

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

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**Illinois Learning Standards**  
**Science**  
**Grade 7**

STATE GOAL / STRAND	IL.11.	Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
STATE GOAL / LEARNING STANDARD	11.A.	Know and apply the concepts, principles and processes of scientific inquiry.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.A.3c.	<p>Collect and record data accurately using consistent measuring and recording techniques and media.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> </ul>

		<ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3d.</p>	<p>Explain the existence of unexpected results in a data set.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> </ul>

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<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3e.</p>	<p>Use data manipulation tools and quantitative (e.g., mean, mode, simple equations) and representational methods (e.g., simulations, image processing) to analyze measurements.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a</li> </ul>

		<p>Population</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Genetics and Inheritance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3f.</p>	<p>Interpret and represent results of analysis to produce findings.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> </ul>

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<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3g.</p>	<p>Report and display the process and results of a scientific investigation.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> </ul>

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STATE GOAL / STRAND	IL.11.	Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
STATE GOAL / LEARNING STANDARD	11.B.	Know and apply the concepts, principles and processes of technological design.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.B.3b.	<p>Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2:</li> </ul>

		<p>Calculating the Frequency of Human Traits in a Population</p> <ul style="list-style-type: none"> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.B.3e.</p>	<p>Evaluate the test results based on established criteria, note sources of error and recommend improvements.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a</li> </ul>

		<p>Population</p> <ul style="list-style-type: none"> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.B.3f.</p>	<p>Using available technology, report the relative success of the design based on the test results and criteria.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
STATE GOAL / STRAND	IL. 12.	Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.A.	Know and apply concepts that explain how living things function, adapt and change.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.3a.	<p>Explain how cells function as building blocks of organisms and describe the requirements for cells to live.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.3b.	<p>Compare characteristics of organisms produced from a single parent with those of organisms produced by two parents.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4:</li> </ul>

		<p>Diagnosing Genetic Disease</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: Genetics and Inheritance</li> <li>Teacher Resource CD: The DNA Connection</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.3c.	<p>Compare and contrast how different forms and structures reflect different functions (e.g., similarities and differences among animals that fly, walk or swim; structures of plant cells and animal cells).</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
STATE GOAL / STRAND	IL.12.	Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.B.	Know and apply concepts that describe how living things interact with each other and with their environment.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.B.3b.	Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g., appendages, reproductive rates, camouflage,

		<p>defensive structures).</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> </ul>
<b>STATE GOAL / STRAND</b>	<b>IL.12.</b>	<b>Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.</b>
<b>STATE GOAL / LEARNING STANDARD</b>	<b>12.C.</b>	<b>Know and apply concepts that describe properties of matter and energy and the interactions between them.</b>
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	<b>12.C.3b.</b>	<p>Model and describe the chemical and physical characteristics of matter (e.g., atoms, molecules, elements, compounds, mixtures).</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> </ul>
<b>STATE GOAL / STRAND</b>	<b>IL.13.</b>	<b>Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary contexts.</b>
<b>STATE GOAL / LEARNING STANDARD</b>	<b>13.A.</b>	<b>Know and apply the accepted practices of science.</b>

<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>13.A.3a.</p>	<p>Identify and reduce potential hazards in science activities (e.g., ventilation, handling chemicals).</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>STATE GOAL / STRAND</p>	<p>IL.13.</p>	<p>Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary</p>

		contexts.
STATE GOAL / LEARNING STANDARD	13.B.	Know and apply concepts that describe the interaction between science, technology and society.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.B.3b.	Identify important contributions to science and technology that have been made by individuals and groups from various cultures. <ul style="list-style-type: none"> <li>• Teacher Resource CD: Genetics and Heredity</li> <li>• Teacher Resource CD: The DNA Connection</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.B.3f.	Apply classroom-developed criteria to determine the effects of policies on local science and technology issues (e.g., energy consumption, landfills, water quality). <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> </ul>

**Illinois Learning Standards  
Science  
Grade 8**

STATE GOAL / STRAND	IL.11.	Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
STATE GOAL / LEARNING STANDARD	11.A.	Know and apply the concepts, principles and processes of scientific inquiry.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.A.3c.	Collect and record data accurately using consistent measuring and recording techniques and media. <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and</li> </ul>

		<p>Phenotypes</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3d.</p>	<p>Explain the existence of unexpected results in a data set.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1:</li> </ul>

		<p>Analyze Genetic Origins through DNA Fingerprinting</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3e.</p>	<p>Use data manipulation tools and quantitative (e.g., mean, mode, simple equations) and representational methods (e.g., simulations, image processing) to analyze measurements.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2:</li> </ul>

		<p>Analyze Genetic Origins through DNA Sequencing</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Teacher Resource CD: Genetics and Inheritance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3f.</p>	<p>Interpret and represent results of analysis to produce findings.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> </ul>

		<ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.3g.</p>	<p>Report and display the process and results of a scientific investigation.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> </ul>

		<ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<b>STATE GOAL / STRAND</b>	<b>IL.11.</b>	<b>Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.</b>
<b>STATE GOAL / LEARNING STANDARD</b>	<b>11.B.</b>	<b>Know and apply the concepts, principles and processes of technological design.</b>
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	<b>11.B.3b.</b>	<p>Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> </ul>

