Inquiry Investigations™
Chemistry – A Closer Look at Matter MODULE – 1287240
Grades: 7-10

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New Mexico Standards
Science
Grade 7

STRAND / CONTENT STANDARD	NM.I.	Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.
BENCHMARK / STANDARD	I-A.	Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	I-A.1a.	Use a variety of print and web resources to collect information, inform investigations, and answer a scientific question or hypothesis. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.2a.**	Use models to explain the relationships between variables being investigated. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents
STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-B.**	Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.2a.**	Critique procedures used to investigate a hypothesis. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1

		Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD /	**I-B.3a.**	Analyze and evaluate scientific explanations.

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		• Virtual Laboratory: Titrating an Acid of Unknown Concentration
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BENCHMARK / STANDARD	**I-C.**	Use mathematical ideas, tools, and techniques to understand scientific knowledge.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.2a.**	Use mathematical expressions to represent data and observations collected in scientific investigations. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8

		Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.3a.**	Select and use an appropriate model to examine a phenomenon. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8

		Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-A.**	Know the forms and properties of matter and how matter interacts.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.4a.**	Describe how substances react chemically in characteristic ways to form new substances (compounds) with different properties (e.g., carbon and oxygen combine to form carbon dioxide in respiration). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.5a.**	Know that chemical reactions are essential to life processes. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes

		• Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-B.**	Explain the physical processes involved in the transfer, change, and conservation of energy.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.1a.**	Know how various forms of energy are transformed through organisms and ecosystems, including: sunlight and photosynthesis; energy transformation in living systems (e.g., cellular processes changing chemical energy to heat and motion); and effect of mankind's use of energy and other activities on living systems (e.g., global warming, water quality). • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-A.**	Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.3a.**	Populations and Ecosystems: Explain how individuals of species that exist together interact with their environment to create an ecosystem (e.g., populations, communities, niches, habitats, food webs). • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STRAND / CONTENT STANDARD	**NM.III.**	**Science and Society: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.**
BENCHMARK / STANDARD	**III-A.**	Explain how scientific discoveries and inventions have changed individuals and societies.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.3a.**	Describe how scientific information can help individuals and communities respond to health emergencies (e.g., CPR, epidemics, HIV, bio-terrorism). • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification

New Mexico Standards
Science
Grade 8

STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-A.**	Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.1a.**	Evaluate the accuracy and reproducibility of data and observations. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1

		Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD /	**I-A.2a.**	Use a variety of technologies to gather, analyze and interpret scientific data.

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BENCHMARK / STANDARD	**I-B.**	Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.1a.**	Examine alternative explanations for observations. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical

		Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.2a.**	Describe ways in which science differs from other ways of knowing and from other bodies of knowledge (e.g., experimentation, logical arguments, skepticism). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8

		Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-C.**	Use mathematical ideas, tools, and techniques to understand scientific knowledge.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.1a.**	Use mathematical expressions and techniques to explain data and observations and to communicate findings (e.g., formulas and equations, significant figures, graphing, sampling, estimation, mean). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water

		• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.2a.**	Create models to describe phenomena. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-A.**	Know the forms and properties of matter and how matter interacts.

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.1a.**	Properties of Matter: Know how to use density, boiling point, freezing point, conductivity, and color to identify various substances. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.2a.**	Properties of Matter: Distinguish between metals and non-metals. • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.3a.**	Properties of Matter: Understand the differences among elements, compounds, and mixtures by: classification of materials as elements, compounds, or mixtures; interpretation of chemical formulas; separation of mixtures into compounds by methods including evaporation, filtration, screening, and magnetism. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.4a.**	Structure of Matter: Identify the protons, neutrons, and electrons within an atom and describe their locations (i.e., in the nucleus or in motion outside the nucleus). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1

		Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.5a.**	Structure of Matter: Explain that elements are organized in the periodic table according to their properties. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.6a.**	Structure of Matter: Know that compounds are made of two or more elements, but not all sets of elements can combine to form compounds. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.7a.**	Changes in Matter: Know that phase changes are physical changes that can be reversed (e.g., evaporation, condensation, melting). • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.8a.**	Changes in Matter: Describe various familiar physical and chemical changes that occur naturally (e.g., snow melting, photosynthesis, rusting, burning). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.9a.**	Changes in Matter: Identify factors that influence the rate at which chemical reactions occur (e.g., temperature, concentration). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.10a.**	Changes in Matter: Know that chemical reactions can absorb energy (endothermic reactions) or release energy (exothermic reactions). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10

		Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-B.**	Explain the physical processes involved in the transfer, change, and conservation of energy.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.1a.**	Energy Transformation: Know that energy exists in many forms and that when energy is transformed some energy is usually converted to heat. • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.2a.**	Energy Transformation: Know that kinetic energy is a measure of the energy of an object in motion and potential energy is a measure of an object's position or composition, including: transformation of gravitational potential energy of position into kinetic energy of motion by a falling object. • Teacher Resource CD: Matter - Physical Properties and Changes
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-C.**	Describe and explain forces that produce motion in objects.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.3a.**	Forces: Analyze the separate forces acting on an object at rest or in motion (e.g., gravity, elastic forces, friction), including how multiple forces reinforce or cancel one another to result in a net force that acts on an object.

		• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.6a.**	Forces: Know that Earth has a magnetic field. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-A.**	Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.1a.**	Describe how matter moves through ecosystems (e.g., water cycle, carbon cycle). • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-B.**	Understand how traits are passed from one generation to the next and how species evolve.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.1a.**	Understand that living organisms are made mostly of molecules consisting of a limited number of elements (e.g., carbon, hydrogen, nitrogen, oxygen). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.3a.**	Describe the widespread role of carbon in the chemistry of living systems. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Physical Properties and Changes
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-C.**	Understand the structure of organisms and the function of cells in living systems.

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.2a.**	Explain that photosynthesis in green plants captures the energy from the sun and stores it chemically. • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.II.**	**Content of Science: Earth and Space Science: Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.**
BENCHMARK / STANDARD	**II-B.**	Describe the structure of Earth and its atmosphere and explain how energy, matter, and forces shape Earth's systems.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.2a.**	Understand the unique role water plays on Earth, including: ability to remain liquid at most Earth temperatures; properties of water related to processes in the water cycle (evaporation, condensation, precipitation, surface run-off, percolation); dissolving of minerals and gases and transport to the oceans; fresh and salt water in oceans, rivers, lakes, and glaciers; reactant in photosynthesis. • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.III.**	**Science and Society: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.**
BENCHMARK / STANDARD	**III-A.**	Explain how scientific discoveries and inventions have changed individuals and societies.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.2a.**	Describe how scientific information can help to explain environmental phenomena (e.g., floods, earthquakes, volcanoes, fire, extreme weather). • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification

New Mexico Standards
Science
Grade 9

STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-A.**	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.1a.**	Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.2a.**	Design and conduct scientific investigations that include: testable hypotheses; controls and variables; methods to collect, analyze, and interpret data; results that address hypotheses being investigated; predictions based on results; re-evaluation of hypotheses and additional experimentation as necessary; error analysis. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown

		Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.3a.**	Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.4a.**	Convey results of investigations using scientific concepts, methodologies, and expressions, including: scientific language and symbols; diagrams, charts, and other data displays; mathematical expressions and processes (e.g., mean, median, slope, proportionality); clear, logical, and concise communication; reasoned arguments. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.5a.**	Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10

		Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-B.**	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.2a.**	Use scientific reasoning and valid logic to recognize: faulty logic; cause and effect; the difference between observation and unsubstantiated inferences and conclusions; potential bias. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.6a.**	Examine the scientific processes and logic used in investigations of past events (e.g., using data from crime scenes, fossils), investigations that can be planned in advance but are only done once (e.g., expensive or time-consuming experiments such as medical clinical trials), and investigations of phenomena that can be repeated easily and frequently. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2

		Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-C.**	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.
PERFORMANCE STANDARD /	**I-C.1a.**	Create multiple displays of data to analyze and explain the relationships in scientific investigations.

