

Inquiry Investigations™
Earth's Resources MODULE - 1287232
Grades: 6-9

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Delaware Standards and Curricula
Science
Grade 6

CONTENT / PROCESS STANDARD	DE.1.	Nature and Application of Science and Technology
INDICATOR / ENDURING UNDERSTANDING	1.1.	Enduring Understandings: Scientific inquiry involves asking scientifically-oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying the explanation.
EXPECTATION / ESSENTIAL QUESTION	1.1.1.	<p>Frame and refine questions that can be investigated scientifically, and generate testable hypotheses.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical

		<p>Weathering</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.2.</p>	<p>Design and conduct investigations with controlled variables to test hypotheses.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig

		<ul style="list-style-type: none"> • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.3.	<p>Accurately collect data through the selection and use of tools and techniques appropriate to the investigation. Construct tables, diagrams and graphs, showing relationships between two variables, to display and facilitate analysis of data. Compare and question results with and from other students.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.4.	<p>Form explanations based on accurate and logical analysis of evidence. Revise the explanation using alternative descriptions, predictions, models and knowledge from other sources as well as results of further investigation.</p>

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<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.5.</p>	<p>Communicate scientific procedures, data, and explanations to enable the replication of results. Use computer technology to assist in communicating these results. Critical review is important in the analysis of these results.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks

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<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.6.</p>	<p>Use mathematics, reading, writing, and technology in conducting scientific inquiries.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a

		<p>Mineral</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.20.</p>	<p>Use appropriate instruments and tools to identify the sedimentary rocks limestone, shale, and sandstone. Infer the environmental conditions in which these rocks formed.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.21.</p>	<p>Examine sedimentary rock formations. Use relative dating and fossil evidence to correlate sedimentary rock sequences. Infer the succession of environmental events that occurred from one rock sequence to another (transgression or regression of the seas).</p> <ul style="list-style-type: none"> • Teacher Resource CD: Fossils and Geologic Time
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.22.</p>	<p>Use the correlated sedimentary rock sequences to support Earth's geologic time scale.</p>

		<ul style="list-style-type: none"> Teacher Resource CD: Fossils and Geologic Time
EXPECTATION / ESSENTIAL QUESTION	1.1.23.	<p>Investigate and describe how factors such as abrasion, frost/ice wedging, temperature changes, and plant growth cause physical weathering of rocks. Infer the environment in which the sedimentary particles were formed based on the results of weathering.</p> <ul style="list-style-type: none"> Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.24.	<p>Investigate how weathered materials are transported (i.e., mass movement and wind, water, and ice processes) in the process of erosion. Explain how erosion shapes rock particles.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock
EXPECTATION / ESSENTIAL QUESTION	1.1.25.	<p>Describe the process by which eroded materials can form horizontal layers of sedimentary rock.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.31.	<p>Recognize that fossils indicate that many organisms that lived long ago are extinct. Use index fossils to determine the relative age of rock sequences, and environmental conditions at the time of formation. Recognize, through fossil evidence, that some species can be traced back in geologic time.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig Teacher Resource CD: Fossils and Geologic Time
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.1.	Enduring Understanding: Earth's systems can be broken down into individual components which have observable measurable properties.
EXPECTATION /	5.1.1.	Use appropriate instruments and tools to identify the sedimentary rocks:

ESSENTIAL QUESTION		<p>limestone, shale, and sandstone. Infer the environmental conditions in which these rocks formed.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.1.2.	<p>Examine sedimentary rock formations. Use relative dating and fossil evidence to correlate sedimentary rock sequences. Infer the succession of environmental events that occurred from one rock sequence to another (transgression or regression of the seas). Use the correlated sedimentary rock sequences to support Earth's geologic time scale.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Fossils and Geologic Time • Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.2.	Enduring Understanding: Earth's components form systems. These systems continually interact at different rates of time, affecting the Earth locally and globally.
EXPECTATION / ESSENTIAL QUESTION	5.2.1.	<p>Investigate and describe how factors such as abrasion, frost/ice wedging, temperature changes, and plant growth cause physical weathering of rocks. Infer the environment in which the sedimentary particles were formed based on the results of weathering.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.2.	<p>Investigate how weathered materials are transported (i.e., mass movement and wind, water, and ice processes) in the process of erosion. Explain how erosion shapes rock particles.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock
EXPECTATION / ESSENTIAL	5.2.3.	Describe the process by which eroded materials can form horizontal layers of

