

Concept 10.4

Meiosis explains Mendel's principles.

Chromosome Theory of Inheritance:

States that genes are located on chromosomes, and the behavior of chromosomes during meiosis and fertilization accounts for inheritance patterns.

- It is the chromosomes that undergo segregation and independent assortment during meiosis .
- The alleles of a gene reside at the same location, called a **gene locus**, on homologous chromosomes.

Genetic Linkage and Crossing Over:

Genetic Linkage - The tendency for the alleles on one chromosome to be inherited together.

- When genes are located on separate chromosomes, they sort independently.
- When genes are located on the same chromosome the genes would not tend not to be sorted into gametes independently.
- Crossing over can recombine gene loci on homologous chromosomes more often when the genes are far apart.

