

**Inquiry Investigations™**  
**Biotechnology Applications MODULE - 1278382**  
**Grades: 7-10**

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**Alabama Courses of Study**  
**Science**  
**Grade 7**

STANDARD	AL. 1.	Life Science - Students will:
OBJECTIVE	1.1.c.	<p>Additional Minimum Content: Identifying unicellular organisms, including bacteria and protists, by their methods of locomotion, reproduction, ingestion, excretion, and effects on other organisms</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	1.2.	<p>Identify functions of organelles found in eukaryotic cells, including the nucleus, cell membrane, cell wall, mitochondria, chloroplasts, and vacuoles. Example: mitochondria releasing energy for use in cellular respiration</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	1.2.c.	<p>Additional Minimum Content: Listing the sequence of the mitotic cell cycle</p> <ul style="list-style-type: none"> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	1.5.	<p>Identify major differences between plants and animals, including internal structures, external structures, methods of locomotion, methods of reproduction, and stages of development.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	1.8.	<p>Describe the function of chromosomes.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	1.8.a.	<p>Additional Minimum Content: Identifying genes as parts of chromosomes that carry genetic</p>

		<p>traits</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	1.9.	<p>Identify the process of chromosome reduction in the production of sperm and egg cells during meiosis.</p> <ul style="list-style-type: none"> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	1.10.	<p>Identify differences between deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). Examples: DNA - double helix, contains thymine; RNA - single stranded, contains uracil</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	1.10.a.	<p>Additional Minimum Content: Identifying Watson and Crick as scientists who discovered the shape of the DNA molecule</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	1.11.a.	<p>Additional Minimum Content: Recognizing Down's syndrome and sickle cell anemia as inherited genetic disorders</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>Teacher Resource CD: Biotechnology in Medicine</li> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	1.11.b.	<p>Additional Minimum Content: Using a monohybrid Punnett square to predict the probability of traits passed from parents to offspring</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>

Alabama Courses of Study  
Science  
Grade 8

STANDARD	AL.1.	Physical Science - Students will:
OBJECTIVE	1.1.e.	<p>Additional Minimum Content: Identifying appropriate laboratory glassware, balances, time measuring equipment, and optical instruments used to conduct an investigation</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> </ul>

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> </ul>
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**Alabama Courses of Study  
Science  
Grade 9**

STANDARD	AL. 1.	Physical Science Core - Students will:
OBJECTIVE	1.11.c.	<p>Additional Minimum Content: Identifying uses and possible negative side effects of nuclear technology. Examples: uses - nuclear power generation, medical applications, space travel; negative effects - radioactive contamination, nuclear fuel waste and waste storage</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
STANDARD	AL. 2.	Biology Core - Students will:
OBJECTIVE	2.1.	<p>Select appropriate laboratory glassware, balances, time measuring equipment, and optical instruments to conduct an experiment.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.1.c.	<p>Additional Minimum Content: Identifying safe laboratory procedures when handling chemicals and using Bunsen burners and laboratory glassware</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> </ul>
OBJECTIVE	2.1.d.	<p>Additional Minimum Content: Using appropriate SI units for measuring length, volume, and mass</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
OBJECTIVE	2.2.a.	<p>Additional Minimum Content: Identifying functions of carbohydrates, lipids, proteins, and nucleic acids in cellular activities</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.4.c.	<p>Additional Minimum Content: Identifying various technologies used to observe cells. Examples: light microscope, scanning electron microscope, transmission electron microscope</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-</li> </ul>

		Degrading Microbes
OBJECTIVE	2.6.	Describe the roles of mitotic and meiotic divisions during reproduction, growth, and repair of cells. <ul style="list-style-type: none"> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.7.	Apply Mendel's law to determine phenotypic and genotypic probabilities of offspring. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
OBJECTIVE	2.7.a.	Additional Minimum Content: Defining important genetic terms, including dihybrid cross, monohybrid cross, phenotype, genotype, homozygous, heterozygous, dominant trait, recessive trait, incomplete dominance, codominance, and allele <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> <li>Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.7.b.	Additional Minimum Content: Interpreting inheritance patterns shown in graphs and charts <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	2.7.c.	Additional Minimum Content: Calculating genotypic and phenotypic percentages and ratios using a Punnett square <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	2.8.	Identify the structure and function of DNA, RNA, and protein. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing</li> </ul>

