

Hawai'i Content and Performance Standards

8th Grade Science Benchmarks Addressed

Strand/ Standard	Benchmark	Lessons Addressing Benchmark
<p>The Scientific Process: Standard 1: SCIENTIFIC INVESTIGATION: <i>Discover, invent, and investigate using the skills necessary to engage in the scientific process.</i></p>	<p>SC.8.1.1 <i>Determine the link(s) between evidence and the conclusion(s) of an investigation</i></p>	<p><i>Convection Current (Unit 2)</i> <i>Determining Lava Temperatures (Unit 7)</i> <i>Giant Volcanoes of Mars (Unit 10)</i> <i>Hess's Method (Unit 4)</i> <i>Introduction to the Scientific Method (Unit 1)</i> <i>Invisible Gas, Invisible Ink (Unit 7)</i> <i>Lava Flows (Unit 5)</i> <i>Liquid Layers (Unit 2)</i> <i>Locating the Epicenter (Unit 8)</i> <i>Measuring Magma Chamber Changes (Unit 7)</i> <i>Pangaea Puzzle (Unit 3)</i> <i>Pangaea Science Theories (Unit 3)</i> <i>Putting Earth in its Place (Unit 2)</i> <i>Rate of Plate Movement (Unit 6)</i> <i>Recipe for Volcanoes (Unit 10)</i> <i>Tephra Catapults (Unit 5)</i> <i>Volcano Models (Unit 9)</i> <i>Volcanoes of Io (Unit 10)</i></p>
	<p>SC.8.1.2 <i>Communicate the significant components of the experimental design and results of a scientific investigation</i></p>	<p><i>Convection Current (Unit 2)</i> <i>Determining Lava Temperatures (Unit 7)</i> <i>Giant Volcanoes of Mars (Unit 10)</i> <i>Hess's Method (Unit 4)</i> <i>Introduction to the Scientific Method (Unit 1)</i> <i>Invisible Gas, Invisible Ink (Unit 7)</i> <i>Lava Flows (Unit 5)</i> <i>Liquid Layers (Unit 2)</i> <i>Locating the Epicenter (Unit 8)</i> <i>Measuring Magma Chamber Changes (Unit 7)</i> <i>Pangaea Puzzle (Unit 3)</i> <i>Putting Earth in its Place (Unit 2)</i> <i>Rate of Plate Movement (Unit 6)</i> <i>Recipe for Volcanoes (Unit 10)</i> <i>Tephra Catapults (Unit 5)</i> <i>Volcano Models (Unit 9)</i> <i>Volcanoes of Io (Unit 10)</i></p>

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The Scientific Process: Standard 2: NATURE OF SCIENCE: <i>Understand that science, technology, and society are interrelated</i>	SC.8.2.1 <i>Describe significant relationships among society, science, and technology and how one impacts the other</i>	Carbon Dioxide (Unit 8) Critical Thinking: Building Near Volcanoes (Unit 9) Determining Lava Temperatures (Unit 7) Earth's Crust Scavenger Hunt (Unit 4) GPS Mapping (Unit 7) Hess's Method (Unit 4) Invisible Gas, Invisible Ink (Unit 7) Locating the Epicenter (Unit 8) Measuring Magma Chamber Changes (Unit 7) Monitoring Volcanoes Scavenger Hunt (Unit 7) Monitoring Volcanoes Vocabulary (Unit 7) P-Waves and S-Waves (Unit 7) Pace and Compass (Unit 7) Tracking Ash Plumes (Unit 8) Using Satellite Images (Unit 7) Volcanic Hazards and Risks (Unit 8) Volcano Hazards Scavenger Hunt (Unit 8) Volcano Hazards Vocabulary (Unit 8) Water Tube Tiltmeters (Unit 7) Waves of Light (Unit 7) Waves We Measure: Electromagnetic or Mechanical? (Unit 7)
	SC.8.2.2 <i>Describe how scale and mathematical models can be used to support and explain scientific data</i>	GPS Mapping (Unit 7) Pace and Compass (Unit 7) Putting Earth in its Place (Unit 2) Scale Drawing of Earth (Cross Curricular*) Size of Earth (Cross Curricular*) Tracking Ash Plumes (Unit 8) Using Satellite Images (Unit 7) Volcanoes on Other Planets (Unit 10)
Life and Environmental Sciences: Standard 5: DIVERSITY, GENETICS, AND EVOLUTION: <i>Understand genetics and biological evolution and their impact on the unity and diversity of organisms</i>	SC.8.5.1 <i>Describe how changes in the physical environment affect the survival of organisms</i>	Bird Beak Game (Cross Curricular*) Cricket Lab (Cross Curricular*) Environmental Story (Cross Curricular*) Environmental Vocabulary Book (Cross Curricular*) Future Creature Book (Cross Curricular*) Hydrothermal Vents (Cross Curricular*) Native Plants and Animals (Cross Curricular*) Owl Pellet Book (Cross Curricular*)

