



<i>Timeline -&gt;</i>	<u>Quarters Three</u>
<p><b><i>Essential Questions</i></b></p>	<p><u><b>Science:</b></u>            What are the steps of the scientific method?            How can we use the physical attributes of rocks to sort them?            How can we identify the different types of rocks &amp; minerals?</p> <p><u><b>Language Arts:</b></u>            What can we learn about the earth's materials by reading?            How can we write to show the steps we have used in the scientific method?            How can adjectives help our written science descriptions?            How can we edit and improve our writing using a provided checklist?            How can we use non-fiction to create informational reports?</p> <p><u><b>Math:</b></u>            How can Venn diagrams help sort items that are the same or different?            How is a bar graph drawn to show totals with provided data?            What conclusions can we draw from the data portrayed by the graph?            How can we use standard and non-standard measurement to gather data about the physical features of rocks?            How can we use a binary classification system?</p> <p><u><b>Social Studies:</b></u>            How does scarcity and demand for products make minerals valuable?            How can we use information to solve a societal problem?            How do we balance the needs of humans with the effects on the environment?</p> <p><u><b>Art:</b></u>            How can we draw/illustrate and label sketches for a scientific journal?            How can we create 3-D models to showcase landforms and models of weathering and erosion?            How can we act like "agent erosion"? (role play)</p>



<p><b>General Learner Outcomes</b></p>	<p><b><u>GLO#1: Self-Directed Learner:</u></b> Students will use a variety of measuring devices to categorize rocks and develop graphs from their experimental data. They will also conduct experiments.</p> <p><b><u>GLO#2: Community Contributor:</u></b> Students will share their rocks with their classmates and others. They will also work in groups and teams to solve problems.</p> <p><b><u>GLO#3: Complex Thinker:</u></b> Students will use their problem solving, math and writing skills to investigate rocks.</p> <p><b><u>GLO#4: Quality Producer:</u></b> Students will create a model that illustrates the landforms or rocks they see. Students will create math products (graphs, data tables, charts) that enhance posters and diorama.</p> <p><b><u>GLO#5: Effective Communicator:</u></b> Students will listen, discuss and record information from their different lessons through oral, written and math pieces that illustrate concepts they have learned. Students will orally share with an audience their final products.</p>
<p><b>Assessments</b></p>	<p>Constructed response (math, language arts, science) that is based on the unit ideas and concepts.</p> <p>A summative product rubric will be used to assess the science products that each student produces.</p> <p>The rubric criteria will include assessment of the presentation of concepts learned, as well as the written and drawn presentation quality.</p> <p>Oral communication of final project.</p>



## *Standards and Benchmarks*

### **HCPS III Benchmarks:**

**Big Idea(s) / Major Understanding(s):** *Students will understand that...*

Matter can change from one state to another state.

Earth is made up of many types of materials that are different in their physical properties.

- ◇ 2.1.1 **Scientific Inquiry**  
*Develop predictions based on observations*
- ◇ 2.1.2 **Scientific Inquiry**  
*Conduct a simple investigation using a systematic process safely to test a prediction*
- ◇ 2.2.1 **Unifying Concepts and Themes**  
*Describe changes that have occurred in society as a result of new technologies*
- 2.6.1 **Nature of Matter**  
Identify ways to change the physical properties of objects
- 2.7.1 **Forces and Motion**  
Identify the properties of magnets
- 2.8.1 **Earth Materials**  
Identify different Earth materials and classify them by their physical properties
- 2.8.2 **Earth Materials**  
Identify the limited supply of natural resources and how they can be extended through conservation, reuse, and recycling



## *Sample Performance Rubrics*

<b>Topic</b>	Scientific Inquiry		
<b>Benchmark SC.2.1.1</b>	Develop predictions based on observations		
<b>Sample Performance Assessment (SPA)</b>	The student: Makes predictions based on observations about the world around him or her.		
<b>Rubric</b>			
<b>Advanced</b>	<b>Proficient</b>	<b>Partially Proficient</b>	<b>Novice</b>
Make logical predictions based on justified inferences from observations	Make predictions based on observations	With assistance, make predictions partially based on observations	Make inaccurate predictions or make predictions not based on observations

