

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

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**Idaho Content Standards**  
**Science**  
**Grade 7**

<b>STANDARD</b>	<b>ID. 1.</b>	Nature of Science: Students carry out investigations over time using appropriate tools and equipment. Students make inferences based upon data they collect. Students accurately communicate the results of their investigations and observations. Students support or revise their conclusions by critically analyzing alternate explanations. Students carry out investigations following written lab procedures. Students follow safety protocols in carrying out investigations.
<b>CONTENT KNOWLEDGE AND SKILLS / GOAL</b>	<b>1.1.</b>	Understand Systems, Order, and Organization
<b>GLE / BIG IDEA</b>	<b>7.S.1.1.3.</b>	The student will be able to identify the different structural levels of an organism (cells, tissues, organs, and organ systems). (633.01.b) <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
<b>STANDARD</b>	<b>ID. 1.</b>	Nature of Science: Students carry out investigations over time using appropriate tools and equipment. Students make inferences based upon data they collect. Students accurately communicate the results of their investigations and observations. Students support or revise their conclusions by critically analyzing alternate explanations. Students carry out investigations following written lab procedures. Students follow safety protocols in carrying out investigations.
<b>CONTENT KNOWLEDGE AND SKILLS / GOAL</b>	<b>1.2.</b>	Understand Concepts and Processes of Evidence, Models, and Explanation
<b>GLE / BIG IDEA</b>	<b>7.S.1.2.1.</b>	The student will be able to describe how observations and data are evidence on which to base scientific explanations and predictions. (633.02.a) <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</li> </ul>

		<p>Dihybrid Cross to Demonstrate the Law of Independent Assortment</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 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>
GLE / BIG IDEA	7.S.1.2.3.	<p>The student will be able to use models to explain or demonstrate a concept. (633.02.c)</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>
STANDARD	ID.1.	Nature of Science: Students carry out investigations over time using appropriate tools and equipment. Students make inferences based upon data

		they collect. Students accurately communicate the results of their investigations and observations. Students support or revise their conclusions by critically analyzing alternate explanations. Students carry out investigations following written lab procedures. Students follow safety protocols in carrying out investigations.
CONTENT KNOWLEDGE AND SKILLS / GOAL	1.6.	Understand Scientific Inquiry and Develop Critical Thinking Skills
GLE / BIG IDEA	7.S.1.6.2.	<p>The student will be able to use appropriate tools and techniques to gather and display data. (634.01c)</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</li> </ul>

		Assortment
GLE / BIG IDEA	7.S.1.6.3.	<p>The student will be able to evaluate data in order to form conclusions. (634.01.d)</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>
GLE / BIG IDEA	7.S.1.6.6.	<p>The student will be able to communicate and defend scientific procedures and explanations. (634.01.g)</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> </ul>

		<ul style="list-style-type: none"> <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>
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CONTENT KNOWLEDGE AND SKILLS / GOAL	1.8.	Understand Technical Communication
GLE / BIG IDEA	7.S.1.8.1.	The student will be able to read and evaluate technical instructions. (643.02.a)

		<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>
STANDARD	ID.3.	Biology: Students state the levels of cellular organization and list cell parts and their respective functions. Students explain how traits are passed from one generation to another. Students differentiate between plant and animal cells by identifying the characteristic parts of each. Students explain how organisms are adapted to their environment and interact with the biotic and abiotic components of the environment.
CONTENT KNOWLEDGE AND SKILLS / GOAL	3.2.	Understand the Relationship between Matter and Energy in Living Systems
GLE / BIG IDEA	7.S.3.2.4.	The student will be able to identify how energy flows through ecosystems in one

