# biology

**Module: Genetics**
**Unit: Meiosis and Mendelian Genetics**

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## TEKS

**6F** Predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance

**6G** Recognize the significance of meiosis to sexual reproduction

## Instructional Content:

- Meiosis
  - Homologous chromosomes
  - Sister chromatids
  - Chromosome number
  - Phases of meiosis
  - Gametogenesis
  - Crossing over
  - Gene linkage
- Monohybrid crosses
  - Mendel's Law of Dominance
  - Mendel's Law of Segregation
  - Probability
  - Punnett squares
- Dihybrid crosses
  - Mendel's Law of Independent Assortment

## Learning Outcomes Students Will:

- Use all content and scientific process skills learned earlier in the course
- Describe the purpose of meiosis
- Summarize the events of meiosis
- Summarize the outcomes of Mendel's experiments with garden peas
- Distinguish between dominant and recessive alleles
- Differentiate between the terms homozygous and heterozygous
- Distinguish between genotype and phenotype
- Define and demonstrate an understanding of the terms: trait, cross, pure, hybrid, F1 generation and F2 generation
- Demonstrate and ability to use a Punnett square in the solution of different inheritance problems
- Explain how principles of probability are used to predict the outcomes of genetic crosses
- Distinguish between homologous chromosomes and sister chromatids
- Distinguish between the terms haploid and diploid
- Differentiate between gametogenesis in males and females
- Explain how crossing-over leads to genetic diversity
- Explain the relationship between Mendel's law of independent assortment and meiosis

Incorporate scientific process skills during the instruction of all Biology concepts.
**Look for this icon at wardsci.com/TEKS** for more information on scientific process skills.

## Recommended Ward's Science products with item numbers for easy online searching:

### Instructional Resources:

Meiosis Manipulative Kit **470019-338**

Meiosis Curriculum Learning Module **470163-790**

Ward's Cell Concept Clings **470024-260**

Ward's Chromosomal Phenomenon Demonstration Sets **470015-732**

Ward's Chromosome Simulation Lab Activity **470015-242**

Genetics: The Study of Heredity Curriculum Learning Module **470163-792**

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