		<p>Electrophoresed DNA Profiles</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.a.	<p>Additional Minimum Content: Explaining relationships among DNA, genes, and chromosomes</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.8.b.	<p>Additional Minimum Content: Listing significant contributions of biotechnology to society, including agricultural and medical practices. Examples: DNA fingerprinting, insulin, growth hormone</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> </ul>

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.c.	<p>Additional Minimum Content: Relating normal patterns of genetic inheritance to genetic variation. Example: crossing-over</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.d.	<p>Additional Minimum Content: Relating ways chance, mutagens, and genetic engineering increase diversity. Examples: insertion, deletion, translocation, inversion, recombinant DNA</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.e.	<p>Additional Minimum Content: Relating genetic disorders and disease to patterns of genetic inheritance. Examples: hemophilia, sickle cell anemia, Down's syndrome, Tay-Sachs disease, cystic fibrosis, color blindness, phenylketonuria (PKU)</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.12.a.	<p>Additional Minimum Content: Identifying ways in which the theory of evolution explains the nature and diversity of organisms</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> </ul>
OBJECTIVE	2.14.a.	<p>Additional Minimum Content: Relating natural disasters, climate changes, nonnative species, and human activity to the dynamic equilibrium of ecosystems. Examples: natural disasters - habitat destruction resulting from tornadoes; climate changes - changes in migratory patterns of birds; nonnative species - exponential growth of kudzu and Zebra mussels due to absence of natural controls; human activity - habitat destruction resulting in reduction of biodiversity, conservation resulting in preservation of biodiversity</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
STANDARD	AL.3.	Chemistry Core - Students will:
OBJECTIVE	3.4.c.	<p>Additional Minimum Content: Describing acids and bases in terms of strength, concentration, pH, and neutralization reactions</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> </ul>
STANDARD	AL.4.	Physics Core - Students will:
OBJECTIVE	4.1.a.	<p>Additional Minimum Content: Explaining the significance of slope and area under a curve when graphing distance-time or velocity-time data. Example: slope and area of a velocity-time curve giving acceleration and distance traveled</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> </ul>
STANDARD	AL.5.	Aquascience Elective Core - Students will:
OBJECTIVE	5.1.	<p>Differentiate among freshwater, brackish water, and saltwater ecosystems.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>
OBJECTIVE	5.2.	Relate geological and hydrological phenomena and fluid dynamics to aquatic systems.

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>
OBJECTIVE	5.4.b.	<p>Additional Minimum Content: Identifying sources of aquatic pollution. Examples: point and nonpoint pollution, volcanic ash, waste disposal</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	5.5.	<p>Identify the genotype and phenotype for specific characteristics in aquatic animals resulting from selective breeding. Examples: disease-resistant fish, rapid maturation rates</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
STANDARD	AL.6.	<b>Botany Elective Core - Students will:</b>
OBJECTIVE	6.3.a.	<p>Additional Minimum Content: Describing the alternation of generations in plants</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.3.b.	<p>Additional Minimum Content: Comparing characteristics of algae and plants</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.6.	<p>Explain the importance of soil type, texture, and nutrients to plant growth.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	6.9.	<p>Identify life cycles of mosses, ferns, gymnosperms, and angiosperms.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.10.a.	<p>Additional Minimum Content: Describing seed germination, development, and dispersal</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.12.a.	<p>Additional Minimum Content: Analyzing effects of human activity on the plant world</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> </ul>
<b>STANDARD</b>	<b>AL. 7.</b>	<b>Earth and Space Science Elective Core - Students will:</b>
<b>OBJECTIVE</b>	<b>7.1.</b>	Describe sources of energy, including solar, gravitational, geothermal, and nuclear. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>STANDARD</b>	<b>AL. 8.</b>	<b>Environmental Science Elective Core - Students will:</b>
<b>OBJECTIVE</b>	<b>8.1.</b>	Identify the influence of human population, technology, and cultural and industrial changes on the environment. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.</b>	Evaluate various fossil fuels for their effectiveness as energy resources. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.a.</b>	Additional Minimum Content: Describing the formation and use of nonrenewable fossil fuels <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.b.</b>	Additional Minimum Content: Identifying by-products of the combustion of fossil fuels, including particulates, mercury, sulfur dioxide, nitrogen dioxide, and carbon dioxide <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.c.</b>	Additional Minimum Content: Identifying chemical equations associated with the combustion of fossil fuels <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.2.e.	<p>Additional Minimum Content: Identifying effects of fossil fuel by-products on the environment, including ozone depletion; formation of acid rain, brown haze, and greenhouse gases; and concentration of particulates and heavy metals</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.8.	<p>Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.8.a.	<p>Additional Minimum Content: Describing the eutrophication of water by industrial effluents and agricultural runoffs</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.8.b.	<p>Additional Minimum Content: Classifying sources of water pollution as point and nonpoint</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.9.	<p>Describe land-use practices that promote sustainability and economic growth. Examples: no-till planting, crop rotation</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> </ul>
OBJECTIVE	8.10.	<p>Describe the composition of soil profiles and soil samples of varying climates.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-</li> </ul>