		<ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.B.3e.</p>	<p>Evaluate the test results based on established criteria, note sources of error and recommend improvements.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5:</li> </ul>

		<p>Predicting Genetic Disease</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.B.3f.</p>	<p>Using available technology, report the relative success of the design based on the test results and criteria.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> </ul>

		<ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
STATE GOAL / STRAND	IL.12.	Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.A.	Know and apply concepts that explain how living things function, adapt and change.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.3a.	<p>Explain how cells function as building blocks of organisms and describe the requirements for cells to live.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.3b.	<p>Compare characteristics of organisms produced from a single parent with those of organisms produced by two parents.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> </ul>

		<ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: Genetics and Inheritance</li> <li>Teacher Resource CD: The DNA Connection</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>12.A.3c.</p>	<p>Compare and contrast how different forms and structures reflect different functions (e.g., similarities and differences among animals that fly, walk or swim; structures of plant cells and animal cells).</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
<p>STATE GOAL / STRAND</p>	<p>IL.12.</p>	<p>Concepts and Principles: Understand the fundamental concepts,</p>

		principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.B.	Know and apply concepts that describe how living things interact with each other and with their environment.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.B.3b.	<p>Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g., appendages, reproductive rates, camouflage, defensive structures).</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> </ul>
STATE GOAL / STRAND	IL.12.	Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.C.	Know and apply concepts that describe properties of matter and energy and the interactions between them.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.C.3b.	<p>Model and describe the chemical and physical characteristics of matter (e.g., atoms, molecules, elements, compounds, mixtures).</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3:</li> </ul>

		Exploring DNA's Structure - the Double Helix
STATE GOAL / STRAND	IL.13.	Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary contexts.
STATE GOAL / LEARNING STANDARD	13.A.	Know and apply the accepted practices of science.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.3a.	<p>Identify and reduce potential hazards in science activities (e.g., ventilation, handling chemicals).</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<b>STATE GOAL / STRAND</b>	<b>IL.13.</b>	<b>Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary contexts.</b>
<b>STATE GOAL / LEARNING STANDARD</b>	<b>13.B.</b>	<b>Know and apply concepts that describe the interaction between science, technology and society.</b>
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	<b>13.B.3b.</b>	Identify important contributions to science and technology that have been made by individuals and groups from various cultures. <ul style="list-style-type: none"> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	<b>13.B.3f.</b>	Apply classroom-developed criteria to determine the effects of policies on local science and technology issues (e.g., energy consumption, landfills, water quality). <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> </ul>

### Illinois Learning Standards

#### Science

#### Grade 9

<b>STATE GOAL / STRAND</b>	<b>IL.11.</b>	<b>Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.</b>
<b>STATE GOAL / LEARNING STANDARD</b>	<b>11.A.</b>	<b>Know and apply the concepts, principles and processes of scientific inquiry.</b>
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	<b>11.A.4c.</b>	Collect, organize and analyze data accurately and precisely. <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> </ul>

		<ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.4d.</p>	<p>Apply statistical methods to the data to reach and support conclusions.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: Genetics and Inheritance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.A.4e.</p>	<p>Formulate alternative hypotheses to explain unexpected results.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of</li> </ul>

		<p>Dominance</p> <ul style="list-style-type: none"> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
STATE GOAL / STRAND	IL.11.	Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
STATE GOAL / LEARNING STANDARD	11.B.	Know and apply the concepts, principles and processes of technological design.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.B.4e.	<p>Develop and test a prototype or simulation of the solution design using available materials, instruments and technology.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.B.4g.	<p>Using available technology, report to an audience the relative success of the design based on the test results and criteria.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a</li> </ul>

		<p>Population</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<b>STATE GOAL / STRAND</b>	<b>IL.12.</b>	<b>Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.</b>
<b>STATE GOAL / LEARNING STANDARD</b>	<b>12.A.</b>	<b>Know and apply concepts that explain how living things function, adapt and change.</b>
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	<b>12.A.4a.</b>	<p>Explain how genetic combinations produce visible effects and variations among physical features and cellular functions of organisms.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> </ul>

		<ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: Genetics and Inheritance</li> <li>Teacher Resource CD: The DNA Connection</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.4b.	<p>Describe the structures and organization of cells and tissues that underlie basic life functions including nutrition, respiration, cellular transport, biosynthesis and reproduction.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
STATE GOAL / STRAND	IL.12.	Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.B.	Know and apply concepts that describe how living things interact with each other and with their environment.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.B.4a.	<p>Compare physical, ecological and behavioral factors that influence interactions and interdependence of organisms.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1:</li> </ul>

		Simulating Meiosis and Fertilization
STATE GOAL / STRAND	IL.13.	Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary contexts.
STATE GOAL / LEARNING STANDARD	13.A.	Know and apply the accepted practices of science.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.4a.	<p>Estimate and suggest ways to reduce the degree of risk involved in science activities.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> </ul>

