CONCEPT: OVERVIEW OF MAPPING

● **Mapping** is used to determine the position of gene loci on a chromosome

□ **Linked genes** are genes that are inherited together

- They exist on the _____ chromosome (the chromosome is the unit of inheritance)

- Linked genes do not undergo independent assortment

- Complete linkage describes genes that are always inherited together

- F_2 ratio from heterozygous cross is 1:2:1; test cross is 1:1

EXAMPLE: Linkage Group

Linkage Group

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□ Sometimes alleles on the same chromosomes _____ inherited together

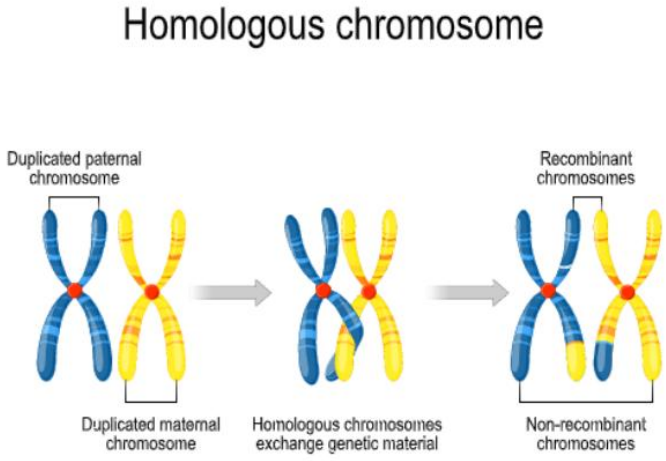
- Crossing over is a physical breaking and rejoining of homologous chromosomes

- Occurs during meiosis

- Produces **genetic recombination** which leads to a new combination of alleles

- Crossing over explains how genes on the same chromosome may not be inherited together

EXAMPLE: Example of crossing-over



□ Chromosomal mapping is performed by looking at the _____ of recombination

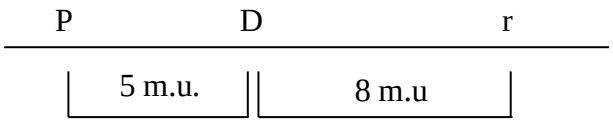
- The closer the genes are to each other, the less likely they are to cross over

- The farther the genes are to each other, the more likely they are to cross over

□ The recombination frequency can be used to determine the location of genes relative to each other

EXAMPLE:

Linkage Group



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