

i3 STC Kit Extension Activities

North Carolina

Grade: 6th	
Kit Name: Exploring Plate tectonics	
Essential Standard(s): 6.E.2 Understand the structure of the earth and how interactions of constructive and destructive forces have resulted in changes in the surface of the Earth over time and the effects of the lithosphere on humans. 6.E.2.1 Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density. 6.E.2.3 Explain how the formation of soil is related to the parent rock type and the environment in which it develops. 6.E.2.4 Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship.	
Big Ideas: 6.E.2.1 The earth is composed – primarily- of rock. Three-fourths of the earth’s surface is covered by a relatively thin layer of water (some of it frozen), and the entire planet is surrounded by a relatively thin layer of gas we call the atmosphere. The Earth has a solid inner core that is surrounded by a liquid outer core. The inner core is a solid section of the Earth and is unattached to the mantle, being suspended by the molten outer core. The inner core is predominantly iron metal with significant amounts of the element nickel. This inner layer in mutual combination with the rotational motion of the Earth creates a dynamo effect where a force field is generated. This field is also known as Earth’s magnetic field. In terms of the physical aspects of the outer core, the layer is dense but not as dense as pure molten iron. Surrounding the entire dense, metallic core is a thick, hot, convective layer called the mantle. The crust consists of many continental and oceanic plates that have slowly moved and changed positions on the globe throughout geologic time..	
6.E.2.3 Although weathered rock is the basic component of soil, the composition and texture of soil and its fertility and resistance to erosion are greatly influenced by plant roots and debris, bacteria, fungi, worms, insects, rodents, and other organisms. The upper-most layer of the continental crust is covered by soil. The ingredients in soils can vary from place to place and around the Earth. Different soils have many properties such as texture, particle size, pH, fertility and ability to hold moisture. Depending upon the combination of properties, soils have great variability in their ability to support structures and plant growth. Forces deep inside Earth and at the surface produce a slow cycle that builds, destroys, and changes the rocks in the crust. Plate movements start the rock cycle by helping to form magma, the source of igneous rocks. Plate movements also cause faulting, folding and other motions of the crust that help to form sedimentary and metamorphic rock. Minerals form as hot magma cools inside the crust, or as lava hardens on the surface. When these liquids cool to a solid state, they form crystals. When elements and compounds that are dissolved in water leave a solution, crystallization of minerals occurs. Soil is a mixture of: rock particles, minerals, decayed organic matter, water and air. Soil forms as rock is broken down by weathering and mixes with other materials on the surface.	
6.E.2.4 The environment may contain dangerous levels of substances that are harmful to human beings. Therefore, the good health of individuals requires monitoring the soil, air, and water and taking steps to make these factors safe for all organisms. Evaluate ways in which human activities have affected Earth’s pedosphere and the measures taken to control the impact: vegetative cover, agriculture such as (contour plowing, conservation plowing), land use, nutrient balance (crop rotation), soil as a vector. Technology, such as remote sensing, has allowed humans to better study the human impact on soil quality and erosional processes so that the soil can be protected and preserved. Over time, remote sensing information can tell us how humans are constantly changing the surface of the Earth and what impact these changes are likely to produce. Technologies can also assist in finding ways to help prevent erosion. It is important that humans be stewards of the pedosphere	
Kit Activity	Extension Suggestions

Lesson 5: 6.E.2.1	<p>Earth's Interior P70</p> <p>Using Waves to explore the Earth's Interior P72</p> <p>Earth's Layer Foldable</p> <p>Writing Prompt: You are the pilot of a special vehicle that is made to travel to the earth's interior. Summarize the structure of the earth including the layers, the mantle and core. Be sure to address relative position and density.</p> <p>3-D model lesson: http://web.ics.purdue.edu/~braile/edumod/threedearth/threedearth.htm Pie slice Model lesson: http://web.ics.purdue.edu/~braile/edumod/earthint/earthint.htm</p> <p>www.thelayersoftheearth.com</p>
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Additional activity

<p>6. E.2.3 Explain how the formation of soil is related to the parent rock type and the environment in which it develops.</p> <p>6.E.2.4 Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewards</p>	<p>Contact your county's Soil and Water Conservation agent. This person will come to your classroom and has a presentation that can be adapted to different schedules</p> <p>They will have materials and activities to make sure that standards are addressed</p> <p>Part of each district's strategic plan includes community involvement</p>