

Mitosis vs. Meiosis

	Mitosis	Meiosis
Purpose	To distribute genetic material equally; To grow and repair	To produce diversity; For reproduction
Type of Cell?	Somatic cells	Germ cells
How many Cell Divisions?	1	2
Crossing Over?	No	Yes
Final Cell Ploidy?	Diploid (2n)	Haploid (n)
Daughter Cells	Two identical diploid(2n) cells	Four nonidentical haploid(n) cells

Prophase →

- *Duplicated chromosomes condense
- *Homologous chromosomes pair up
- * Crossing over and chiasmata occur (ONLY IN MEIOSIS)

Metaphase →

- *Nuclear membrane breaks down
- *Spindle microtubules are attached to each centromere on opposite poles
- *Paired chromosomes line up at the equator

Anaphase →

- *Sister chromatids are pulled to opposite poles of the cell by spindle fibers
- *Chromosome Disjunction

Telophase →

- *Cell pinches in the middle
- *Chromosomes decondense and new nuclear membranes form
- *Cytokinesis: Daughter cells separated by cytoplasmic membranes

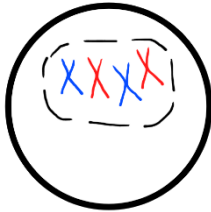
Mitosis

Parent Cell

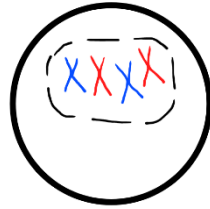
Meiosis

$2n=4$

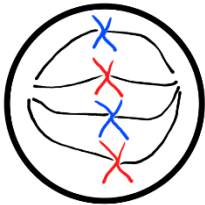
Prophase



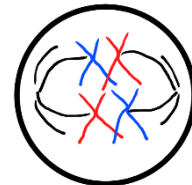
Prophase 1



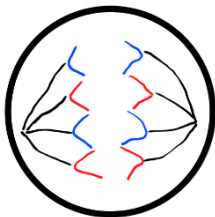
Metaphase



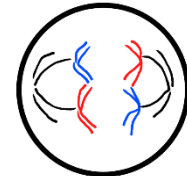
Metaphase 1



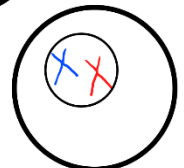
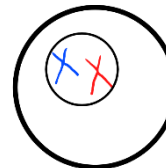
Anaphase



Anaphase 1



Telophase 1
&
Cytokinesis 1



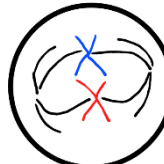
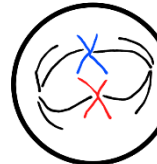
Prophase 2



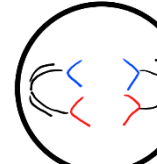
Telophase
&
Cytokinesis



Metaphase 2



Anaphase 2



Telophase 2
&
Cytokinesis 2

