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Universe, Earth, Environment (Earth Science)

Enduring Knowledge	Science Concepts	GE	Evidence of Understanding
<p><u>Earth Materials and the Rock Cycle:</u> The universe, earth and all earth systems have undergone change in the past, continue to change in the present and are predicted to continue changing in the future.</p>	<p>a. Soil is made partly from rock, partly from plant remains and also contains many living organisms. b. Earth materials are solid rocks, soils, water and the gases of the atmosphere. c. Rock is composed of different combinations of minerals. Large rocks can be broken down into small rocks. d. Rocks have properties of color, texture and hardness. Rocks can be classified by their physical properties.</p>	46	<p>Observing and identifying components of soils and rocks Recognizing and identifying the four basic materials of the earth (i.e., rocks, soil, water and gases) Observing and describing the properties of rocks</p>
<p><u>Forces and Changes on the Earth's Surface:</u> The universe, earth and all earth systems have undergone change in the past, continue to change in the present and are predicted to continue changing in the future.</p>	<p>a. Waves, wind, water and ice shape and reshape the earth's land surface by eroding rock and soil in some areas and depositing them in other areas.</p>	47	<p>Building models that simulate deposits of sediments (e.g., a stream table) Investigating local land forms and comparing them with models created in the classroom</p>

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Focusing Questions	Potential Inquiries/Activities	Resources/Notes
<p>What is soil? How is soil made?</p> <ul style="list-style-type: none"> - Soil contains rock, plant remains and living organisms. - Soil is made of living and non-living things. - Soil is composed of mineral matter (i.e., rock particles: gravel, sand) and organic matter (e.g., decomposed leaves, trees, animals, insects, etc.) <p>What is the earth made of?</p> <ul style="list-style-type: none"> - Earth materials are solid rocks, soils, water and gases. <p>What are rocks composed of?</p> <ul style="list-style-type: none"> - Rocks are a combination of minerals, not just one substance. - Rocks can be broken down. - Sand is small particles of rock. <p>How do rocks form?</p> <ul style="list-style-type: none"> - Rocks have a cycle. <p>What are the properties of rocks?</p> <ul style="list-style-type: none"> - Rocks have properties - color, texture and hardness. <p>How can physical properties be used to classify rocks?</p> <ul style="list-style-type: none"> - Rocks can be classified by these 3 properties - color, texture, and hardness). 	<p>Given a soil sample: Where might this soil come from?</p> <p>Classify rocks according to their properties. Find and compare local soil samples to determine the contents.</p> <p>Activity: Geology field trips: highway cuts, Granville Slate Quarry</p> <p>What tests could you do to find the properties of this rock?</p>	<ul style="list-style-type: none"> - Moh's scale - Granville Slate Museum - VINS - field trip based on GEs. Contact VINS
<p>How do waves, wind, water and ice change the earth's surface?</p> <ul style="list-style-type: none"> - The earth is shaped and reshaped by different materials. - Wind and water (precipitation, waves, any movement of water) wear down or erode rock. - Water accumulated in rock cracks, freezes (causing expansion) and increases breakdown of the rock. <p>What is deposition? How does deposition change the shape of the earth's land surface?</p> <ul style="list-style-type: none"> - Eroding rocks and soils are moved by wind and water and deposited in other areas. 	<p>Design a model to illustrate erosion and deposition.</p> <p>How does your model compare to _____ (a local land form)?</p> <p>Test water erosion on a slope where there are plants and again where there are not plants.</p>	<ul style="list-style-type: none"> - Stream table - VINS - 4-Winds unit

Natural Resources: The universe, earth and all earth systems have undergone change in the past, continue to change in the present and predicted to continue changing in the future.

a. The varied earth materials have different physical and chemical properties, which make them useful in different ways, for example, as building materials, as sources of fuel, for growing the plants we use as food, or supporting animal life. Earth materials provide many of the resources that humans use.

b. Earth materials have chemical and physical properties that make them useful as building materials, or for growing plants or for fuel.

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Observing and describing properties of living and nonliving resources
Explaining how the properties of living and non-living resources make them suitable for use by humans

<p>Why do (humans) need to be concerned about the amount of living and nonliving resources in their environment?</p> <p>How can we use and conserve materials from the earth?</p> <ul style="list-style-type: none"> - Properties of the earth's materials cause them to be useful to humans. - Living resources are essential to humans. They are valuable resources for building materials, food and fuel. - Earth's resources are limited and need to be conserved. 	<p>Compare objects from the environment and sort them based on: living, non-living, dead.</p> <p>Apply your understanding of natural resources to your local environment.</p> <p>How has marble impacted Vermont and our region?</p>	<ul style="list-style-type: none"> - Books: <u>Common Ground</u> by Molly Bang - VINS: Wildlife management program
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