		<p>direction, from photosynthetic organisms to herbivores, carnivore, and decomposers. (638.01.d)</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>
<b>STANDARD</b>	<b>ID.3.</b>	<p><b>Biology:</b> Students state the levels of cellular organization and list cell parts and their respective functions. Students explain how traits are passed from one generation to another. Students differentiate between plant and animals cells by identifying the characteristic parts of each. Students explain how organisms are adapted to their environment and interact with the biotic and abiotic components of the environment.</p>
<b>CONTENT KNOWLEDGE AND SKILLS / GOAL</b>	<b>3.3.</b>	<p>Understand the Cell is the Basis of Form and Function for All Living Things</p>
<b>GLE / BIG IDEA</b>	<b>7.S.3.3.1.</b>	<p>The student will be able to explain the relationships among specialized cells, tissues, organs, organ systems, and organisms. (636.01.a)</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
<b>GLE / BIG IDEA</b>	<b>7.S.3.3.3.</b>	<p>The student will be able to identify the functions of cell structures. (636.01.b)</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
<b>GLE / BIG IDEA</b>	<b>7.S.3.3.5.</b>	<p>The student will be able to describe how dominant and recessive traits are inherited. (636.01.e)</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 4 Lab 7 Activity 1: Case of the</li> </ul>

		<p>Royal Mystery</p> <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>Teacher Resource CD: Genetics and Heredity</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>
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**Idaho Content Standards  
Science  
Grade 8**

<b>STANDARD</b>	<b>ID.1.</b>	Physical Science: Nature of Science: Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.
<b>CONTENT KNOWLEDGE AND SKILLS / GOAL</b>	<b>1.2.</b>	Understand Concepts and Processes of Evidence, Models, and Explanation
<b>GLE / BIG IDEA</b>	<b>8.PS.1.2.2.</b>	The student will be able to develop models to explain concepts or systems. (648.02b) <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>

**Idaho Content Standards  
Science  
Grade 9**

<b>STANDARD</b>	<b>ID.1.</b>	Physical Science: Nature of Science: Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.
<b>CONTENT KNOWLEDGE AND SKILLS / GOAL</b>	<b>1.2.</b>	Understand Concepts and Processes of Evidence, Models, and Explanation
<b>GLE / BIG IDEA</b>	<b>9.PS.1.2.2.</b>	The student will be able to develop models to explain concepts or systems. (648.02b) <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> </ul>

		<ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 1 Lab 1 Activity 3: Exploring DNA's Structure - the Double Helix</li> </ul>
STANDARD	ID.1.	Biology: Nature of Science: Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.
CONTENT KNOWLEDGE AND SKILLS / GOAL	1.1.	Understand Systems, Order, and Organization
GLE / BIG IDEA	9.B.1.1.1.	<p>The student will be able to explain the scientific meaning of system, order, and organization. (648.01a)</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 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>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: The DNA Connection</li> </ul>
GLE / BIG IDEA	9.B.1.1.2.	<p>The student will be able to apply the concepts of order and organization to a given system. (648.01a)</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>

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CONTENT KNOWLEDGE AND SKILLS / GOAL	1.2.	Understand Concepts and Processes of Evidence, Models, and Explanation
GLE / BIG IDEA	9.B.1.2.1.	<p>The student will be able to use observations and data as evidence on which to base scientific explanations. (648.02a)</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> </ul>

		<ul style="list-style-type: none"> <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>
GLE / BIG IDEA	9.B.1.2.2.	<p>The student will be able to develop models to explain concepts or systems. (648.02b)</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>
GLE / BIG IDEA	9.B.1.2.3.	<p>The student will be able to develop scientific explanations based on knowledge, logic and analysis. (648.02c)</p> <ul style="list-style-type: none"> <li>• Genetics and Inheritance: Unit 1 Lab 1 Activity 1: Learning About Base Pairs</li> </ul>

		<ul style="list-style-type: none"> <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>
STANDARD	ID.1.	Biology: Nature of Science: Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.
CONTENT KNOWLEDGE AND SKILLS / GOAL	1.6.	Understand Scientific Inquiry and Develop Critical Thinking Skills

GLE / BIG IDEA	9.B.1.6.1.	<p>The student will be able to identify questions and concepts that guide scientific investigations. (649.01a)</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 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>
GLE / BIG IDEA	9.B.1.6.2.	<p>The student will be able to utilize the components of scientific problem solving to design, conduct, and communicate results of investigations. (649.01b)</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</li> </ul>