QUESTION		<p>sedimentary rock.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.4.	<p>Explain how sedimentary rocks are formed through the processes of weathering, erosion, and deposition.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.5.	<p>Cite three lines of evidence such as the fit of coastlines, the similarity of rock type and contiguousness of bedding areas, and similarity of fossilized remains that indicate that the continents were once a large land mass.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.7.	Diversity and Continuity of Living Things
INDICATOR / ENDURING UNDERSTANDING	7.2.	<p>Enduring Understanding: The diversity and changing of life forms over many generations is the result of natural selection, in which organisms with adaptive traits survive, reproduce, and pass those traits to offspring.</p>
EXPECTATION / ESSENTIAL QUESTION	7.2.1.	<p>Recognize that fossils indicate that many organisms that lived long ago are extinct. Use index fossils to determine the relative age of rock sequences, and environmental conditions at the time of formation.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Fossils and Geologic Time
EXPECTATION / ESSENTIAL QUESTION	7.2.2.	<p>Recognize, through fossil evidence, that some species can be traced back in geologic time.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting

		<p>and Identification</p> <ul style="list-style-type: none"> • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Fossils and Geologic Time
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Delaware Standards and Curricula
 Science
 Grade 7

CONTENT / PROCESS STANDARD	DE.1.	Nature and Application of Science and Technology
INDICATOR / ENDURING UNDERSTANDING	1.1.	Enduring Understanding: Scientific inquiry involves asking scientifically-oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying the explanation.
EXPECTATION / ESSENTIAL QUESTION	1.1.1.	<p>Frame and refine questions that can be investigated scientifically, and generate testable hypotheses.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical

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<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.2.</p>	<p>Design and conduct investigations with controlled variables to test hypotheses.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig

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EXPECTATION / ESSENTIAL QUESTION	1.1.4.	<p>Form explanations based on accurate and logical analysis of evidence. Revise the explanation using alternative descriptions, predictions, models and knowledge from other sources as well as results of further investigation.</p>

		<ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.5.</p>	<p>Communicate scientific procedures, data, and explanations to enable the replication of results. Use computer technology to assist in communicating these results. Critical review is important in the analysis of these results.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers

		<ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.6.</p>	<p>Use mathematics, reading, writing, and technology in conducting scientific inquiries.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying

		<p>Mineral Color</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.9.</p>	<p>Analyze a standard change of phase graph of water. Using the particle model, identify where water is a solid, liquid or gas, is freezing/melting or evaporating/condensing. Relate the states of matter to the changes (increase, decrease) of energy in the system.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.11.</p>	<p>Calculate the density of various solid materials. Use density to predict whether an object will sink or float in water. Given the density of various solids and liquids, create a density column and explain the arrangement in terms of density.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.19.</p>	<p>Describe how heat energy when added to a substance, will increase its temperature or change its state. Explain that as more heat energy is added to a substance, the particles' vibrations increase and the spacing between the particles increases, but the size of the particles stays the same.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks

		<ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
EXPECTATION / ESSENTIAL QUESTION	1.1.26.	<p>Conduct investigations and use the data to describe the extent to which the permeability and porosity of a soil sample affect the rate of water percolation.</p> <ul style="list-style-type: none"> Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.2.	Materials and Their Properties
INDICATOR / ENDURING UNDERSTANDING	2.1.	Enduring Understanding: The structures of materials determine their properties.
EXPECTATION / ESSENTIAL QUESTION	2.1.3.	<p>Analyze a standard change of phase graph of water. Using the particle model, identify where water is a solid, liquid or gas, is freezing/melting or evaporating/condensing. Relate the states of matter to the changes (increase, decrease) of energy in the system.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	2.1.5.	<p>Distinguish between physical properties that are dependent upon mass (size, shape) and those physical properties such as boiling point, melting point, solubility, density, conduction of heat and pH of a substance or material that are not altered when the mass of the material is changed.</p> <ul style="list-style-type: none"> Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity
EXPECTATION / ESSENTIAL QUESTION	2.1.6.	<p>Calculate the density of various solid materials. Use density to predict whether an object will sink or float in water. Given the density of various solids and liquids, create a density column and explain the arrangement in terms of density.</p> <ul style="list-style-type: none"> Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity
CONTENT / PROCESS STANDARD	DE.3.	Energy and Its Effects
INDICATOR / ENDURING UNDERSTANDING	3.1.	Enduring Understandings: Energy takes many forms. These forms can be grouped into types of energy that are associated with the motion of mass (kinetic energy) and types of energy associated with the position of mass and energy fields (potential energy).
EXPECTATION / ESSENTIAL QUESTION	3.1.1.	Describe how heat energy when added to a substance, will increase its temperature or change its state. Explain that as more heat energy is added to a substance, the particles' vibrations increase and the spacing between the particles increases, but the size of the particles stays the same.

