

Inquiry Investigations™
Genetics and Inheritance MODULE - 1282831
Grades: 7-10

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North Dakota Content Standards
Science
Grade 7

CONTENT STANDARD	ND.1.	Unifying Concepts: Students understand the unifying concepts and processes of science.
BENCHMARK	7.1.1.	<p>Models: Explain how models can be used to illustrate scientific principles (e.g., osmosis, cell division)</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	7.1.4.	<p>Form and Function: Identify the relationship between form and function (e.g., wings, fins and feet)</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease

		<ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Teacher Resource CD: The DNA Connection
CONTENT STANDARD	ND.2.	Science Inquiry: Students use the process of science inquiry.
BENCHMARK	7.2.1.	<p>Abilities Necessary To Do Scientific Inquiry: Communicate the results of scientific investigations using an appropriate format (e.g., journals, lab reports, diagrams, presentations, discussions)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent

		Assortment
CONTENT STANDARD	ND.4.	Life Science: Students understand the basic concepts and principles of life science.
BENCHMARK	7.4.1.	Structure and Function: Explain the functions of the cell (e.g., growth, metabolism, reproduction, photosynthesis, response) <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	7.4.2.	Structure and Function: Identify levels of organization in living systems (e.g., cells, tissues, organs, organ systems, organisms, ecosystems) <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	7.4.3.	Genetics and Reproduction: Identify the characteristics of reproduction (e.g., sexual, asexual) <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	7.4.6.	Diversity and Unity Among Organisms: Explain how different adaptations help organisms survive <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood

CONTENT STANDARD	ND.7.	Science and Other Areas: Students understand relations between science and personal, social, and environmental issues.
BENCHMARK	7.7.2.	<p>Science and Personal Health: Identify the factors (e.g., pollution, heredity, diet, virus, bacteria, parasite) that may result in disease.</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Teacher Resource CD: Genetics and Heredity Teacher Resource CD: Genetics and Inheritance
CONTENT STANDARD	ND.8.	History and Nature of Science: Students understand the history and nature of science.
BENCHMARK	7.8.1.	<p>People in Science: Explain how science is influenced by human qualities (e.g., reasoning, insightfulness, creativity, life-long learning)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood

		<ul style="list-style-type: none"> • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	7.8.2.	<p>Scientific Knowledge: Explain the importance of keeping clear and accurate records of scientific investigations (e.g., Darwin's research, DaVinci's notebooks, Galileo's notes, Goodall's observations)</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment

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**North Dakota Content Standards
Science
Grade 8**

CONTENT STANDARD	ND.1.	Unifying Concepts: Students understand the unifying concepts and processes of science.
BENCHMARK	8.1.1.	<p>Organize changes (e.g., patterns, cycles) that occur sequentially in systems</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Teacher Resource CD: Genetics and Heredity • Teacher Resource CD: The DNA Connection
CONTENT STANDARD	ND.2.	Science Inquiry: Students use the process of science inquiry.
BENCHMARK	8.2.1.	<p>Understandings About Scientific Inquiry: Explain how science advances through legitimate skepticism</p> <ul style="list-style-type: none"> • Teacher Resource CD: Genetics and Heredity • Teacher Resource CD: The DNA Connection
BENCHMARK	8.2.2.	<p>Abilities Necessary To Do Scientific Inquiry: Use evidence to generate descriptions, explanations, predictions, and Models</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic

		<p>Cross to Demonstrate the Law of Dominance</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Teacher Resource CD: Genetics and Heredity • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	8.2.3.	<p>Abilities Necessary To Do Scientific Inquiry: Use basic mathematics and statistics (e.g., operations, mean, median, mode, range, and estimation) to interpret quantitative data</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic

		<p>Disease</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Teacher Resource CD: Genetics and Inheritance Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	8.2.4.	<p>Abilities Necessary To Do Scientific Inquiry: Design and conduct a scientific investigation (e.g., making systematic observations, making accurate measurements, identifying and controlling variables)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population
CONTENT STANDARD	ND.7.	Science and Other Areas: Students understand relations between science and personal, social, and environmental issues.
BENCHMARK	8.7.1.	Science and Social Issues: Explain the interaction of science and technology with social

		<p>issues (e.g., mining, natural disasters)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease
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**North Dakota Content Standards
Science
Grade 9**

CONTENT STANDARD	ND.1.	Unifying Concepts: Students understand the unifying concepts and processes of science.
BENCHMARK	9-10.1.1.	<p>Models: Explain how models can be used to illustrate scientific principles</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.1.4.	<p>Form and Function: Describe the relationship between form and function (e.g., solids, liquids, gases, cell specialization, simple machines, and plate tectonics)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population

