

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

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**Alaska Content Standards**  
**Science**  
**Grade 7**

PERFORMANCE / CONTENT STANDARD	AK.A1.	Science as Inquiry and Process (SA1, SA2, SA3)
GRADE LEVEL EXPECTATION	[7] SA1.1.	<p>The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity</li> </ul>

		<p>1: The Traffic Light Reaction</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p>GRADE LEVEL EXPECTATION</p>	<p>[7] SA1.2.</p>	<p>The student demonstrates an understanding of the processes of science by collaborating to design and conduct simple repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings. (L)</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.B1.</b>	<b>Concepts of Physical Science (SB1, SB2, SB3, SB4)</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>[7] SB1.1.</b>	<p>The student demonstrates understanding of the structure and properties of matter by using physical properties (i.e., density, boiling point, freezing point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures).</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
GRADE LEVEL EXPECTATION	[7] SB3.1.	<p>The student demonstrates an understanding of how energy can be transformed, transferred, and conserved by recognizing that most substances can exist as a solid, liquid, or gas depending on the motion of its particles.</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.C1.	Concepts of Life Science (SC1, SC2, SC3)
GRADE LEVEL EXPECTATION	[7] SC3.1.	<p>The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by recognizing and explaining that organisms can cause physical and chemical changes (e.g., digestion, growth, respiration, photosynthesis) to matter and recognizing and explaining the importance of energy transfer in these changes.</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.E1.	Science and Technology (SE1, SE2, SE3)
GRADE LEVEL EXPECTATION	[7] SE2.1.	<p>The student demonstrates an understanding that solving problems involves different ways of thinking by identifying, designing, testing, and revising solutions to a local problem. (L)</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> </ul>

		<ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.G.1.	History and Nature of Science (SG1, SG2, SG3, SG4)
GRADE LEVEL EXPECTATION	[7] SG2.1.	<p>The student demonstrates an understanding of the bases of the advancement of scientific knowledge by explaining differences in results of repeated experiments.</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.SA.	Science as Inquiry and Process: A student should understand and be able to apply the processes and applications of scientific inquiry. A student who meets the content standard should:
GRADE LEVEL EXPECTATION	SA1.	<p>Develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.SB.	Concepts of Physical Science: A student should understand and be able to apply the concepts, models, theories, universal principles, and facts that explain the physical world. A student who meets the content standard should:
GRADE LEVEL EXPECTATION	SB1.	Develop an understanding of the characteristic properties of matter and

		<p>the relationship of these properties to their structure and behavior.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
<p>GRADE LEVEL EXPECTATION</p>	<p>SB3.</p>	<p>Develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3:</li> </ul>

		<p>Observing Gas Production During a Chemical Reaction</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
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**Alaska Content Standards  
Science  
Grade 8**

PERFORMANCE / CONTENT STANDARD	AK.A.1.	Science as Inquiry and Process (SA1, SA2, SA3)
GRADE LEVEL EXPECTATION	[8] SA1.1.	<p>The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> </ul>

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<p><b>GRADE LEVEL EXPECTATION</b></p>	<p>[8] SA1.2.</p>	<p>The student demonstrates an understanding of the processes of science by collaborating to design and conduct repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings. (L)</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p><b>GRADE LEVEL EXPECTATION</b></p>	<p>[8] SA2.1.</p>	<p>The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by recognizing and analyzing differing scientific explanations and models.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity</li> </ul>

		<p>1: Classifying Matter</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
GRADE LEVEL EXPECTATION	[8] SA3.1.	<p>The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by conducting research to learn how the local environment is used by a variety of competing interests (e.g., competition for habitat/resources, tourism, oil and mining companies, hunting groups). (L)</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.B1.	Concepts of Physical Science (SB1, SB2, SB3, SB4)
GRADE LEVEL EXPECTATION	[8] SB1.1.	The student demonstrates an understanding of the structure and properties of matter by using physical and chemical properties (i.e.,

density, boiling point, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures).