		Degrading Microbes
OBJECTIVE	8.10.b.	<p>Additional Minimum Content: Relating particle size to soil texture and type of sand, silt, or clay</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.12.	<p>Identify positive and negative effects of human activities on biodiversity.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
STANDARD	AL.9.	<b>Forensic Science Elective Core - Students will:</b>
OBJECTIVE	9.1.	<p>Describe responsibilities of various personnel involved in crime scene investigations. Examples: police, detectives, laboratory specialists, medical examiners</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.1.a.	<p>Additional Minimum Content: Explaining how to search, sketch, and record data from a crime scene</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.	<p>Explain ways to collect and preserve evidence from a crime scene.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.a.	<p>Additional Minimum Content: Distinguishing between physical evidence and witness evidence</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.b.	<p>Additional Minimum Content: Comparing the three main pattern types that combine to form an individual's unique fingerprint</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.c.	<p>Additional Minimum Content: Explaining different methods of latent fingerprint development</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.d.	<p>Additional Minimum Content: Identifying origins of impressions, including footwear and tire treads</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.e.	<p>Additional Minimum Content: Describing ways to identify hair, fiber, and blood evidence</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.3.	<p>Distinguish between class and individual characteristics of firearms. Examples: toolmark, caliber, scatter pattern</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.4.	<p>Describe presumptive and confirmatory tests. Examples: blood type comparison, DNA testing</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.5.	<p>Describe the importance of genetic information to forensics.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.5.a.	<p>Additional Minimum Content: Using the process of gel electrophoresis to identify patterns in DNA</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.	<p>Describe the decomposition process.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.a.	<p>Additional Minimum Content: Using rigor mortis to determine corpse position</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.b.	<p>Additional Minimum Content: Identifying decomposition by-products to determine cause of death</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.c.	<p>Additional Minimum Content: Using entomological life cycles to determine time of death</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing</li> </ul>

		<p>Electrophoresed DNA Profiles</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.7.	<p>Identify the importance of skeletal remains in forensics.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.7.a.	<p>Additional Minimum Content: Comparing bones and skulls based on age, sex, and race</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.9.	<p>Use laws of physics to explain forensic evidence.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.9.b.	<p>Additional Minimum Content: Tracking trajectories of collected evidence</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.10.	<p>Describe techniques used to determine the validity of documents. Examples: fiber and handwriting analyses, ink chromatography</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
STANDARD	AL.10.	<b>Genetic Elective Core - Students will:</b>
OBJECTIVE	10.2.	<p>Describe factors such as radiation, chemicals, and chance that cause mutations in populations.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>

OBJECTIVE	10.2.a.	<p>Additional Minimum Content: Describing effects of genetic variability on adaptations</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.5.	<p>Describe inheritance patterns based on gene interactions.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.5.a.	<p>Additional Minimum Content: Predicting patterns of heredity using pedigree analysis</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.5.b.	<p>Additional Minimum Content: Identifying incomplete dominance, codominance, and multiple allelism</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.6.	<p>Describe occurrences and effects of sex linkage, autosomal linkage, crossover, multiple alleles, and polygenes.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family</li> </ul>

		<p>Secret</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.7.	<p>Describe the structure and function of DNA, including replication, translation, and transcription.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.7.a.	<p>Additional Minimum Content: Applying the genetic code to predict amino acid sequence</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.7.b.	<p>Additional Minimum Content: Describing methods cells use to regulate gene expression</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	10.8.	<p>Explain the structure of eukaryotic chromosomes, including transposons, introns, and</p>