		<ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.2.	Enduring Understanding: Earth's components form systems. These systems continually interact at different rates of time, affecting the Earth locally and globally.
EXPECTATION / ESSENTIAL QUESTION	5.2.5.	<p>Conduct investigations and use the data to describe the extent to which the permeability and porosity of a soil sample affect the rate of water percolation.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.6.	Life Processes
INDICATOR / ENDURING UNDERSTANDING	6.3.	Enduring Understanding: Organisms respond to internal and external cues, which allow them to survive.
EXPECTATION / ESSENTIAL QUESTION	6.3.1.	<p>Research external conditions needed by a variety of organisms for survival such as temperature, turbidity, pH, salinity, and amount of dissolved oxygen, phosphates, and nitrates. Predict how organisms may respond to changes in these external conditions based on research findings.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure

Delaware Standards and Curricula
Science
Grade 8

CONTENT / PROCESS STANDARD	DE.1.	Nature and Application of Science and Technology
INDICATOR / ENDURING UNDERSTANDING	1.1.	Enduring Understanding: Scientific inquiry involves asking scientifically-oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying the explanation.
EXPECTATION / ESSENTIAL QUESTION	1.1.1.	<p>Frame and refine questions that can be investigated scientifically, and generate testable hypotheses.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color

		<ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.2.</p>	<p>Design and conduct investigations with controlled variables to test hypotheses.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals

		<ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.3.</p>	<p>Accurately collect data through the selection and use of tools and techniques appropriate to the investigation. Construct tables, diagrams and graphs, showing relationships between two variables, to display and facilitate analysis of data. Compare and question results with and from other students.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting

		<p>and Identification</p> <ul style="list-style-type: none"> • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.4.</p>	<p>Form explanations based on accurate and logical analysis of evidence. Revise the explanation using alternative descriptions, predictions, models and knowledge from other sources as well as results of further investigation.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure

		<ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.5.</p>	<p>Communicate scientific procedures, data, and explanations to enable the replication of results. Use computer technology to assist in communicating these results. Critical review is important in the analysis of these results.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL</p>	<p>1.1.6.</p>	<p>Use mathematics, reading, writing, and technology in conducting scientific</p>

QUESTION		<p>inquiries.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.7.	<p>Conduct simple investigations in which a variety of materials (sand, water, light colored materials, dark colored materials) are exposed to light and heat energy. Measure the change in temperature of the material and describe any changes that occur in terms of the physical properties of the material.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
EXPECTATION /	1.1.27.	<p>Explain how the addition or removal of heat energy can change an object's</p>

