biology

Module: Genetics
Unit: Non-Mendelian Genetics

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

6H Describe how techniques such as DNA fingerprinting, genetic modifications, and chromosomal analysis are used to study the genomes of organisms

Instructional Content:

- Codominance & Incomplete Dominance
  - ABO blood type
  - Sickle cell
- Polygenic traits
  - Skin color
  - Eye color
- Sex Linkage
  - Hemophilia
  - Colorblindness
- Pedigrees
  - Tracing autosomal genes
  - Tracing sex-linked genes
- Chromosome mutation
  - Types
  - Non-disjunction
  - Karyotype

Learning Outcomes Students Will:

- Use all content and scientific process skills learned earlier in the course
- Distinguish between codominance and incomplete dominance and provide examples of each type of inheritance
- Solve problems of inheritance that follow the pattern of codominance and incomplete dominance
- Differentiate between multiple alleles and polygenic inheritance and provide examples of each type of inheritance pattern
- Distinguish between autosomes and sex chromosomes
- Understand the basis of sex determination in humans
- Define the term sex-linked
- Provide examples and solve problems involving different patterns of sex-linked inheritance
- Explain why sex-linked disorders are more common in males than in females
- Describe the symbols used in pedigree analysis charts
- Use pedigree charts to show the inheritance pattern of autosomal and sex-linked traits in a family
- Explain what is meant by a chromosomal mutation
- Provide four examples of chromosomal mutations
- Explain what nondisjunction is and the various problems it causes
- Explain what a karyotype is and how it can be used to study human chromosomes

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:

Science Tools:

Human Genetics Taste Paper Set **6320100**

Instructional Resources:

Genetic Dice **470100-564**
Science Take-Out Experiments: Genetic Testing for Huntington's Disease **470127-846**
Fruitfly Genetics **470007-956**
Ward's Human Chromosome Karyotypes **470154-156**
Ward's® Karyotyping Pad Set **470023-326**
Stick to Science Genetic Cards **470137-422**
Ward's What Makes a Gene Recessive? Lab Activity **470024-468**
Ward's Transmission of Hereditary Disease Simulation Lab Activity **470024-106**
Human Heredity Made Easy Manipulatives **470006-772**

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