		<p>exons.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	10.9.	<p>Differentiate among major areas in modern biotechnology, including plant, animal, microbial, forensic, and marine. Examples: hybridization, cloning, insulin production, DNA profiling, bioremediation</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.9.a.	<p>Additional Minimum Content: Describing techniques used with recombinant DNA. Examples: DNA sequencing, isolation of DNA segments, polymerase chain reaction, gel electrophoresis</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.10.	<p>Explain the development and purpose of the Human Genome Project.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.10.a.	<p>Additional Minimum Content: Analyzing results of the Human Genome Project to predict ethical, social, and legal implications</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.10.b.	<p>Additional Minimum Content: Describing medical uses of gene therapy, including vaccines and tissue and antibody engineering</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
STANDARD	AL.11.	<b>Geology Elective Core - Students will:</b>
OBJECTIVE	11.14.a.	<p>Additional Minimum Content: Identifying the impact of periodic weather phenomena on coastal regions. Examples: hurricanes destroying sand dunes, El Nino or La Nina redefining shorelines</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
STANDARD	AL.12.	<b>Human Anatomy and Physiology Elective Core - Students will:</b>
OBJECTIVE	12.9.b.	<p>Additional Minimum Content: Identifying components of blood</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene</li> </ul>

		Defect
OBJECTIVE	12.9.c.	Additional Minimum Content: Describing blood cell formation <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
OBJECTIVE	12.12.c.	Additional Minimum Content: Identifying disorders of the reproductive system. Examples: endometriosis, sexually transmitted diseases, prostate cancer <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	12.15.b.	Additional Minimum Content: Evaluating the importance of vaccines <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	12.15.c.	Additional Minimum Content: Recognizing disorders and diseases of the immune system. Examples: acquired immunodeficiency syndrome (AIDS), acute lymphocytic leukemia <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
STANDARD	AL.13.	Marine Science Elective Core - Students will:
OBJECTIVE	13.2.	Differentiate among freshwater, brackish water, and saltwater. <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>
STANDARD	AL.14.	Zoology Elective Core - Students will:
OBJECTIVE	14.5.e.	Additional Minimum Content: Identifying examples and characteristics of Mammalia <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second</li> </ul>

		Examination
OBJECTIVE	14.8.a.	<p>Additional Minimum Content: Identifying causative factors of decreasing population size. Examples: overcrowding resulting in greater incidence of disease, fire destroying habitat and food sources</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>

**Alabama Courses of Study  
Science  
Grade 10**

STANDARD	AL.1.	Physical Science Core - Students will:
OBJECTIVE	1.11.c.	<p>Additional Minimum Content: Identifying uses and possible negative side effects of nuclear technology. Examples: uses - nuclear power generation, medical applications, space travel; negative effects - radioactive contamination, nuclear fuel waste and waste storage</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>

STANDARD	AL.2.	Biology Core - Students will:
OBJECTIVE	2.1.	<p>Select appropriate laboratory glassware, balances, time measuring equipment, and optical instruments to conduct an experiment.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.1.c.	<p>Additional Minimum Content: Identifying safe laboratory procedures when handling chemicals and using Bunsen burners and laboratory glassware</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> </ul>
OBJECTIVE	2.1.d.	<p>Additional Minimum Content: Using appropriate SI units for measuring length, volume, and mass</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
OBJECTIVE	2.2.a.	<p>Additional Minimum Content: Identifying functions of carbohydrates, lipids, proteins, and nucleic acids in cellular activities</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.4.c.	<p>Additional Minimum Content: Identifying various technologies used to observe cells. Examples: light microscope, scanning electron microscope, transmission electron microscope</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-</li> </ul>

		Degrading Microbes
OBJECTIVE	2.6.	Describe the roles of mitotic and meiotic divisions during reproduction, growth, and repair of cells. <ul style="list-style-type: none"> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.7.	Apply Mendel's law to determine phenotypic and genotypic probabilities of offspring. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
OBJECTIVE	2.7.a.	Additional Minimum Content: Defining important genetic terms, including dihybrid cross, monohybrid cross, phenotype, genotype, homozygous, heterozygous, dominant trait, recessive trait, incomplete dominance, codominance, and allele <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> <li>Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.7.b.	Additional Minimum Content: Interpreting inheritance patterns shown in graphs and charts <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	2.7.c.	Additional Minimum Content: Calculating genotypic and phenotypic percentages and ratios using a Punnett square <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	2.8.	Identify the structure and function of DNA, RNA, and protein. <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles</li> </ul>