- 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 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

		<p>Changes</p> <ul style="list-style-type: none"> <li>Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
GRADE LEVEL EXPECTATION	[8] SB3.1.	<p>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by exploring changes of state with increase or decrease of particle speed associated with heat transfer. (L)</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
GRADE LEVEL EXPECTATION	[8] SB3.2.	<p>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by exploring through a variety of models (e.g., gumdrops and toothpicks) how atoms may bond together into well defined molecules or bond together in large arrays. (L)</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.E1.	Science and Technology (SE1, SE2, SE3)
GRADE LEVEL EXPECTATION	[8] SE2.1.	<p>The student demonstrates an understanding that solving problems involves different ways of thinking by identifying, designing, testing, and revising solutions to a local problem. (L)</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.G1.</b>	<b>History and Nature of Science (SG1, SG2, SG3, SG4)</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>[8] SG2.1.</b>	<p>The student demonstrates an understanding of the bases of the advancement of scientific knowledge by describing how repeating experiments improves the likelihood of accurate results.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> </ul>
<b>PERFORMANCE / CONTENT</b>	<b>AK.SA.</b>	<b>Science as Inquiry and Process: A student should understand and be able to apply the processes and applications of scientific inquiry. A</b>

STANDARD	student who meets the content standard should:	
GRADE LEVEL EXPECTATION	SA1.	<p data-bbox="532 226 1170 302">Develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.</p> <ul style="list-style-type: none"> <li data-bbox="581 344 1247 401">• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li data-bbox="581 405 1247 462">• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li data-bbox="581 466 1247 522">• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li data-bbox="581 527 1247 583">• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li data-bbox="581 588 1247 644">• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li data-bbox="581 648 1247 705">• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li data-bbox="581 709 1247 766">• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li data-bbox="581 770 1247 827">• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li data-bbox="581 831 1247 888">• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li data-bbox="581 892 1247 949">• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li data-bbox="581 953 1247 1010">• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li data-bbox="581 1014 1247 1071">• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li data-bbox="581 1075 1247 1131">• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li data-bbox="581 1136 1247 1192">• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li data-bbox="581 1197 1247 1253">• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li data-bbox="581 1257 1247 1314">• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li data-bbox="581 1318 1247 1375">• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li data-bbox="581 1379 1247 1436">• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li data-bbox="581 1440 1247 1497">• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li data-bbox="581 1501 1247 1558">• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li data-bbox="581 1562 1247 1619">• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li data-bbox="581 1623 1247 1680">• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li data-bbox="581 1684 1247 1740">• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li data-bbox="581 1745 1247 1801">• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li data-bbox="581 1806 1247 1862">• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li data-bbox="581 1866 1247 1923">• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> </ul>

		<ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.SB.</b>	<b>Concepts of Physical Science: A student should understand and be able to apply the concepts, models, theories, universal principles, and facts that explain the physical world. A student who meets the content standard should:</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>SB1.</b>	<p>Develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity</li> </ul>

		<p>2: An Endothermic Reaction</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p>GRADE LEVEL EXPECTATION</p>	<p>SB3.</p>	<p>Develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
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Alaska Content Standards  
Science  
Grade 9

PERFORMANCE / CONTENT STANDARD	AK.A1. Science as Inquiry and Process (SA1, SA2, SA3)
GRADE LEVEL EXPECTATION	<p>[9] SA1.1. The student develops an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.</p> <ul style="list-style-type: none"> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity</li> </ul>

		<p>3: Observing Gas Production During a Chemical Reaction</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p>GRADE LEVEL EXPECTATION</p>	<p>[9] SA1.2.</p>	<p>The student develops an understanding of the processes of science by hypothesizing, designing a controlled experiment, making qualitative and quantitative observations, interpreting data, and using this information to communicate conclusions.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p><b>GRADE LEVEL EXPECTATION</b></p>	<p>[9] SA2.1.</p>	<p>The student will demonstrate an understanding of the attitudes and approaches to scientific inquiry by formulating conclusions that are logical and supported by evidence.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity</li> </ul>

		<p>1: Testing Properties of Acids, Bases, and Salts</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.B1.</b>	<b>Concepts of Physical Science (SB1, SB2, SB3, SB4)</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>[9] SB1.1.</b>	<p>The student demonstrates an understanding of the structure and properties of matter by describing atoms and their base components (i.e., protons, neutrons, electrons).</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
<b>GRADE LEVEL EXPECTATION</b>	<b>[9] SB3.1.</b>	<b>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on</b>

		<p>systems by recognizing that a chemical reaction has taken place.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p><b>GRADE LEVEL EXPECTATION</b></p>	<p>[9] SB3.2.</p>	<p>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by explaining that in chemical and nuclear reactions, energy (e.g., heat, light, mechanical, and electrical) is transferred into and out of a system.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
GRADE LEVEL EXPECTATION	[9] SB3.3.	<p>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by recognizing that atoms emit and absorb electromagnetic radiation.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.D1.	Concepts of Earth Science (SD1, SD2, SD3, SD4)
GRADE LEVEL EXPECTATION	[9] SD3.2.	<p>The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by explaining the phenomena of the aurora.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	AK.E1.	Science and Technology (SE1, SE2, SE3)
<b>GRADE LEVEL EXPECTATION</b>	[9] SE2.1.	<p>The student demonstrates an understanding that solving problems involves different ways of thinking, by questioning, researching, modeling, simulating, and testing a solution to a problem. (L)</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity</li> </ul>