ESSENTIAL QUESTION		<p>temperature or its physical state. Conduct simple investigations involving changes of physical state and temperature. Relate that there is no change in temperature when a substance is changing state.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
EXPECTATION / ESSENTIAL QUESTION	1.1.30.	<p>Trace the flow of the energy carried by the light when the light strikes a material and is reflected from, transmitted through, and/or absorbed by the material. Describe the energy transfers and transformations that take place when light energy is absorbed by a material.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.31.	<p>Conduct investigations to show that materials can absorb some frequencies of electromagnetic waves, but reflect others or allow them to transmit through the material.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.34.	<p>Conduct investigations to determine how the physical properties of materials (e.g., size, shape, color, texture, hardness) can account for the effect the materials have on sunlight and the degree of change observed in the materials (for example, dark cloth absorbs more heat than light cloth, clear water transmits more light than murky water, and polished materials reflect more light than dull materials).</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.55.	<p>Conduct simulations to investigate how organisms fulfill basic needs (i.e., food, shelter, air, space light/dark, and water) in a competitive environment. Relate how competition for resources can determine survival.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure
CONTENT / PROCESS STANDARD	DE.1.	Nature and Application of Science and Technology
INDICATOR / ENDURING UNDERSTANDING	1.2.	Enduring Understanding: The development of technology and advancement in science influence and drive each other forward.
EXPECTATION / ESSENTIAL QUESTION	1.2.6.	<p>Discuss the origin and identify characteristics (i.e., air circulation pattern, wind speed, temperature and dew point, and air pressure) of storm systems including hurricanes, Nor'easters, tornadoes, thunderstorms, and mid-latitude cyclones. Explain how these weather events can transfer heat. Describe the environmental, economic, and human impact of these storms.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a

		<p>Sedimentary Rock</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea
EXPECTATION / ESSENTIAL QUESTION	1.2.10.	<p>Examine satellite imagery pictures and use these images to identify cloud patterns and storm systems.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea
CONTENT / PROCESS STANDARD	DE.1.	Nature and Application of Science and Technology
INDICATOR / ENDURING UNDERSTANDING	1.3.	Enduring Understanding: Understanding past processes and contributions is essential in building scientific knowledge.
EXPECTATION / ESSENTIAL QUESTION	1.3.1.	<p>Describe how scientists have historically confirmed that the Earth is round, not flat.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Virtual Laboratory: Mineral Identification
CONTENT / PROCESS STANDARD	DE.2.	Materials and Their Properties
INDICATOR / ENDURING UNDERSTANDING	2.1.	Enduring Understanding: The structures of materials determine their properties.
EXPECTATION / ESSENTIAL QUESTION	2.1.1.	<p>Conduct simple investigations in which a variety of materials (sand, water, light colored materials, dark colored materials) are exposed to light and heat energy. Measure the change in temperature of the material and describe any changes that occur in terms of the physical properties of the material.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
CONTENT / PROCESS STANDARD	DE.3.	Energy and Its Effects
INDICATOR / ENDURING UNDERSTANDING	3.2.	Enduring Understanding: Changes take place because of the transfer of energy. Energy is transferred to matter through the action of forces. Different forces are responsible for the different forms of energy.

EXPECTATION / ESSENTIAL QUESTION	3.2.10.	Use the particle model to explain why heat energy is always transferred from materials at higher temperatures to materials at lower temperatures. Explain why heat energy transfer ceases when the equilibrium temperature is reached. Explain that when this temperature is reached, the materials are in thermal equilibrium. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
EXPECTATION / ESSENTIAL QUESTION	3.2.12.	Explain how the addition or removal of heat energy can change an object's temperature or its physical state. Conduct simple investigations involving changes of physical state and temperature. Relate that there is no change in temperature when a substance is changing state. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
CONTENT / PROCESS STANDARD	DE.3.	Energy and Its Effects
INDICATOR / ENDURING UNDERSTANDING	3.3.	Enduring Understanding: Energy readily transforms from one form to another, but these transformations are not always reversible. The details of these transformations depend upon the initial form of the energy and the properties of the materials involved. Energy may transfer into or out of a system and it may change forms, but the total energy cannot change.
EXPECTATION / ESSENTIAL QUESTION	3.3.6.	Trace the flow of the energy carried by the light when the light strikes a material and is reflected from, transmitted through, and/or absorbed by the material. Describe the energy transfers and transformations that take place when light energy is absorbed by a material. <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	3.3.7.	Conduct investigations to show that materials can absorb some frequencies of electromagnetic waves, but reflect others or allow them to transmit through the material. Use this selective absorption process to explain how objects obtain their color, how materials like sunscreen can serve to protect us from harmful electromagnetic waves, and how selective absorption contributes to the Greenhouse Effect. <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	3.3.9.	Conduct investigations to determine how the physical properties of materials (e.g., size, shape, color, texture, hardness) can account for the effect the materials have on sunlight and the degree of change observed in the materials (e.g., dark cloth absorbs more heat than light cloth, clear water transmits more light than murky water, and polished materials reflect more light than dull materials). <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth

