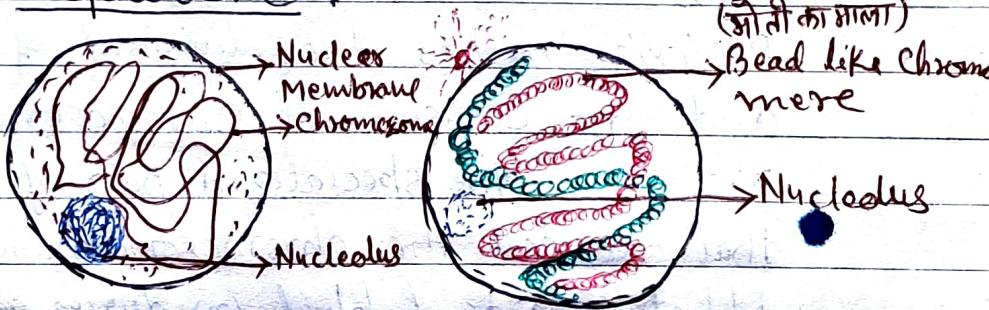


Fig - Interphase

Fig :- Leptotene

- The nucleus is increased in sized.
- Chromosomes becomes distinct and long ^(झण्ड).
- Chromosomes in diploid ($2n$) number.
- Chromosome contain a series of beaded structure called chromomere.

<ii> Zygotene :-

- Two homologous Chromosome attach each other and being to pair, this pair is called Synapsis.
- Each pair consist of a Mother chromosome and a father Chromosome.
- The pair so formed are known as bivalent ^(junction) (A pair of Synapsed homologous chromosome).

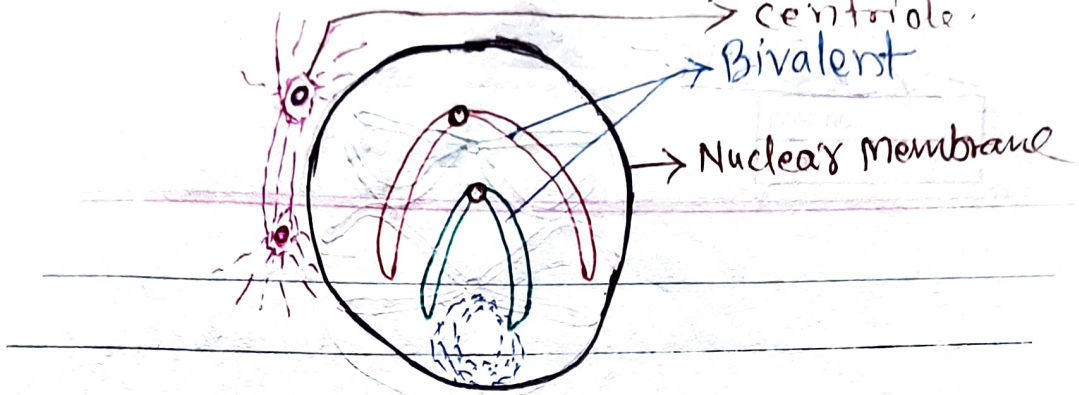


Fig :- Zygotene

- The chromosome become shorter & thicker
- The nucleolus increase in size.
- The centriole move to the opposite poles.

<iii> Pachytene :-

- Each chromosomes of Bivalent begins to ^(पृथक् पृथक्) Split longitudinally into two similar chromatids.
- Each bivalent now contains four chromatids.
- This stage is called Tetrad stage.

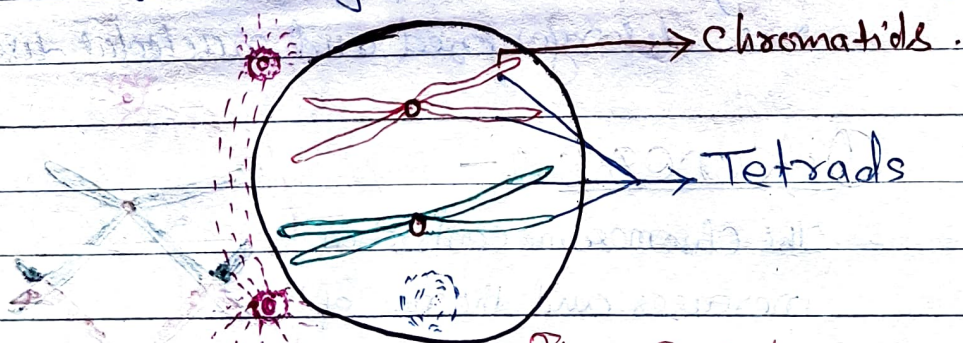


Fig :- Pachytene

{ The exchange of genetic material between two ^(Paternal & maternal) homologous chromosome is called crossing over.

- * — The characteristic Phenomenon during Pachytene is the ^{प्राक्सिओसिस} recombination ^(exchange of genetic material) of genes.
- The mutual exchange of chromatid segment between Parental and maternal chromosome is called crossing over.