		<p>Laws of Chance to Genetics</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 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>
GLE / BIG IDEA	9.B.1.6.4.	<p>The student will be able to formulate scientific explanations and models using logic and evidence. (649.01d)</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>

		<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>
GLE / BIG IDEA	9.B.1.6.6.	<p>The student will be able to communicate and defend a scientific argument. (649.01f)</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> </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>
GLE / BIG IDEA	9.B.1.6.7.	<p>The student will be able to explain the differences among observations, hypotheses, and theories. (649.01g)</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>Virtual Laboratory: Mendelian Genetics Law of Dominance</li> <li>Virtual Laboratory: Mendelian Genetics Law of Independent Assortment</li> </ul>
STANDARD	ID.3.	Biology: Biology: Students explain the importance of cells as they relate to the organization and structure of complex organisms, differentiation and specialization during development, and the chemical reactions necessary to sustain life. Students describe the functions of cell structures. Students use the theory of evolution to explain diversity of life.
CONTENT KNOWLEDGE AND SKILLS / GOAL	3.2.	Understand the Relationship between Matter and Energy in Living Systems
GLE / BIG IDEA	9.B.3.2.4.	The student will be able to describe cellular respiration and the synthesis of macromolecules. (653.01d) <ul style="list-style-type: none"> <li>Teacher Resource CD: The DNA Connection</li> </ul>
STANDARD	ID.3.	Biology: Biology: Students explain the importance of cells as they relate to the organization and structure of complex organisms, differentiation and specialization during development, and the chemical reactions necessary to sustain life. Students describe the functions of cell structures. Students use the theory of evolution to explain diversity of life.
CONTENT KNOWLEDGE AND SKILLS / GOAL	3.3.	Understand the Cell is the Basis of Form and Function for All Living Things
GLE / BIG IDEA	9.B.3.3.1.	The student will be able to identify the particular structures that underlie the cellular functions. (651.01a) <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
GLE / BIG IDEA	9.B.3.3.3.	The student will be able to explain how cells use DNA to store and use information for cell functions. (651.01c) <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> </ul>

		<ul style="list-style-type: none"> <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>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
GLE / BIG IDEA	9.B.3.3.4.	<p>The student will be able to explain how selective expression of genes can produce specialized cells from a single cell. (651.01e)</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 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</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>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: Genetics and Inheritance</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>

Idaho Content Standards

Science

Grade 10

STANDARD	ID.1.	Biology: Nature of Science: Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.
CONTENT KNOWLEDGE AND SKILLS / GOAL	1.1.	Understand Systems, Order, and Organization

GLE / BIG IDEA	10.B.1.1.1.	<p>The student will be able to explain the scientific meaning of system, order, and organization. (648.01a)</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 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>• 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: The DNA Connection</li> </ul>
GLE / BIG IDEA	10.B.1.1.2.	<p>The student will be able to apply the concepts of order and organization to a given system. (648.01a)</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 5 Activity 1: Analyze Genetic Origins through DNA Fingerprinting</li> </ul>

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CONTENT KNOWLEDGE AND SKILLS / GOAL	1.2.	Understand Concepts and Processes of Evidence, Models, and Explanation
GLE / BIG IDEA	10.B.1.2.1.	<p>The student will be able to use observations and data as evidence on which to base scientific explanations. (648.02a)</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>
GLE / BIG IDEA	10.B.1.2.2.	<p>The student will be able to develop models to explain concepts or systems. (648.02b)</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>
GLE / BIG IDEA	10.B.1.2.3.	<p>The student will be able to develop scientific explanations based on knowledge, logic and analysis. (648.02c)</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</li> </ul>

		<p>Meiosis and Fertilization</p> <ul style="list-style-type: none"> <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>
STANDARD	ID. 1.	Biology: Nature of Science: Students exercise the basic tenets of scientific investigation, make accurate observations, exercise critical thinking skills, apply proper scientific instruments of investigation and measurement tools, and communicate results in problem solving. Students evaluate the validity of information by utilizing the tools of scientific thinking and investigation. Students summarize their findings by creating lab reports using technical writing including graphs, charts, and diagrams to communicate the results of investigations.
CONTENT KNOWLEDGE AND SKILLS / GOAL	1.6.	Understand Scientific Inquiry and Develop Critical Thinking Skills
GLE / BIG IDEA	10.B.1.6.1.	<p>The student will be able to identify questions and concepts that guide scientific investigations. (649.01a)</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</li> </ul>