		<ul style="list-style-type: none"> Teacher Resource CD: The DNA Connection
CONTENT STANDARD	ND.2.	Science Inquiry: Students use the process of science inquiry.
BENCHMARK	9-10.2.1.	<p>Understandings About Scientific Inquiry: Explain how scientific investigations can result in new ideas</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.2.	<p>Abilities Necessary To Do Scientific Inquiry: Use appropriate safety equipment and precautions during investigations (e.g., goggles, apron, eye wash station)</p>

		<ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.3.	<p>Abilities Necessary To Do Scientific Inquiry: Identify questions and concepts that guide scientific investigations</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics

		<ul style="list-style-type: none"> • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.6.	<p>Abilities Necessary To Do Scientific Inquiry: Design and conduct a guided investigation</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization

		<ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.7.	<p>Abilities Necessary To Do Scientific Inquiry: Maintain clear and accurate records of scientific investigations</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes

		<ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.8.	<p>Abilities Necessary To Do Scientific Inquiry: Analyze data found in tables, charts, and graphs to formulate conclusions</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease

		<ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
CONTENT STANDARD	ND.4.	Life Science: Students understand the basic concepts and principles of life science.
BENCHMARK	9-10.4.1.	<p>Structure and Function: Relate cell function to cell structure (i.e., cell wall, cell membrane, nucleus, mitochondria, chloroplast)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	9-10.4.2.	<p>Structure and Function: Relate the functions of cells in multi-cellular organisms to their cell type (e.g., nerve cells, blood cells, guard cells)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Teacher Resource CD: Genetics and Inheritance
BENCHMARK	9-10.4.3.	<p>Structure and Function: Explain the relationship between protein structure and function</p> <ul style="list-style-type: none"> Teacher Resource CD: The DNA Connection
BENCHMARK	9-10.4.4.	<p>Genetics and Reproduction: Relate DNA, genes, and chromosomes</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic

		<p>Origins through DNA Fingerprinting</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Teacher Resource CD: Genetics and Heredity • Teacher Resource CD: Genetics and Inheritance • Teacher Resource CD: The DNA Connection
BENCHMARK	9-10.4.5.	<p>Genetics and Reproduction: Explain the relationship between spontaneous changes in DNA and a source of genetic variation</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Teacher Resource CD: Genetics and Inheritance
BENCHMARK	9-10.4.6.	<p>Genetics and Reproduction: Compare and contrast the results of mitosis and meiosis (i.e., mitosis involves a nuclear division that results in two daughter nuclei that are identical to the parent nucleus; meiosis involves two nuclear divisions that result in gametes cells containing half the number of chromosomes)</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	9-10.4.7.	<p>Genetics and Reproduction: Apply the basic concepts of genetics to predict inherited traits (i.e., segregation, independent assortment, dominant and recessive traits)</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and

		<p>the Hardy-Weinberg Principle</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Teacher Resource CD: Genetics and Heredity Teacher Resource CD: Genetics and Inheritance Teacher Resource CD: The DNA Connection Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
CONTENT STANDARD	ND.6.	Science and Technology: Students understand relations between science and technology.
BENCHMARK	9-10.6.1.	<p>Technological Design: Use appropriate technologies and techniques to solve a problem (e.g., computer-assisted tools, Internet, research skills)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting

		<ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
CONTENT STANDARD	ND.8.	History and Nature of Science: Students understand the history and nature of science.
BENCHMARK	9-10.8.3.	<p>People in Science: Explain how individuals and groups, from different disciplines in and outside of science, contribute to science at different levels of complexity</p> <ul style="list-style-type: none"> Teacher Resource CD: Genetics and Heredity Teacher Resource CD: The DNA Connection
BENCHMARK	9-10.8.4.	<p>Scientific Knowledge: Identify theories that have changed over time (e.g., alchemy, atomic structure, model of the solar system)</p> <ul style="list-style-type: none"> Teacher Resource CD: Genetics and Heredity Teacher Resource CD: The DNA Connection

**North Dakota Content Standards
Science
Grade 10**

CONTENT STANDARD	ND.1.	Unifying Concepts: Students understand the unifying concepts and processes of science.
BENCHMARK	9-10.1.1.	<p>Models: Explain how models can be used to illustrate scientific principles</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Virtual Laboratory: Mendelian Genetics Law of Dominance