		<ul style="list-style-type: none"> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>13.A.4b.</p>	<p>Assess the validity of scientific data by analyzing the results, sample set, sample size, similar previous experimentation, possible misrepresentation of data presented and potential sources of error.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.4c.	<p>Describe how scientific knowledge, explanations and technological designs may change with new information over time (e.g., the understanding of DNA, the design of computers).</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.4d.	<p>Explain how peer review helps to assure the accurate use of data and improves the scientific process.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> </ul>
STATE GOAL / STRAND	IL.13.	Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary

		contexts.
STATE GOAL / LEARNING STANDARD	13.B.	Know and apply concepts that describe the interaction between science, technology and society.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.B.4a.	<p>Compare and contrast scientific inquiry and technological design as pure and applied sciences.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of</li> </ul>

Independent Assortment

Illinois Learning Standards  
 Science  
 Grade 10

STATE GOAL / STRAND	IL.11.	Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
STATE GOAL / LEARNING STANDARD	11.A.	Know and apply the concepts, principles and processes of scientific inquiry.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.A.4c.	<p>Collect, organize and analyze data accurately and precisely.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>• Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> </ul>

		<ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.A.4d.	<p>Apply statistical methods to the data to reach and support conclusions.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>• Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>• Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>• Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>• Teacher Resource CD: Genetics and Inheritance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>• Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.A.4e.	<p>Formulate alternative hypotheses to explain unexpected results.</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>• Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of</li> </ul>

		<p>Incomplete Dominance</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
STATE GOAL / STRAND	IL.11.	Inquiry and Design: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.
STATE GOAL / LEARNING STANDARD	11.B.	Know and apply the concepts, principles and processes of technological design.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	11.B.4e.	<p>Develop and test a prototype or simulation of the solution design using available materials, instruments and technology.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1:</li> </ul>

		<p>Analyze Genetic Origins through DNA Fingerprinting</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>11.B.4g.</p>	<p>Using available technology, report to an audience the relative success of the design based on the test results and criteria.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case</li> </ul>

		<ul style="list-style-type: none"> <li>of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
STATE GOAL / STRAND	IL. 12.	Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.
STATE GOAL / LEARNING STANDARD	12.A.	Know and apply concepts that explain how living things function, adapt and change.
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.4a.	<p>Explain how genetic combinations produce visible effects and variations among physical features and cellular functions of organisms.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: Genetics and Inheritance</li> <li>Teacher Resource CD: The DNA Connection</li> <li>Virtual Laboratory: Mendelian Genetics Law of</li> </ul>

		<p>Dominance</p> <ul style="list-style-type: none"> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.A.4b.	<p>Describe the structures and organization of cells and tissues that underlie basic life functions including nutrition, respiration, cellular transport, biosynthesis and reproduction.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
STATE GOAL / STRAND	IL. 12.	<p>Concepts and Principles: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.</p>
STATE GOAL / LEARNING STANDARD	12.B.	<p>Know and apply concepts that describe how living things interact with each other and with their environment.</p>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	12.B.4a.	<p>Compare physical, ecological and behavioral factors that influence interactions and interdependence of organisms.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
STATE GOAL / STRAND	IL. 13.	<p>Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary contexts.</p>
STATE GOAL / LEARNING STANDARD	13.A.	<p>Know and apply the accepted practices of science.</p>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.4a.	<p>Estimate and suggest ways to reduce the degree of risk involved in science activities.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> </ul>

		<ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 6 Activity 1: Examining Human Variation in Blood</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 2: Calculating the Frequency of Human Traits in a Population</li> <li>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
<p>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</p>	<p>13.A.4b.</p>	<p>Assess the validity of scientific data by analyzing the results, sample set, sample size, similar previous experimentation, possible misrepresentation of data presented and potential sources of error.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> </ul>

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LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.4c.	<p>Describe how scientific knowledge, explanations and technological designs may change with new information over time (e.g., the understanding of DNA, the design of computers).</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
LEARNING STANDARD / PERFORMANCE DESCRIPTOR	13.A.4d.	<p>Explain how peer review helps to assure the accurate use of data and improves the scientific process.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3:</li> </ul>

		<p>Exploring DNA's Structure - the Double Helix</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment</li> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 1: Determine the Frequency of Common Human Traits in a Population</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 2: Taste Tests and the Hardy-Weinberg Principle</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 3: Constructing a Family Pedigree</li> <li>Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 2: Analyze Genetic Origins through DNA Sequencing</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease</li> <li>Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease</li> <li>Genetics and Inheritance: Unit 4 Lab 7 Activity 1: Case of the Royal Mystery</li> </ul>
<b>STATE GOAL / STRAND</b>	IL.13.	Science, Technology, and Society: Understand the relationships among science, technology and society in historical and contemporary contexts.
<b>STATE GOAL / LEARNING STANDARD</b>	13.B.	Know and apply concepts that describe the interaction between science, technology and society.
<b>LEARNING STANDARD / PERFORMANCE DESCRIPTOR</b>	13.B.4a.	<p>Compare and contrast scientific inquiry and technological design as pure and applied sciences.</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 2: Modeling DNA Replication</li> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance</li> <li>Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance</li> </ul>

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