		Processes
CONTENT / PROCESS STANDARD	DE.4.	Earth in Space
INDICATOR / ENDURING UNDERSTANDING	4.1.	Enduring Understanding: Observable, predictable patterns of movement in the Sun, Earth, Moon system occur because of gravitational interaction and energy from the Sun.
EXPECTATION / ESSENTIAL QUESTION	4.1.1.	Describe how scientists have historically confirmed that the Earth is round, not flat. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Virtual Laboratory: Mineral Identification
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.2.	Enduring Understanding: Earth's components form systems. These systems continually interact at different rates of time, affecting the Earth locally and globally.
EXPECTATION / ESSENTIAL QUESTION	5.2.7.	Discuss the origin and identify characteristics (i.e., air circulation pattern, wind speed, temperature and dew point, and air pressure) of storm systems including hurricanes, Nor'easters, tornadoes, thunderstorms, and mid-latitude cyclones. Explain how these weather events can transfer heat. Describe the environmental, economic, and human impact of these storms. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.3.	Enduring Understanding: Technology enables us to better understand Earth's systems. It also allows us to analyze the impact of human activities on Earth's systems and the impact of Earth's systems on human activity.
EXPECTATION / ESSENTIAL QUESTION	5.3.4.	Examine satellite imagery pictures and use these images to identify cloud patterns and storm systems. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea

CONTENT / PROCESS STANDARD	DE.7.	Diversity and Continuity of Living Things
INDICATOR / ENDURING UNDERSTANDING	7.2.	Enduring Understanding: The diversity and changing of life forms over many generations is the result of natural selection, in which organisms with adaptive traits survive, reproduce, and pass those traits to offspring.
EXPECTATION / ESSENTIAL QUESTION	7.2.6.	<p>Conduct simulations to investigate how organisms fulfill basic needs (i.e., food, shelter, air, space light/dark, and water) in a competitive environment. Relate how competition for resources can determine survival.</p> <ul style="list-style-type: none"> Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure

Delaware Standards and Curricula
Science
Grade 9

CONTENT / PROCESS STANDARD	DE.1.	Nature and Application of Science and Technology
INDICATOR / ENDURING UNDERSTANDING	1.1.	Enduring Understanding: Scientific inquiry involves asking scientifically-oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying the explanation.
EXPECTATION / ESSENTIAL QUESTION	1.1.1.	<p>Identify and form questions that generate a specific testable hypothesis that guide the design and breadth of the scientific investigation.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts

		<ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.2.</p>	<p>Design and conduct valid scientific investigations to control all but the testable variable in order to test a specific hypothesis.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig

		<ul style="list-style-type: none"> Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.3.	<p>Collect accurate and precise data through the selection and use of tools and technologies appropriate to the investigations. Display and organize data through the use of tables, diagrams, graphs, and other organizers that allow analysis and comparison with known information and allow for replication of results.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.6.	<p>Use mathematics, reading, writing and technology when conducting scientific inquiries.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle

		<ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 3 Lab 5 Activity 1: Fossils and Geologic Time • Earth Resources: Unit 3 Lab 5 Activity 2: Fossil Sorting and Identification • Earth Resources: Unit 3 Lab 5 Activity 3: Fossil Formation - Preparing Molds and Casts • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 4 Lab 7 Activity 1: Soil Structure • Earth Resources: Unit 4 Lab 7 Activity 2: Soil Horizons • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.9.</p>	<p>Classify various common materials as an element, compound or mixture.</p> <ul style="list-style-type: none"> • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>1.1.16.</p>	<p>Conduct investigations to determine the effect of heat energy on the change of state (change of phase) of water. Sketch and interpret graphs representing the melting, freezing, evaporation and condensation of water. Recognize that molecular and ionic compounds are electrically neutral.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks

		<ul style="list-style-type: none"> Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.22.	<p>Measure the pH of a solution using chemical indicators to determine the relative acidity or alkalinity of the solution. Identify the physical properties of acids and bases.</p> <ul style="list-style-type: none"> Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig
EXPECTATION / ESSENTIAL QUESTION	1.1.45.	<p>Investigate how radio waves, microwaves, infrared waves, visible waves and ultraviolet waves behave when they strike different substances. Record how effectively different materials reflect, absorb and transmit different kinds of EM waves. Draw conclusions based on this data and the physical properties of the substances (for example some substances absorb visible waves, but not radio waves). Other materials absorb UV waves, but not visible waves).</p> <ul style="list-style-type: none"> Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.51.	<p>Identify mineral specimens according to their chemical and physical properties. Mineral specimens include calcite, quartz, mica, feldspar, and hornblende. Properties include hardness (Moh's scale), streak, specific gravity, luster, cleavage, crystal shape, and color, and other properties that are useful for identification of specific minerals such as reaction with hydrochloric acid.</p> <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig Teacher Resource CD: Rocks, Minerals, and Earth Processes Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.52.	<p>Identify a few of the most common elements in the Earth's crust, oceans, and atmosphere and confirm their location on the periodic table (example: Si, O, C, N, H, Al). Compare the relative abundance of elements found in the Earth's</p>

		<p>crust, oceans, and atmosphere. Trace carbon as it cycles through the crust, ocean, and atmosphere.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.53.	<p>Classify and describe features that are used to distinguish between igneous, sedimentary, and metamorphic rocks.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.54.	<p>Describe energy sources, processes, and transformations of Earth materials as they progress through the rock cycle to form new sedimentary, metamorphic, and igneous rocks. Discuss how the cycling of rock is continuous.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.55.	<p>Describe how igneous rocks are formed. Classify igneous rocks according to crystal size and mineral assemblage.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.56.	<p>Identify sandstone, shale and limestone by their composition and texture. Explain how sandstone, shale, and limestone can be changed into the metamorphic rocks quartzite, slate, and marble.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock

		<ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.57.	<p>Investigate the densities, composition, and relative age of continental (felsic) and oceanic (mafic) rocks. Explain why the continental crust, although thicker in most places, overlies oceanic crust. Use this information to explain why oceanic crust subducts below continental crust in convergent plate boundaries and explain the configuration of land masses and ocean basins.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Teacher Resource CD: Rocks, Minerals, and Earth Processes • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	1.1.59.	<p>Describe how energy within the Earth's interior is released in the form of earthquake waves, and explain how these waves affect Earth's surface.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.60.	<p>Describe how earthquake energy is represented on seismograms and describe how these waves can be used to determine the origin and intensity of earthquakes.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.61.	<p>Describe the effects on life and property from consequences of earthquake such as landslides, liquefaction, surface faulting and tsunamis. Cite ways these hazards can be minimized.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	1.1.62.	<p>Use models or computer simulations to demonstrate the processes and origin of landforms at diverging, converging and transform plate boundaries. Show on a map how plate tectonics, earthquakes, and volcanoes are spatially related.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION /	1.1.64.	<p>Research and describe evidence that supports the Theory of Plate Tectonics to</p>

ESSENTIAL QUESTION		<p>include rock magnetism and the age of the sea floor.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.2.	Materials and Their Properties
INDICATOR / ENDURING UNDERSTANDING	2.1.	Enduring Understanding: The structures of materials determine their properties.
EXPECTATION / ESSENTIAL QUESTION	2.1.4.	<p>Explain that elements are pure substances that cannot be separated by chemical or physical means. Recognize that compounds are pure substances that can be separated by chemical means into elements.</p> <ul style="list-style-type: none"> • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	2.1.5.	<p>Classify various common materials as an element, compound or mixture.</p> <ul style="list-style-type: none"> • Virtual Laboratory: Mineral Identification
EXPECTATION / ESSENTIAL QUESTION	2.1.13.	<p>Recognize that metals have the physical properties of conductivity, malleability, luster, and ductility.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster
EXPECTATION / ESSENTIAL QUESTION	2.1.15.	<p>Recognize that physical changes alter some physical properties of a substance but do not alter the chemical composition of the substance.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color
EXPECTATION / ESSENTIAL QUESTION	2.1.16.	<p>Conduct investigations to determine the effect of heat energy on the change of state (change of phase) of water. Sketch and interpret graphs representing the melting, freezing, evaporation and condensation of water.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks
EXPECTATION / ESSENTIAL QUESTION	2.1.17.	<p>Recognize that molecular and ionic compounds are electrically neutral.</p> <ul style="list-style-type: none"> • Virtual Laboratory: Mineral Identification
CONTENT / PROCESS STANDARD	DE.2.	Materials and Their Properties
INDICATOR / ENDURING UNDERSTANDING	2.2.	Enduring Understanding: The properties of the mixture are based on the properties of its components.
EXPECTATION / ESSENTIAL QUESTION	2.2.6.	<p>Measure the pH of a solution using chemical indicators to determine the relative acidity or alkalinity of the solution. Identify the physical properties of acids and bases.</p>