		<ul style="list-style-type: none"> Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.1.4.	<p>Form and Function: Describe the relationship between form and function (e.g., solids, liquids, gases, cell specialization, simple machines, and plate tectonics)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Teacher Resource CD: The DNA Connection
CONTENT STANDARD	ND.2.	Science Inquiry: Students use the process of science inquiry.
BENCHMARK	9-10.2.1.	<p>Understandings About Scientific Inquiry: Explain how scientific investigations can result in new ideas</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a

		<p>Family Pedigree</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.2.	<p>Abilities Necessary To Do Scientific Inquiry: Use appropriate safety equipment and precautions during investigations (e.g., goggles, apron, eye wash station)</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the

		<p>Human Genome</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.3.	<p>Abilities Necessary To Do Scientific Inquiry: Identify questions and concepts that guide scientific investigations</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal

		<p>Mystery</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.6.	<p>Abilities Necessary To Do Scientific Inquiry: Design and conduct a guided investigation</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-	Abilities Necessary To Do Scientific Inquiry: Maintain clear and accurate records of

	10.2.7.	<p>scientific investigations</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population • Virtual Laboratory: Mendelian Genetics Law of Dominance • Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
BENCHMARK	9-10.2.8.	<p>Abilities Necessary To Do Scientific Inquiry: Analyze data found in tables, charts, and graphs to formulate conclusions</p> <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix

		<ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
CONTENT STANDARD	ND.4.	Life Science: Students understand the basic concepts and principles of life science.
BENCHMARK	9-10.4.1.	<p>Structure and Function: Relate cell function to cell structure (i.e., cell wall, cell membrane, nucleus, mitochondria, chloroplast)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	9-10.4.2.	<p>Structure and Function: Relate the functions of cells in multi-cellular organisms to their cell type (e.g., nerve cells, blood cells, guard cells)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Teacher Resource CD: Genetics and Inheritance
BENCHMARK	9-	Structure and Function: Explain the relationship between protein structure and

	10.4.3.	function <ul style="list-style-type: none"> • Teacher Resource CD: The DNA Connection
BENCHMARK	9-10.4.4.	Genetics and Reproduction: Relate DNA, genes, and chromosomes <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs • Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication • Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix • Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics • Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance • Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment • Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization • Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes • Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting • Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery • Teacher Resource CD: Genetics and Heredity • Teacher Resource CD: Genetics and Inheritance • Teacher Resource CD: The DNA Connection
BENCHMARK	9-10.4.5.	Genetics and Reproduction: Explain the relationship between spontaneous changes in DNA and a source of genetic variation <ul style="list-style-type: none"> • Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle • Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome • Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease • Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease • Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood • Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the

		<p>Frequency of Human Traits in a Population</p> <ul style="list-style-type: none"> Teacher Resource CD: Genetics and Inheritance
BENCHMARK	9-10.4.6.	<p>Genetics and Reproduction: Compare and contrast the results of mitosis and meiosis (i.e., mitosis involves a nuclear division that results in two daughter nuclei that are identical to the parent nucleus; meiosis involves two nuclear divisions that result in gametes cells containing half the number of chromosomes)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
BENCHMARK	9-10.4.7.	<p>Genetics and Reproduction: Apply the basic concepts of genetics to predict inherited traits (i.e., segregation, independent assortment, dominant and recessive traits)</p> <ul style="list-style-type: none"> Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Teacher Resource CD: Genetics and Heredity Teacher Resource CD: Genetics and Inheritance Teacher Resource CD: The DNA Connection Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
CONTENT STANDARD	ND.6.	Science and Technology: Students understand relations between science and technology.
BENCHMARK	9-10.6.1.	Technological Design: Use appropriate technologies and techniques to solve a problem (e.g., computer-assisted tools, Internet, research skills)

		<ul style="list-style-type: none"> Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population Virtual Laboratory: Mendelian Genetics Law of Dominance Virtual Laboratory: Mendelian Genetics Law of Independent Assortment
CONTENT STANDARD	ND.8.	History and Nature of Science: Students understand the history and nature of science.
BENCHMARK	9-10.8.3.	<p>People in Science: Explain how individuals and groups, from different disciplines in and outside of science, contribute to science at different levels of complexity</p> <ul style="list-style-type: none"> Teacher Resource CD: Genetics and Heredity Teacher Resource CD: The DNA Connection
BENCHMARK	9-10.8.4.	Scientific Knowledge: Identify theories that have changed over time (e.g., alchemy,

		atomic structure, model of the solar system) <ul style="list-style-type: none">• Teacher Resource CD: Genetics and Heredity• Teacher Resource CD: The DNA Connection
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