		<p>to Solve a Mystery</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.a.	<p>Additional Minimum Content: Explaining relationships among DNA, genes, and chromosomes</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.8.b.	<p>Additional Minimum Content: Listing significant contributions of biotechnology to society, including agricultural and medical practices. Examples: DNA fingerprinting, insulin, growth hormone</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> </ul>

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.c.	<p>Additional Minimum Content: Relating normal patterns of genetic inheritance to genetic variation. Example: crossing-over</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.d.	<p>Additional Minimum Content: Relating ways chance, mutagens, and genetic engineering increase diversity. Examples: insertion, deletion, translocation, inversion, recombinant DNA</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	2.8.e.	<p>Additional Minimum Content: Relating genetic disorders and disease to patterns of genetic inheritance. Examples: hemophilia, sickle cell anemia, Down's syndrome, Tay-Sachs disease, cystic fibrosis, color blindness, phenylketonuria (PKU)</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	2.12.a.	<p>Additional Minimum Content: Identifying ways in which the theory of evolution explains the nature and diversity of organisms</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> </ul>
OBJECTIVE	2.14.a.	<p>Additional Minimum Content: Relating natural disasters, climate changes, nonnative species, and human activity to the dynamic equilibrium of ecosystems. Examples: natural disasters - habitat destruction resulting from tornadoes; climate changes - changes in migratory patterns of birds; nonnative species - exponential growth of kudzu and Zebra mussels due to absence of natural controls; human activity - habitat destruction resulting in reduction of biodiversity, conservation resulting in preservation of biodiversity</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
STANDARD	AL.3.	Chemistry Core - Students will:
OBJECTIVE	3.4.c.	<p>Additional Minimum Content: Describing acids and bases in terms of strength, concentration, pH, and neutralization reactions</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> </ul>
STANDARD	AL.4.	Physics Core - Students will:
OBJECTIVE	4.1.a.	<p>Additional Minimum Content: Explaining the significance of slope and area under a curve when graphing distance-time or velocity-time data. Example: slope and area of a velocity-time curve giving acceleration and distance traveled</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> </ul>
STANDARD	AL.5.	Aquascience Elective Core - Students will:
OBJECTIVE	5.1.	<p>Differentiate among freshwater, brackish water, and saltwater ecosystems.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>
OBJECTIVE	5.2.	Relate geological and hydrological phenomena and fluid dynamics to aquatic systems.

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>
OBJECTIVE	5.4.b.	<p>Additional Minimum Content: Identifying sources of aquatic pollution. Examples: point and nonpoint pollution, volcanic ash, waste disposal</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	5.5.	<p>Identify the genotype and phenotype for specific characteristics in aquatic animals resulting from selective breeding. Examples: disease-resistant fish, rapid maturation rates</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
STANDARD	AL.6.	<b>Botany Elective Core - Students will:</b>
OBJECTIVE	6.3.a.	<p>Additional Minimum Content: Describing the alternation of generations in plants</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.3.b.	<p>Additional Minimum Content: Comparing characteristics of algae and plants</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.6.	<p>Explain the importance of soil type, texture, and nutrients to plant growth.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	6.9.	<p>Identify life cycles of mosses, ferns, gymnosperms, and angiosperms.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.10.a.	<p>Additional Minimum Content: Describing seed germination, development, and dispersal</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>
OBJECTIVE	6.12.a.	<p>Additional Minimum Content: Analyzing effects of human activity on the plant world</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> </ul>
<b>STANDARD</b>	<b>AL. 7.</b>	<b>Earth and Space Science Elective Core - Students will:</b>
<b>OBJECTIVE</b>	<b>7.1.</b>	<p>Describe sources of energy, including solar, gravitational, geothermal, and nuclear.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>STANDARD</b>	<b>AL. 8.</b>	<b>Environmental Science Elective Core - Students will:</b>
<b>OBJECTIVE</b>	<b>8.1.</b>	<p>Identify the influence of human population, technology, and cultural and industrial changes on the environment.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.</b>	<p>Evaluate various fossil fuels for their effectiveness as energy resources.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.a.</b>	<p>Additional Minimum Content: Describing the formation and use of nonrenewable fossil fuels</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.b.</b>	<p>Additional Minimum Content: Identifying by-products of the combustion of fossil fuels, including particulates, mercury, sulfur dioxide, nitrogen dioxide, and carbon dioxide</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
<b>OBJECTIVE</b>	<b>8.2.c.</b>	<p>Additional Minimum Content: Identifying chemical equations associated with the combustion of fossil fuels</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>

