Mitosis VS Meiosis

Mitosis
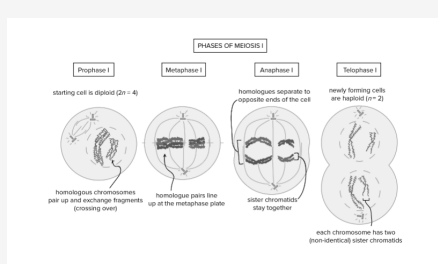
Cell Division

Produces Daughter Cells

Replaces Old Cells, Adds New
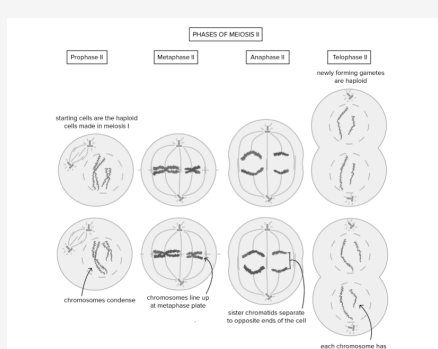
Meiosis

Production of Gametes

Produces Daughter Cells with 1/2 as many chromosomes as the starting cell.

Meiosis I

Meiosis II

Patterns of Inheritance

Law of Dominance
One allele is dominant. It always shows unless it isn't present

Law of Segregation
During production of gametes, 2 copies of each allele separate. Therefore, one allele is needed from each parent.

Law of Independent Assortment
Individual alleles assort independently. This gives different traits equal chance of occurring together.

Incomplete dominance
Dominant allele partially expressed, resulting in an intermediate phenotype *Example: Rr If Red is Dominant and White is recessive, the phenotype is pink.*

Codominance
2 dominant alleles, Phenotype is neither dominant nor recessive. *Example: In blood, types A and B are codominant, O is recessive. AB blood is therefore possible.*

Sex-Linked Inheritance
A trait is associated with the X or Y chromosome. (Males can never be carrier).

Polygenic Inheritance
Multiple genes affect one trait *Examples: Hair color, skin color, eye color)*

Patterns of Inheritance Examples

Law of Dominance	Pea Plants
Law of Segregation	Pea Plants
Law of IA	Mendelian Dyhybrid Cross (Peas)
Incomplete Dom.	Pink Roses
Codominance	AB Blood Type
Sex Linked Inheritance	Color Blindness, Muscular Dystrophy, Hemophelia
Polygenic Inheritance	Skin/Eye/Hair Color
Epistasis	Red Hair, Albinism

Mutations

Nondisjunction
failed separation of homologous chromosomes - aneuploidy (trisomy, polyploidy