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<p>Physical, Earth, and Space Sciences: Standard 6: NATURE OF MATTER AND ENERGY:</p> <p><i>Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe</i></p>	<p>SC.8.6.1 <i>Explain the relationship between the color of light and wavelength within the electromagnetic spectrum</i></p>	<p><i>Invisible Gas, Invisible Ink (Unit 7)</i> <i>Waves of Light (Unit 7)</i></p>
	<p>SC.8.6.2 <i>Explain how seismic waves provide scientists with information about the structure of Earth's interior</i></p>	<p><i>Locating the Epicenter (Unit 8)</i> <i>P-Waves and S-Waves (Unit 7)</i></p>
	<p>SC.8.6.3 <i>Identify the characteristics and properties of mechanical and electromagnetic waves</i></p>	<p><i>Invisible Gas, Invisible Ink (Unit 7)</i> <i>Waves of Light (Unit 7)</i> <i>Waves We Measure: Electromagnetic or Mechanical? (Unit 7)</i></p>
<p>Physical, Earth, and Space Sciences: Standard 7: FORCE AND MOTION:</p> <p><i>Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic</i></p>	<p>SC.8.7.1 <i>Explain that every object has mass and therefore exerts a gravitational force on other objects</i></p>	<p><i>Giant Volcanoes of Mars (Unit 10)</i> <i>Tides and Earth Volcanoes (Unit 10)</i> <i>Volcanoes of Io (Unit 10)</i></p>

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Physical, Earth, and Space Sciences: Standard 8: EARTH AND SPACE SCIENCE: <i>Understand the Earth and its processes, the solar system, and the universe and its contents</i>	SC.8.8.1 <i>Compare the characteristics of the three main types of rocks</i>	<i>Identifying Rocks (Unit 7)</i> <i>Rocks and the Rock Cycle Pocket Guide (Unit 7)</i>
	SC.8.8.2 <i>Illustrate the rock cycle and explain how igneous, metamorphic, and sedimentary rocks are formed</i>	<i>Identifying Rocks (Unit 7)</i> <i>Rocks and the Rock Cycle Pocket Guide (Unit 7)</i>
	SC.8.8.3 <i>Describe how the Earth's motions and tilt on its axis affect the seasons and weather patterns</i>	<i>Hazards of the Tilt-a-World (Unit 9)</i>
	SC.8.8.4 <i>Explain how the sun is the major source of energy influencing climate and weather on Earth</i>	<i>Exploring Volcanic Hazards: Gas and Vog (Unit 9)</i> <i>Hazards of the Tilt-a-World (Unit 9)</i>
	SC.8.8.5 <i>Explain the concepts of continental drift and plate tectonics</i>	<i>Active Earth Scavenger Hunt (Unit 3)</i> <i>Active Earth Vocabulary (Unit 3)</i> <i>Convection Current (Unit 2)</i> <i>Decoding Plate Names (Unit 3)</i> <i>Drawing Magma (Unit 5)</i> <i>Earth's Crust Scavenger Hunt (Unit 4)</i> <i>Earth's Crust Vocabulary (Unit 4)</i> <i>Hawaii Volcanoes Scavenger Hunt (Unit 6)</i> <i>Hawaii Volcanoes Vocabulary (Unit 6)</i> <i>Hess's Method (Unit 4)</i> <i>Mollie Magma (Unit 4)</i> <i>Pacific Plate Movement (Unit 6)</i> <i>Pangaea Puzzle (Unit 3)</i> <i>Pangaea Science Theories (Unit 3)</i> <i>Plate Tectonics (Unit 3)</i> <i>Rate of Plate Movement (Unit 6)</i> <i>Table Tectonics (Unit 4)</i> <i>Toothpaste Chain Volcanoes (Unit 6)</i> <i>Volcanoes Scavenger Hunt (Unit 5)</i> <i>Volcano: the Storyboard (Unit 6)</i> <i>Volcanoes Vocabulary (Unit 5)</i>
	SC.8.8.6 <i>Explain the relationship between density and convection currents in the ocean and atmosphere</i>	<i>Convection Current (Unit 2)</i> <i>Determining Density (Unit 2)</i> <i>Exploring Volcanic Hazards: Gas and Vog (Unit 9)</i> <i>Liquid Layers (Unit 2)</i>
	SC.8.8.7 <i>Describe the physical characteristics of oceans</i>	<i>Hess's Method (Unit 4)</i> <i>Table Tectonics (Unit 4)</i> <i>Tides and Earth Volcanoes (Unit 10)</i>

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Physical, Earth, and Space Sciences: Standard 8: EARTH AND SPACE SCIENCE: <i>Understand the Earth and its processes, the solar system, and the universe and its contents</i>	SC.8.8.8 <i>Describe the composition of objects in the galaxy</i>	<i>Clay Model Earth (Unit 2)</i> <i>Convection Current (Unit 2)</i> <i>Determining Density (Unit 2)</i> <i>Earth's Elements and Temperatures (Unit 2)</i> <i>Liquid Layers (Unit 2)</i> <i>Planet Earth Scavenger Hunt (Unit 2)</i> <i>Planet Earth Vocabulary (Unit 2)</i> <i>Recipe for Volcanoes (Unit 10)</i> <i>Tour of the Universe (Unit 10)</i>
	SC.8.8.9 <i>Explain the predictable motions of the Earth and moon</i>	<i>Hazards of the Tilt-a-World (Unit 9)</i> <i>Tides and Earth Volcanoes (Unit 10)</i>
	SC.8.8.10 <i>Compare the characteristics and movement patterns of the planets in our solar system</i>	<i>Tour of the Universe (Unit 10)</i> <i>Volcanoes Beyond Earth Scavenger Hunt (Unit 10)</i> <i>Volcanoes on Other Planets (Unit 10)</i>
	SC.8.8.11 <i>Describe the major components of the universe</i>	<i>Tour of the Universe (Unit 10)</i>
	SC.8.8.12 <i>Describe the role of gravitational force in the motions of planetary systems</i>	<i>Tides and Earth Volcanoes (Unit 10)</i> <i>Volcanoes of Io (Unit 10)</i>

* Cross-curricular lessons are available on the Ola Ka Honua: Volcanoes Alive website at: http://www.gi.alaska.edu/volcanoes_alive/