		<ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig
CONTENT / PROCESS STANDARD	DE.2.	Materials and Their Properties
INDICATOR / ENDURING UNDERSTANDING	2.4.	Enduring Understanding: There are several ways in which elements and/or compounds react to form new substances and each reaction involves energy.
EXPECTATION / ESSENTIAL QUESTION	2.4.1.	<p>Recognize that chemical changes alter the chemical composition of a substance forming one or more new substances. The new substance may be a solid, liquid, or gas.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 4 Lab 6 Activity 1: Mechanical Weathering • Earth Resources: Unit 4 Lab 6 Activity 2: Chemical Weathering • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig
CONTENT / PROCESS STANDARD	DE.3.	Energy and Its Effects
INDICATOR / ENDURING UNDERSTANDING	3.3.	Enduring Understanding: Energy readily transforms from one form to another, but these transformations are not always reversible. The details of these transformations depend upon the initial form of the energy and the properties of the materials involved. Energy may transfer into or out of a system and it may change forms, but the total energy cannot change.
EXPECTATION / ESSENTIAL QUESTION	3.3.5.	<p>Record how effectively different materials reflect, absorb and transmit different kinds of EM waves. Draw conclusions based on this data and the physical properties of the substances (e.g., some substances absorb visible waves, but not radio waves. Other materials absorb UV waves, but not visible waves).</p> <ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.1.	Enduring Understanding: Earth's systems can be broken down into individual components which have observable measurable properties.
EXPECTATION / ESSENTIAL QUESTION	5.1.1.	<p>Identify mineral specimens according to their chemical and physical properties. Mineral specimens include calcite, quartz, mica, feldspar, and hornblende. Properties include hardness (Moh's scale), streak, specific gravity, luster, cleavage, crystal shape, and color, and other properties that are useful for identification of specific minerals such as reaction with hydrochloric acid.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization

		<ul style="list-style-type: none"> • Earth Resources: Unit 2 Lab 3 Activity 1: Identifying Mineral Color • Earth Resources: Unit 2 Lab 3 Activity 2: Mineral Luster • Earth Resources: Unit 2 Lab 3 Activity 3: The Streak of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 4: Testing the Hardness of a Mineral • Earth Resources: Unit 2 Lab 3 Activity 5: Cleavage and Fracture • Earth Resources: Unit 2 Lab 3 Activity 6: Specific Gravity • Earth Resources: Unit 2 Lab 4 Activity 1: Idiochromatic and Allochromatic Minerals • Earth Resources: Unit 2 Lab 4 Activity 2: Chemical Analysis of Minerals • Earth Resources: Unit 2 Lab 4 Activity 3: Using the Flame Test to Identify Unknown Mineral Samples • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>5.1.2.</p>	<p>Identify a few of the most common elements in the Earth's crust, oceans, and atmosphere and confirm their location on the periodic table. (Example: Si, O, C, N, H, Al). Compare the relative abundance of elements found in the Earth's crust, oceans, and atmosphere. Trace carbon as it cycles through the crust, ocean, and atmosphere.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Virtual Laboratory: Mineral Identification
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>5.1.3.</p>	<p>Classify and describe features that are used to distinguish between igneous, sedimentary, and metamorphic rocks.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
<p>EXPECTATION / ESSENTIAL QUESTION</p>	<p>5.1.4.</p>	<p>Describe energy sources, processes, and transformations of Earth materials as they progress through the rock cycle to form new sedimentary, metamorphic, and igneous rocks. Discuss how the cycling of rock is continuous.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Teacher Resource CD: Rocks, Minerals, and Earth