		<p>2: Forming Covalent Bonds</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.SA.</b>	Science as Inquiry and Process: A student should understand and be able to apply the processes and applications of scientific inquiry. A student who meets the content standard should:
<b>GRADE LEVEL EXPECTATION</b>	<b>SA1.</b>	<p>Develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.SB.</b>	<b>Concepts of Physical Science: A student should understand and be able to apply the concepts, models, theories, universal principles, and facts that explain the physical world. A student who meets the content standard should:</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>SB1.</b>	<p>Develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p><b>GRADE LEVEL EXPECTATION</b></p>	<p><b>SB3.</b></p>	<p>Develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity</li> </ul>

		<p>2: Observing Color Change in a Chemical Reaction</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
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Alaska Content Standards  
Science  
Grade 10

PERFORMANCE / CONTENT STANDARD	AK.A1.	Science as Inquiry and Process (SA1, SA2, SA3)
GRADE LEVEL EXPECTATION	[10] SA1.1.	<p>The student develops an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, analyzing data, developing models, inferring and communicating.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p><b>GRADE LEVEL EXPECTATION</b></p>	<p>[10] SA1.2.</p>	<p>The student develops an understanding of the processes of science by reviewing pertinent literature, hypothesizing, making qualitative and quantitative observations, controlling experimental variables, analyzing data statistically (i.e., mean, median, mode), and using this information to draw conclusions, compare results to others, suggest further experimentation, and apply their conclusions to other problems. (L)</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity</li> </ul>

		<p>2: Exploring Changes in Matter</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p>GRADE LEVEL EXPECTATION</p>	<p>[10] SA2.1.</p>	<p>The student will demonstrate an understanding of the attitudes and approaches to scientific inquiry by examining methodology and conclusions to identify bias and determining if evidence logically supports the conclusions.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.B1.</b>	<b>Concepts of Physical Science (SB1, SB2, SB3, SB4)</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>[10] SB1.1.</b>	<p>The student demonstrates an understanding of the structure and properties of matter by using the periodic table to describe atoms in terms of their base components (i.e., protons, neutrons, electrons).</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity</li> </ul>

		<p>3: Forming Ionic Bonds</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
GRADE LEVEL EXPECTATION	[10] SB3.1.	<p>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by describing the behavior of electrons in chemical bonding.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> </ul>
PERFORMANCE / CONTENT STANDARD	AK.E1.	Science and Technology (SE1, SE2, SE3)
GRADE LEVEL EXPECTATION	[10] SE2.1.	<p>The student demonstrates an understanding that solving problems involves different ways of thinking by questioning, researching, modeling, simulating, and testing multiple solutions to a problem. (L)</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity</li> </ul>

		1: Water Purification
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.SA.</b>	Science as Inquiry and Process: A student should understand and be able to apply the processes and applications of scientific inquiry. A student who meets the content standard should:
<b>GRADE LEVEL EXPECTATION</b>	<b>SA1.</b>	<p>Develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> </ul>

		<ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<b>PERFORMANCE / CONTENT STANDARD</b>	<b>AK.SB.</b>	<b>Concepts of Physical Science: A student should understand and be able to apply the concepts, models, theories, universal principles, and facts that explain the physical world. A student who meets the content standard should:</b>
<b>GRADE LEVEL EXPECTATION</b>	<b>SB1.</b>	<p>Develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds</li> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity</li> </ul>

		<p>4: Observing a Biochemical Reaction</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> <li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li> <li>• Teacher Resource CD: Matter - Physical Properties and Changes</li> <li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li> </ul>
<p><b>GRADE LEVEL EXPECTATION</b></p>	<p><b>SB3.</b></p>	<p>Develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.</p> <ul style="list-style-type: none"> <li>• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification</li> <li>• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass</li> </ul>

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|  |  | <ul style="list-style-type: none"><li>• Teacher Resource CD: Matter - Chemical Properties and Changes</li><li>• Teacher Resource CD: Matter - Physical Properties and Changes</li><li>• Virtual Laboratory: Titrating an Acid of Unknown Concentration</li></ul> |
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