		<ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.2.e.	<p>Additional Minimum Content: Identifying effects of fossil fuel by-products on the environment, including ozone depletion; formation of acid rain, brown haze, and greenhouse gases; and concentration of particulates and heavy metals</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.8.	<p>Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.8.a.	<p>Additional Minimum Content: Describing the eutrophication of water by industrial effluents and agricultural runoffs</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.8.b.	<p>Additional Minimum Content: Classifying sources of water pollution as point and nonpoint</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.9.	<p>Describe land-use practices that promote sustainability and economic growth. Examples: no-till planting, crop rotation</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> </ul>
OBJECTIVE	8.10.	<p>Describe the composition of soil profiles and soil samples of varying climates.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-</li> </ul>

		Degrading Microbes
OBJECTIVE	8.10.b.	<p>Additional Minimum Content: Relating particle size to soil texture and type of sand, silt, or clay</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
OBJECTIVE	8.12.	<p>Identify positive and negative effects of human activities on biodiversity.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
STANDARD	AL.9.	<b>Forensic Science Elective Core - Students will:</b>
OBJECTIVE	9.1.	<p>Describe responsibilities of various personnel involved in crime scene investigations. Examples: police, detectives, laboratory specialists, medical examiners</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.1.a.	<p>Additional Minimum Content: Explaining how to search, sketch, and record data from a crime scene</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.	<p>Explain ways to collect and preserve evidence from a crime scene.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.a.	<p>Additional Minimum Content: Distinguishing between physical evidence and witness evidence</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.b.	<p>Additional Minimum Content: Comparing the three main pattern types that combine to form an individual's unique fingerprint</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.c.	<p>Additional Minimum Content: Explaining different methods of latent fingerprint development</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.d.	<p>Additional Minimum Content: Identifying origins of impressions, including footwear and tire treads</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.2.e.	<p>Additional Minimum Content: Describing ways to identify hair, fiber, and blood evidence</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.3.	<p>Distinguish between class and individual characteristics of firearms. Examples: toolmark, caliber, scatter pattern</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.4.	<p>Describe presumptive and confirmatory tests. Examples: blood type comparison, DNA testing</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.5.	<p>Describe the importance of genetic information to forensics.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.5.a.	<p>Additional Minimum Content: Using the process of gel electrophoresis to identify patterns in DNA</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.	<p>Describe the decomposition process.</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.a.	<p>Additional Minimum Content: Using rigor mortis to determine corpse position</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.b.	<p>Additional Minimum Content: Identifying decomposition by-products to determine cause of death</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.6.c.	<p>Additional Minimum Content: Using entomological life cycles to determine time of death</p> <ul style="list-style-type: none"> <li>Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing</li> </ul>

		<p>Electrophoresed DNA Profiles</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.7.	<p>Identify the importance of skeletal remains in forensics.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.7.a.	<p>Additional Minimum Content: Comparing bones and skulls based on age, sex, and race</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.9.	<p>Use laws of physics to explain forensic evidence.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.9.b.	<p>Additional Minimum Content: Tracking trajectories of collected evidence</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	9.10.	<p>Describe techniques used to determine the validity of documents. Examples: fiber and handwriting analyses, ink chromatography</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
STANDARD	AL.10.	<b>Genetic Elective Core - Students will:</b>
OBJECTIVE	10.2.	<p>Describe factors such as radiation, chemicals, and chance that cause mutations in populations.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>

OBJECTIVE	10.2.a.	<p>Additional Minimum Content: Describing effects of genetic variability on adaptations</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.5.	<p>Describe inheritance patterns based on gene interactions.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.5.a.	<p>Additional Minimum Content: Predicting patterns of heredity using pedigree analysis</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.5.b.	<p>Additional Minimum Content: Identifying incomplete dominance, codominance, and multiple allelism</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.6.	<p>Describe occurrences and effects of sex linkage, autosomal linkage, crossover, multiple alleles, and polygenes.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family</li> </ul>