<b>Benchmark SC.2.1.2</b>	Conduct a simple investigation using a systematic process safely to test a prediction		
<b>Sample Performance Assessment (SPA)</b>	The student: Implements a simple procedure safely to answer a question or test a prediction that relies on careful observations (e.g., collects, records, and organizes data).		
<b>Advanced</b>	<b>Proficient</b>	<b>Partially Proficient</b>	<b>Novice</b>
Consistently conduct a simple investigation using a systematic process safely to provide a valid test of a prediction	Usually conduct a simple investigation using a systematic process safely to provide a test of a prediction	Sometimes conduct a simple investigation using a systematic process safely to provide a test of a prediction	Rarely conduct a simple investigation using a systematic process safely to provide a test of a prediction

<b>Topic</b>	Unifying Concepts and Themes		
<b>Benchmark SC.2.2.1</b>	Describe changes that have occurred in society as a result of new technologies		
<b>Sample Performance Assessment (SPA)</b>	The student: Describes the ways society has changed as a result of technology (e.g., the use of the wheel, motor, and electricity).		
<b>Advanced</b>	<b>Proficient</b>	<b>Partially Proficient</b>	<b>Novice</b>
Explain the changes that have occurred in society as a result of new technologies, and describe what is common among these changes	Describe a variety of changes that have occurred in society as a result of new technologies	Provide a few examples of changes that have occurred in society as a result of new technologies	Recognize changes that have occurred in society as a result of new technologies



Frameworks for Success in Science – MSP Grant SY 2010-11

WORKING DRAFT \_ COHORT I & II

Ka'ūmana, Hilo Union, Kalaniana'ole, and Ha'aheo Elementary Schools

Content Area: Interdisciplinary/Science

Grade Level: 2nd

<b>Topic</b>	Nature of Matter		
<b>Benchmark SC.2.6.1</b>	Identify ways to change the physical properties of objects		
<b>Sample Performance Assessment (SPA)</b>	The student: Provides examples of a variety of techniques to change the properties of objects (e.g., heating, cooling, mixing, tearing, bending).		
<b>Rubric</b>			
<b>Advanced</b>	<b>Proficient</b>	<b>Partially Proficient</b>	<b>Novice</b>
Explain how the physical properties of objects can be changed through a variety of techniques	Identify a variety of ways to change the physical properties of object	Identify a few ways to change the physical properties of objects	Recall that there are ways that the physical properties of objects can be changed
<b>Topic</b>	Earth Materials		
<b>Benchmark SC.2.8.1</b>	Identify different Earth materials and classify them by their physical properties		
<b>Sample Performance Assessment (SPA)</b>	The student: Gives examples of different Earth materials (e.g., rocks, minerals, soil, sand, water) and groups them by their physical properties (e.g., size, shape, texture, color).		
<b>Advanced</b>	<b>Proficient</b>	<b>Partially Proficient</b>	<b>Novice</b>
Classify different Earth materials by their physical properties and justify the classification	Identify different Earth materials and classify them by their physical properties	Identify, with assistance, some Earth materials and their physical properties	Recognize, with assistance, different Earth materials and their physical properties



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Lesson #	Lesson Title	Materials/ What students will do....
Harcourt Text	Chapter 5: Exploring Earth's Surface	Pre/post revised with questions focusing on only lesson 2 & 3 from the lesson quick study sheets
Harcourt Text	Lesson 1: What Changes Earth's Surface?	Read entire Lesson 1 as a preview of the whole lesson. Lesson Quick Study RS 35 & RS36 - OPTIONAL
Harcourt Text	What Changes Earth's Surface	Lesson 1 TEXT p. 158 Focus on the landforms – refer to text as a reference
AIMS Primarily Earth	Geosphere Reading pp.1-6  The Earth's Features pp.7-9  Mini Pop-up Books Earth's features	Geosphere reader (pp.1-2) -----put into science notebook <b>Part 1:</b> observations – physical features on the globe, use pictures of different landforms. BIG BOOK OF LANDFORMS: pp.10-18 and landforms reading cards: pp. 3-6 Could also use the LANDFORMS reading information - assign students different landforms as pairs/ teams, give them the “coloring sheet” . They could read, color according to what they know, the pictures they see and what they have read. Extension: have students write each section - cut out pictures to match each layer – glue On the last layer, students draw themselves... <b>Part 2:</b> play Features of the Earth Game – pp.19-22 (use file folder to make game cards) <b>Part 3:</b> OPTIONAL Mini pop-up books (lake, mountain, plain, river, valley, volcano pp. 35-67)
Landforms Booklet	MSP lesson plan	Use the AIMS Primarily Earth example with the landforms already done – some teacher suggestions include: start with the last page (light blue) and build the model forward. Do only a few pages at a time (1-2 day). Have students add a living item that lives in/on each landform
AIMS pp. 74-79	What's Inside?  MSP Lesson Plan – Inside the Earth	Earth's interior –OUR EARTH wkst What is Inside the Earth? wkst INSIDE THE EARTH notes Use Easter eggs for the analogy of the interior of the Earth – can just use the apple/earth page and have students color