		Processes
EXPECTATION / ESSENTIAL QUESTION	5.1.5.	Describe how igneous rocks are formed. Classify igneous rocks according to crystal size and mineral assemblage. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.1.6.	Identify sandstone, shale and limestone by their composition and texture. Explain how sandstone, shale, and limestone can be changed into the metamorphic rocks quartzite, slate, and marble. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Earth Resources: Unit 1 Lab 1 Activity 2: Creating a Sedimentary Rock • Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers • Earth Resources: Unit 1 Lab 1 Activity 4: Crystallization • Earth Resources: Unit 1 Lab 2 Activity 1: Igneous Rocks • Earth Resources: Unit 1 Lab 2 Activity 2: Sedimentary Rocks • Earth Resources: Unit 1 Lab 2 Activity 3: Metamorphic Rocks • Earth Resources: Unit 5 Lab 9 Activity 1: Geology Dig • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.1.7.	Investigate the densities, composition, and relative age of continental (felsic) and oceanic (mafic) rocks. Explain why the continental crust, although thicker in most places, overlies oceanic crust. Use this information to explain why oceanic crust sub ducts below continental crust in convergent plate boundaries and explain the configuration of land masses and ocean basins. <ul style="list-style-type: none"> • Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle • Teacher Resource CD: Rocks, Minerals, and Earth Processes • Virtual Laboratory: Mineral Identification
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.2.	Enduring Understanding: Earth's components form systems. These systems continually interact at different rates of time, affecting the Earth locally and globally.
EXPECTATION / ESSENTIAL QUESTION	5.2.3.	Describe how energy within the Earth's interior is released in the form of earthquake waves, and explain how these waves affect Earth's surface. <ul style="list-style-type: none"> • Teacher Resource CD: Rocks, Minerals, and Earth

		Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.4.	Describe how earthquake energy is represented on seismograms and describe how these waves can be used to determine the origin and intensity of earthquakes. <ul style="list-style-type: none"> Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.5.	Describe the effects on life and property from consequences of earthquake such as landslides, liquefaction, surface faulting and tsunamis. Cite ways these hazards can be minimized. <ul style="list-style-type: none"> Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.6.	Use models or computer simulations to demonstrate the processes and origin of landforms at diverging, converging and transform plate boundaries. Show on a map how plate tectonics, earthquakes, and volcanoes are spatially related. <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 1 Lab 1 Activity 3: Effects of Heat and Pressure on Rock Layers Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.8.	Research and describe evidence that supports the Theory of Plate Tectonics to include rock magnetism and the age of the sea floor. <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.2.9.	Explain how the Theory of Plate Tectonics demonstrates that scientific knowledge changes by evolving over time. Recognize that although some theories are initially rejected, they may be re-examined and eventually accepted in the face of new evidence. <ul style="list-style-type: none"> Earth Resources: Unit 1 Lab 1 Activity 1: The Rock Cycle Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea Teacher Resource CD: Rocks, Minerals, and Earth Processes
CONTENT / PROCESS STANDARD	DE.5.	Earth's Dynamic Systems
INDICATOR / ENDURING UNDERSTANDING	5.3.	Enduring Understanding: Technology enables us to better understand Earth's systems. It also allows us to analyze the impact of human activities on Earth's systems and the impact of Earth's systems on human activity.
EXPECTATION / ESSENTIAL	5.3.1.	Explain how data from Global Positioning Systems can be used to predict and determine the direction and rate of movement of Earth's plates and sea floor

QUESTION		<p>spreading.</p> <ul style="list-style-type: none"> • Earth Resources: Unit 4 Lab 8 Activity 1: Recreating Pangaea • Teacher Resource CD: Rocks, Minerals, and Earth Processes
EXPECTATION / ESSENTIAL QUESTION	5.3.2.	<p>Explain how technology such as GPS, tilt meters, etc., can be used to predict earthquake and volcanic activity.</p> <ul style="list-style-type: none"> • Teacher Resource CD: Rocks, Minerals, and Earth Processes

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