		<p>Secret</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.7.	<p>Describe the structure and function of DNA, including replication, translation, and transcription.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.7.a.	<p>Additional Minimum Content: Applying the genetic code to predict amino acid sequence</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.7.b.	<p>Additional Minimum Content: Describing methods cells use to regulate gene expression</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> </ul>
OBJECTIVE	10.8.	<p>Explain the structure of eukaryotic chromosomes, including transposons, introns, and</p>

		<p>exons.</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> <li>• Virtual Laboratory: Preparation and Analysis of a Human Karyotype</li> </ul>
OBJECTIVE	10.9.	<p>Differentiate among major areas in modern biotechnology, including plant, animal, microbial, forensic, and marine. Examples: hybridization, cloning, insulin production, DNA profiling, bioremediation</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 2 Activity 1: Making Cheese the Biotech Way</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 2: Finding Out Who Is at Risk for SARS</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.9.a.	<p>Additional Minimum Content: Describing techniques used with recombinant DNA. Examples: DNA sequencing, isolation of DNA segments, polymerase chain reaction, gel electrophoresis</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.10.	<p>Explain the development and purpose of the Human Genome Project.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.10.a.	<p>Additional Minimum Content: Analyzing results of the Human Genome Project to predict ethical, social, and legal implications</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	10.10.b.	<p>Additional Minimum Content: Describing medical uses of gene therapy, including vaccines and tissue and antibody engineering</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 1 Activity 1: Genetically Modified Crops</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Forensic Science</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
STANDARD	AL.11.	<b>Geology Elective Core - Students will:</b>
OBJECTIVE	11.14.a.	<p>Additional Minimum Content: Identifying the impact of periodic weather phenomena on coastal regions. Examples: hurricanes destroying sand dunes, El Nino or La Nina redefining shorelines</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 1: Biodegrading a Simulated Oil Spill</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 3: Examining Oil-Degrading Microbes</li> </ul>
STANDARD	AL.12.	<b>Human Anatomy and Physiology Elective Core - Students will:</b>
OBJECTIVE	12.9.b.	<p>Additional Minimum Content: Identifying components of blood</p> <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene</li> </ul>

		Defect
OBJECTIVE	12.9.c.	Additional Minimum Content: Describing blood cell formation <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
OBJECTIVE	12.12.c.	Additional Minimum Content: Identifying disorders of the reproductive system. Examples: endometriosis, sexually transmitted diseases, prostate cancer <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 1: Taking a Case History of Baby Mike</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 2: Analyzing Karyotypes</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 3: The Blue People of Troublesome Creek</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 4: Uncovering a Family Secret</li> <li>• Biotechnology Applications: Unit 2 Lab 4 Activity 5: Creating a Pedigree to Analyze a Family Trait</li> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second Examination</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	12.15.b.	Additional Minimum Content: Evaluating the importance of vaccines <ul style="list-style-type: none"> <li>• Teacher Resource CD: Biotechnology in Agriculture and the Environment</li> <li>• Teacher Resource CD: Biotechnology in Medicine</li> </ul>
OBJECTIVE	12.15.c.	Additional Minimum Content: Recognizing disorders and diseases of the immune system. Examples: acquired immunodeficiency syndrome (AIDS), acute lymphocytic leukemia <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> </ul>
STANDARD	AL.13.	Marine Science Elective Core - Students will:
OBJECTIVE	13.2.	Differentiate among freshwater, brackish water, and saltwater. <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li> </ul>
STANDARD	AL.14.	Zoology Elective Core - Students will:
OBJECTIVE	14.5.e.	Additional Minimum Content: Identifying examples and characteristics of Mammalia <ul style="list-style-type: none"> <li>• Biotechnology Applications: Unit 2 Lab 5 Activity 1: Diagnosing a Gene Defect</li> <li>• Biotechnology Applications: Unit 3 Lab 6 Activity 1: Modeling DNA Profiles to Solve a Mystery</li> <li>• Biotechnology Applications: Unit 3 Lab 7 Activity 1: Comparing Electrophoresed DNA Profiles</li> <li>• Biotechnology Applications: Unit 4 Lab 8 Activity 1: Case of the Second</li> </ul>

		Examination
OBJECTIVE	14.8.a.	Additional Minimum Content: Identifying causative factors of decreasing population size. Examples: overcrowding resulting in greater incidence of disease, fire destroying habitat and food sources <ul style="list-style-type: none"><li>• Biotechnology Applications: Unit 1 Lab 3 Activity 2: Cleaning up Mini-Oil Spills in Various Shore Environments</li></ul>

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