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Harcourt Text	Lesson 2 TEXT pp. 160-163	What are Rocks & Soil ? Rocks & Sand – textbook reading of entire lesson and then students complete the Lesson Quick Study RS37-38
MSP Lesson Plan  AIMS pp.24-31	Everybody Needs a Rock  My Rock Mini-book	<b>Prior to lesson:</b> Homework – students bring a favorite rock from home (must be hand sized or smaller and not gathered from the schoolyard). <b>Part 1:</b> Use p. 26-28 to do observations of their rocks, measure with ruler and string and then teddy counters with balance LA connection: “My Rock’s Story” <a href="http://www.spoonfulsofstories.com">www.spoonfulsofstories.com</a> “Rocks in My Head” ART: paint a smooth rock (ladybug pattern) End with ROCK attributes: Show Me a Rock notes put in student notebook FOR FUTURE USE of adjectives.
1 hour	Everybody Needs a Rock (book)	The students will read: “Everybody Needs A Rock”. They will get their rock and write the rules to how to find their rock. They will write ten rules that apply to their rock. They will have a class book about their rocks. They will also paint a rock to take home and be able to use the vocabulary that describes rock attributes/characteristics: rough, smooth, shiny, dark, light, crystals and other descriptors.
AIMS pp.32-37	Rock Groups	<b>Part 1</b> – sorting class set of rocks – an idea would be to use the elmo to do the sorting together as a class to familiarize the students to filling in the data table. <b>Part 2:</b> using p.36 data table, have students hunt for the rocks in the sand, then record using check marks on the table which attributes each of the rocks have. 9 kits with 7 rocks (6 of the rocks are igneous rocks – 1 sedimentary=sandstone NOTE: need to place labels on the rocks – hint use several colors of nail polish. Students will need to color-code their data table to match the rocks they have found and then place an X in each appropriate attribute that each rock has. <b>Part 3:</b> students create their own classification schema – go through attributes notes from notebook to help students come up with descriptions. Use the rocks cartons on 1 day and let students choose 5 and



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		<p>then could use the minerals cartons on another day.</p> <p>p. 34 use the teddy bear counters again and talk about heavy versus light.</p> <p>Then use the index card sizer to determine small, medium and large (non-standard measuring devices).</p>
MSP Lesson Plan	Guess My Rock	<p>Extending activity using Procedures, part 2 on page 33-34: Students sort as a team, then move from team to team to guess the sorting from each team.</p>
AIMS pp.38-45	Rocks and More Rocks	<p>Rock TRAIN – p. 41 using a variety of physical attributes with the same rock kits, then do Balance Rocks p. 45 with rocks from the same kit</p>
Performance Assessment	Rock Rules Balance Rocks	<p>Use the Rock Rules and Balance Rocks assessment with rubric on the worksheet to complete the section. Both summative assessments</p>
Harcourt Text	Lesson 2 TEXT pp. 164-167	<p>What are Rocks &amp; Soil?</p> <p>Soil – Textbook reading</p> <p>Soil for Growing Things – Textbook reading</p> <p>Lesson Quick Study RS37-38</p>
AIMS pp. 56-62	Soil Study Optional	<p><b>Part 1:</b> A first look at soil – making soil booklets</p> <p><b>Part 2:</b> observing soil samples    <b>Part 3:</b> making soil</p>
Harcourt Text	Lesson 3 TEXT pp. 168-175	<p>What Can We Learn from Fossils?</p> <p>Fossils – Textbook reading and RS 39-40</p> <p>How Fossils Form</p> <p>What We Find Out From Fossils</p>
Post Test	Chapter 5	post-assessment

**Word Wall – science words**  
**(vocabulary cards – reading support & homework)**

Inquiry Standard: observation, infer, identify, classify, compare/contrast, collect, record, communicate

Earth Science: mineral, rock, boulder, mineral, soil, dinosaur, extinct, fossil

Technology: tool, equipment, balance scale, ruler, scientist (geologist)

Math: tally, data, graph, data table, VENN diagram, measure (length, width, mass), physical characteristics/attributes