

① Meiosis ( $2n=6$ )

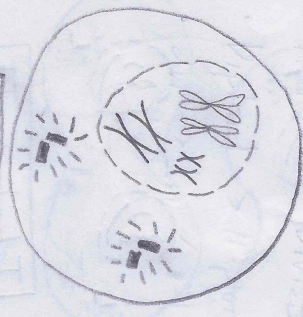
Scott Nelson  
Brandie Hounteer  
Richard Waldman

MEIOSIS I

Reduction Division

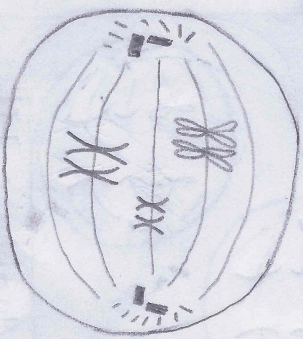
(Diploid  $\rightarrow$  Haploid)

( $2n \rightarrow 1n$ )



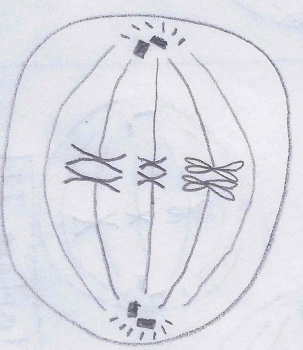
Prophase I

- Nuclear membrane breaks down.
- Chromosomes condense & become visible.
- Homologous chromosomes pair.
- Synapsis occur.
- Crossing over occur increasing genetic variation.
- Crossing over forms chiasmata.
- Spindle fibers start to form.



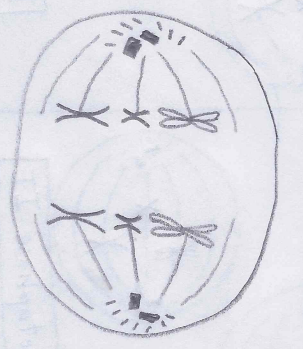
Prometaphase I

- Spindle apparatus form & align.
- Microtubules attach to homologous chromosomes at the kinetochores.
- One pair of sister chromatids is connected through kinetochore microtubules to one pole while the homologous pair of sister chromatids is connected to the opposite pole.
- Chromosomes move to equator of the cell.



Metaphase I

- Paired homologous chromosomes align on metaphase plate.



Anaphase I

- Homologous chromosomes separate and move toward opposite poles.
- Sister chromatids remain together.
- Kinetochore microtubules shorten.



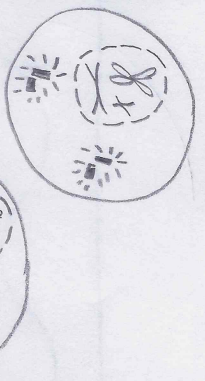
Telophase I & Cytokinesis

- Nuclear membrane reforms.
- Chromosomes decondense.
- 2 cells separate by cleavage furrow each having the haploid chromosome number with each chromosome consisting of a pair of sister chromatids.

# MEIOSIS II

## Equational Division

(Haploid  $\rightarrow$  Haploid) ( $1n \rightarrow 1n$ )



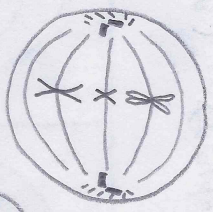
Prophase II

- Nuclear membrane breaks down.
- Sister chromatids condense.
- Spindle fibers start to form.



Prometaphase II

- Spindle apparatus form & align.
- Sister chromatids become attached to microtubules to the opposite poles.
- Sister chromatids move to the equator of the cell.



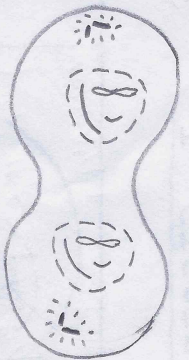
Metaphase II

- Sister chromatids align along the metaphase plate.



Anaphase II

- Sister chromatids separate and individual chromosomes move toward opposite poles.
- Kinetochores shorten.



Telophase II & Cytokinesis

- Nuclear membrane reforms.
- Chromosomes decondense.
- Cleavage furrow separates 2 haploid cells into 4 haploid cells containing one set of chromosomes each.