		<p>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 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>
GLE / BIG IDEA	10.B.1.6.2.	<p>The student will be able to utilize the components of scientific problem solving to design, conduct, and communicate results of investigations. (649.01b)</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> </ul>

		<ul style="list-style-type: none"> <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>
GLE / BIG IDEA	10.B.1.6.4.	<p>The student will be able to formulate scientific explanations and models using logic and evidence. (649.01d)</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> </ul>

		<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>
GLE / BIG IDEA	10.B.1.6.6.	<p>The student will be able to communicate and defend a scientific argument. (649.01f)</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>
GLE / BIG IDEA	10.B.1.6.7.	<p>The student will be able to explain the differences among observations, hypotheses, and theories. (649.01g)</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>
STANDARD	ID.3.	Biology: Biology: Students explain the importance of cells as they relate to the organization and structure of complex organisms, differentiation and specialization during development, and the chemical reactions necessary to sustain life. Students describe the functions of cell structures. Students use the theory of evolution to explain diversity of life.
CONTENT KNOWLEDGE AND SKILLS / GOAL	3.2.	Understand the Relationship between Matter and Energy in Living Systems
GLE / BIG IDEA	10.B.3.2.4.	<p>The student will be able to describe cellular respiration and the synthesis of macromolecules. (653.01d)</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: The DNA Connection</li> </ul>
STANDARD	ID.3.	Biology: Biology: Students explain the importance of cells as they relate to the organization and structure of complex organisms, differentiation and specialization during development, and the chemical reactions necessary to sustain life. Students describe the functions of cell structures. Students use the theory of evolution to explain diversity of life.
CONTENT KNOWLEDGE AND SKILLS / GOAL	3.3.	Understand the Cell is the Basis of Form and Function for All Living Things
GLE / BIG IDEA	10.B.3.3.1.	<p>The student will be able to identify the particular structures that underlie the cellular functions. (651.01a)</p> <ul style="list-style-type: none"> <li>Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization</li> </ul>
GLE / BIG IDEA	10.B.3.3.3.	<p>The student will be able to explain how cells use DNA to store and use information for cell functions. (651.01c)</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>Teacher Resource CD: Genetics and Heredity</li> <li>Teacher Resource CD: The DNA Connection</li> </ul>
GLE / BIG IDEA	10.B.3.3.4.	The student will be able to explain how selective expression of genes can produce

specialized cells from a single cell. (651.01e)

- Genetics and Inheritance: Unit 2 Lab 2 Activity 1: Applying the Laws of Chance to Genetics
- Genetics and Inheritance: Unit 2 Lab 2 Activity 2: Modeling a Genetic Cross to Demonstrate the Law of Dominance
- Genetics and Inheritance: Unit 2 Lab 2 Activity 3: Modeling a Genetic Cross to Demonstrate the Law of Incomplete Dominance
- Genetics and Inheritance: Unit 2 Lab 2 Activity 4: Modeling a Dihybrid Cross to Demonstrate the Law of Independent Assortment
- Genetics and Inheritance: Unit 2 Lab 3 Activity 1: Simulating Meiosis and Fertilization
- Genetics and Inheritance: Unit 3 Lab 4 Activity 4: Using Punnett Squares to Determine Genotypes and Phenotypes
- Genetics and Inheritance: Unit 3 Lab 5 Activity 3: Understanding the Human Genome
- Genetics and Inheritance: Unit 3 Lab 5 Activity 4: Diagnosing Genetic Disease
- Genetics and Inheritance: Unit 3 Lab 5 Activity 5: Predicting Genetic Disease
- Teacher Resource CD: Genetics and Heredity
- Teacher Resource CD: Genetics and Inheritance
- Teacher Resource CD: The DNA Connection