BENCHMARK / PROFICIENCY		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12

		Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.2a.**	Use mathematical models to describe, explain, and predict natural phenomena. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.3a.**	Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling). • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.5a.**	Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2

		Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-A.**	Understand the properties, underlying structure, and reactions of matter.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.2a.**	Properties of Matter: Identify, measure, and use a variety of physical and chemical properties (e.g., electrical conductivity, density, viscosity, chemical reactivity, pH, melting point). • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and

		Changes • Teacher Resource CD: Matter - Physical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.4a.**	Properties of Matter: Describe trends in properties (e.g., ionization energy or reactivity as a function of location on the periodic table, boiling point of organic liquids as a function of molecular weight). • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.5a.**	Structure of Matter: Understand that matter is made of atoms and that atoms are made of subatomic particles. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.6a.**	Structure of Matter: Understand atomic structure, including: most space occupied by electrons; nucleus made of protons and neutrons; isotopes of an element; masses of proton and neutron 2000 times greater than mass of electron; atom held together by proton-electron electrical forces. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4

		Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.7a.**	Structure of Matter: Explain how electrons determine the properties of substances by: interactions between atoms through transferring or sharing valence electrons; ionic and covalent bonds; the ability of carbon to form a diverse array of organic structures. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.8a.**	Structure of Matter: Make predictions about elements using the periodic table (e.g., number of valence electrons, metallic character, reactivity, conductivity, type of bond between elements). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6

		Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.9a.**	Structure of Matter: Understand how the type and arrangement of atoms and their bonds determine macroscopic properties (e.g., boiling point, electrical conductivity, hardness of minerals). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.10a.**	Structure of Matter: Know that states of matter (i.e., solid, liquid, gas) depend on the arrangement of atoms and molecules and on their freedom of motion. • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter

		• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.12a.**	Chemical Reactions: Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales (e.g., picoseconds to millennia). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.13a.**	Chemical Reactions: Understand types of chemical reactions (e.g., synthesis, decomposition, combustion, redox, neutralization) and identify them as exothermic or endothermic. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2

		Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.14a.**	Chemical Reactions: Know how to express chemical reactions with balanced equations that show: conservation of mass; products of common reactions. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass

		• Teacher Resource CD: Matter - Chemical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.15a.**	Chemical Reactions: Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, and the presence of catalysts. • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Chemical Properties and Changes
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-B.**	Understand the transformation and transmission of energy and how energy and matter interact.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.1a.**	Energy Transformation and Transfer: Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic. • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.9a.**	Interactions of Energy and Matter: Know that each kind of atom or molecule can gain or lose energy only in discrete amounts. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-C.**	Understand the motion of objects and waves, and the forces that cause them.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.4a.**	Forces: Understand the relationship between force and pressure, and how the pressure of a volume of gas depends on the temperature and the amount of gas. • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**

BENCHMARK / STANDARD	**II-A.**	Understand how the survival of species depends on biodiversity and on complex interactions, including the cycling of matter and the flow of energy.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.1a.**	Ecosystems: Know that an ecosystem is complex and may exhibit fluctuations around a steady state or may evolve over time. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.4a.**	Ecosystems: Critically analyze how humans modify and change ecosystems (e.g., harvesting, pollution, population growth, technology). • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.7a.**	Energy Flow in the Environment: Understand and explain the principles of photosynthesis (i.e., chloroplasts in plants convert light energy, carbon dioxide, and water into chemical energy). • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-C.**	Understand the characteristics, structures, and functions of cells.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.7a.**	Biochemical Mechanisms: Describe how most cell functions involve chemical reactions, including: promotion or inhibition of biochemical reactions by enzymes; processes of respiration (e.g., energy production, ATP); communication from cell to cell by secretion of a variety of chemicals (e.g., hormones). • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Earth and Space Science: Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.**
BENCHMARK / STANDARD	**II-B.**	Examine the scientific theories of the origin, structure, energy, and evolution of Earth and its atmosphere, and their interconnections.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.10a.**	Geochemical Cycles: Describe the composition and structure of Earth's materials, including: the major rock types (i.e., sedimentary, igneous, metamorphic) and their formation; natural resources (e.g., minerals, petroleum) and their formation. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STRAND / CONTENT STANDARD	**NM.III.**	**Science and Society: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.**
BENCHMARK / STANDARD	**III-A.**	Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
PERFORMANCE STANDARD /	**III-A.3a.**	Science and Technology: Evaluate the influences of technology on society (e.g., communications, petroleum, transportation, nuclear energy,

BENCHMARK / PROFICIENCY		computers, medicine, genetic engineering) including both desired and undesired effects, and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction

		• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.7a.**	Science and Technology: Describe how human activities have affected ozone in the upper atmosphere and how it affects health and the environment. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.10a.**	Science and Society: Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them. • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.12a.**	Science and Society: Explain how societies can change ecosystems and how these changes can be reversible or irreversible. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.15a.**	Science and Individuals: Identify how science has produced knowledge that is relevant to individual health and material prosperity. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification

New Mexico Standards

Science

Grade 10

STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-A.**	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.1a.**	Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2

		Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.2a.**	Design and conduct scientific investigations that include: testable hypotheses; controls and variables; methods to collect, analyze, and interpret data; results that address hypotheses being investigated; predictions based on results; re-evaluation of hypotheses and additional experimentation as necessary; error analysis.

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12

		Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.3a.**	Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction

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PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.4a.**	Convey results of investigations using scientific concepts, methodologies, and expressions, including: scientific language and symbols; diagrams, charts, and other data displays; mathematical expressions and processes (e.g., mean, median, slope, proportionality); clear, logical, and concise communication; reasoned arguments. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8

		Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-A.5a.**	Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10

		Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-B.**	Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.2a.**	Use scientific reasoning and valid logic to recognize: faulty logic; cause and effect; the difference between observation and unsubstantiated inferences and conclusions; potential bias. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-B.6a.**	Examine the scientific processes and logic used in investigations of past events (e.g., using data from crime scenes, fossils), investigations that can be planned in advance but are only done once (e.g., expensive or time-consuming experiments such as medical clinical trials), and investigations of phenomena that can be repeated easily and frequently. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2

		Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
STRAND / CONTENT STANDARD	**NM.I.**	**Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.**
BENCHMARK / STANDARD	**I-C.**	Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.1a.**	Create multiple displays of data to analyze and explain the relationships in scientific investigations. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction

		• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.2a.**	Use mathematical models to describe, explain, and predict natural phenomena. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.3a.**	Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4

		Activity 2: A Closer Look at the Periodic Table
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**I-C.5a.**	Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-A.**	Understand the properties, underlying structure, and reactions of matter.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.1a.**	Properties of Matter: Classify matter in a variety of ways (e.g., element, compound, mixture; solid, liquid, gas; acidic, basic, neutral). • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Teacher Resource CD: Matter - Chemical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.2a.**	Properties of Matter: Identify, measure, and use a variety of physical and chemical properties (e.g., electrical conductivity, density, viscosity, chemical reactivity, pH, melting point). • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.3a.**	Properties of Matter: Know how to use properties to separate mixtures into pure substances (e.g., distillation, chromatography, solubility). • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.4a.**	Properties of Matter: Describe trends in properties (e.g., ionization energy or reactivity as a function of location on the periodic table, boiling point of organic liquids as a function of molecular weight). • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.5a.**	Structure of Matter: Understand that matter is made of atoms and that atoms are made of subatomic particles. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1

		Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.6a.**	Structure of Matter: Understand atomic structure, including: most space occupied by electrons; nucleus made of protons and neutrons; isotopes of an element; masses of proton and neutron 2000 times greater than mass of electron; atom held together by proton-electron electrical forces. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.7a.**	Structure of Matter: Explain how electrons determine the properties of substances by: interactions between atoms through transferring or sharing valence electrons; ionic and covalent bonds; the ability of carbon to form a diverse array of organic structures. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.8a.**	Structure of Matter: Make predictions about elements using the periodic table (e.g., number of valence electrons, metallic character, reactivity, conductivity, type of bond between elements). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical

		Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.9a.**	Structure of Matter: Understand how the type and arrangement of atoms and their bonds determine macroscopic properties (e.g., boiling point, electrical conductivity, hardness of minerals). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.10a.**	Structure of Matter: Know that states of matter (i.e., solid, liquid, gas) depend on the arrangement of atoms and molecules and on their freedom of motion. • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.12a.**	Chemical Reactions: Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales (e.g., picoseconds to millennia). • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.13a.**	Chemical Reactions: Understand types of chemical reactions (e.g., synthesis, decomposition, combustion, redox, neutralization) and identify them as exothermic or endothermic. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.14a.**	Chemical Reactions: Know how to express chemical reactions with balanced equations that show: conservation of mass; products of common reactions. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.15a.**	Chemical Reactions: Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, and the presence of catalysts. • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Chemical Properties and Changes
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**

BENCHMARK / STANDARD	**II-B.**	Understand the transformation and transmission of energy and how energy and matter interact.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.1a.**	Energy Transformation and Transfer: Identify different forms of energy, including kinetic, gravitational (potential), chemical, thermal, nuclear, and electromagnetic. • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.9a.**	Interactions of Energy and Matter: Know that each kind of atom or molecule can gain or lose energy only in discrete amounts. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.**
BENCHMARK / STANDARD	**II-C.**	Understand the motion of objects and waves, and the forces that cause them.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.4a.**	Forces: Understand the relationship between force and pressure, and how the pressure of a volume of gas depends on the temperature and the amount of gas. • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-A.**	Understand how the survival of species depends on biodiversity and on complex interactions, including the cycling of matter and the flow of energy.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.1a.**	Ecosystems: Know that an ecosystem is complex and may exhibit fluctuations around a steady state or may evolve over time. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.4a.**	Ecosystems: Critically analyze how humans modify and change ecosystems (e.g., harvesting, pollution, population growth, technology). • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-A.7a.**	Energy Flow in the Environment: Understand and explain the principles of photosynthesis (i.e., chloroplasts in plants convert light energy, carbon dioxide, and water into chemical energy).

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.**
BENCHMARK / STANDARD	**II-C.**	Understand the characteristics, structures, and functions of cells.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-C.7a.**	Biochemical Mechanisms: Describe how most cell functions involve chemical reactions, including: promotion or inhibition of biochemical reactions by enzymes; processes of respiration (e.g., energy production, ATP); communication from cell to cell by secretion of a variety of chemicals (e.g., hormones). • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STRAND / CONTENT STANDARD	**NM.II.**	**The Content of Science: Earth and Space Science: Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.**
BENCHMARK / STANDARD	**II-B.**	Examine the scientific theories of the origin, structure, energy, and evolution of Earth and its atmosphere, and their interconnections.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**II-B.10a.**	Geochemical Cycles: Describe the composition and structure of Earth's materials, including: the major rock types (i.e., sedimentary, igneous, metamorphic) and their formation; natural resources (e.g., minerals, petroleum) and their formation. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STRAND / CONTENT STANDARD	**NM.III.**	**Science and Society: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.**
BENCHMARK / STANDARD	**III-A.**	Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.3a.**	Science and Technology: Evaluate the influences of technology on society (e.g., communications, petroleum, transportation, nuclear energy, computers, medicine, genetic engineering) including both desired and undesired effects, and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod). • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3

		Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.7a.**	Science and Technology: Describe how human activities have affected ozone in the upper atmosphere and how it affects health and the environment. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.10a.**	Science and Society: Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them. • Chemistry - A Closer Look at Matter: Unit 2 Lab 3

		Activity 1: Classifying Matter • Teacher Resource CD: Matter - Physical Properties and Changes
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.12a.**	Science and Society: Explain how societies can change ecosystems and how these changes can be reversible or irreversible. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**III-A.15a.**	Science and Individuals: Identify how science has produced knowledge that is relevant to individual health and material prosperity. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification