

Earth Science Institute II June 24, 2010
Day 4 Correlation of EarthComm Curriculum and HSCE's

EarthComm Curriculum Unit Code	
<p>EDG1 = Earth's Dynamic Geospheres: Chapter 1, Volcanoes</p> <p>EDG2 = Earth's Dynamic Geospheres: Chapter 2, Plate Tectonics</p> <p>EDG2 = Earth's Dynamic Geospheres: Chapter 3, Earthquakes</p> <p>EFS1 = Earth's Fluid Spheres: Chapter 1, Oceans</p> <p>ENR1 = Earth's Natural Resources: Chapter 1, Energy Resources</p>	<p>ENR3 = Earth's Natural Resources: Chapter 3, Water Resources</p> <p>ESE1 = Earth System Evolution: Chapter 1, Astronomy</p> <p>ESE2 = Earth System Evolution: Chapter 2, Climate Change</p> <p>ESE3 = Earth System Evolution: Chapter 3, Changing Life</p>

Location: Seismic Lab	
EarthComm Connections	EDG2 = Earth's Dynamic Geospheres: Chapter 3, Earthquakes, Activity 2, p. G131, Activity 3, p. G138, Activity 4, p. g147.
Learning Outcomes:	HSCE
<ul style="list-style-type: none"> ○ Explain how scientists infer that the Earth has interior layers with discernable properties using patterns of primary (<i>P</i>) and secondary (<i>S</i>) seismic wave arrivals. ○ Explain how plate tectonics accounts for the features and processes (sea floor spreading, mid-ocean ridges, subduction zones, earthquakes and volcanoes, mountain ranges) that occur on or near the Earth's surface. ○ Explain why tectonic plates move using the concept of heat flowing through mantle convection, coupled with the cooling and sinking of aging ocean plates that result from their increased density. ○ Describe the motion history of geologic features (e.g., plates, Hawaii) using equations relating rate, time, and distance. ○ Distinguish plate boundaries by the pattern of depth and magnitude of earthquakes. ○ Use the distribution of earthquakes and volcanoes to locate and determine the types of plate boundaries. ○ Describe how the sizes of earthquakes and volcanoes are measured or characterized. ○ Describe the effects of earthquakes and volcanic eruptions on humans. 	<p>E3.2B</p> <p>E3.3A</p> <p>E3.3B</p> <p>E3.3C</p> <p>E3.3D</p> <p>E3.4A</p> <p>E3.4B</p> <p>E3.4C</p>

Location: Peepsock Fault	
EarthComm Connections	EDG2 = Earth's Dynamic Geospheres: Chapter 2, Plate Tectonics, , Activity 2, p. G 74, Activity 3, p. G 85, Activity 4, p. G 95

Learning Outcomes:	HSCE
○ Describe natural processes in which heat transfer in the Earth occurs by conduction, convection, and radiation.	E2.2C
○ Describe the interior of the Earth (in terms of crust, mantle, and inner and outer cores) and where the magnetic field of the Earth is generated.	E3.2A
○ Explain how scientists infer that the Earth has interior layers with discernable properties using patterns of primary (<i>P</i>) and secondary (<i>S</i>) seismic wave arrivals.	E3.2B
○ Describe the differences between oceanic and continental crust (including density, age, and composition).	E3.2C
○ Explain how plate tectonics accounts for the features and processes (sea floor spreading, mid-ocean ridges, subduction zones, earthquakes and volcanoes, mountain ranges) that occur on or near the Earth's surface.	E3.3A
○ Explain why tectonic plates move using the concept of heat flowing through mantle convection, coupled with the cooling and sinking of aging ocean plates that result from their increased density.	E3.3B
○ Describe the motion history of geologic features (e.g., plates, Hawaii) using equations relating rate, time, and distance.	E3.3C
○ Distinguish plate boundaries by the pattern of depth and magnitude of earthquakes.	E3.3D

Location: Hungarian Falls	
EarthComm Connections	EDG2 = Earth's Dynamic Geospheres: Chapter 2, Plate Tectonics, , Activity 2, p. G 74, Activity 3, p. G 85, Activity 4, p. G 95
Learning Outcomes:	HSCE
○ Describe natural processes in which heat transfer in the Earth occurs by conduction, convection, and radiation.	E2.2C
○ Describe the interior of the Earth (in terms of crust, mantle, and inner and outer cores) and where the magnetic field of the Earth is generated.	E3.2A
○ Explain how scientists infer that the Earth has interior layers with discernable properties using patterns of primary (<i>P</i>) and secondary (<i>S</i>) seismic wave arrivals.	E3.2B
○ Describe the differences between oceanic and continental crust (including density, age, and composition).	E3.2C
○ Explain how plate tectonics accounts for the features and processes (sea floor spreading, mid-ocean ridges, subduction zones, earthquakes and volcanoes, mountain ranges) that occur on or near the Earth's surface.	E3.3A
○ Explain why tectonic plates move using the concept of heat flowing through mantle convection, coupled with the cooling and sinking of aging ocean plates that result from their increased density.	E3.3B
○ Describe the motion history of geologic features (e.g., plates,	

Hawaii) using equations relating rate, time, and distance.	E3.3C
○ Distinguish plate boundaries by the pattern of depth and magnitude of earthquakes.	E3.3D

Location: Kinzel House	
EarthComm Connections	<p>ESE2 = Earth System Evolution: Chapter 2, Climate Change, Activity 1, p. E64, Activity 4, p. E117</p> <p>ESE3 = Earth System Evolution: Chapter 3, Changing Life, Activity 2, p. E156, Activity 5. p.E182</p> <p>ENR1 = Earth's Natural Resources: Chapter 1, Energy Resources, Activity 1. p.R4, Activity 8, p. R72</p>
Learning Outcomes:	HSCE
○ Explain the natural mechanism of the greenhouse effect, including comparisons of the major greenhouse gases (water vapor, carbon dioxide, methane, nitrous oxide, and ozone).	E5.4A
○ Describe natural mechanisms that could result in significant changes in climate (e.g., major volcanic eruptions, changes in sunlight received by the earth, and meteorite impacts).	E5.4B
○ Analyze the empirical relationship between the emissions of carbon dioxide, atmospheric carbon dioxide levels, and the average global temperature over the past 150 years.	E5.4C
○ Based on evidence of observable changes in recent history and climate change models, explain the consequences of warmer oceans (including the results of increased evaporation, shoreline and estuarine impacts, oceanic algae growth, and coral bleaching) and changing climatic zones (including the adaptive capacity of the biosphere).	E5.4D
○ Describe the Earth's principal sources of internal and external energy (e.g., radioactive decay, gravity, solar energy).	E2.2A
○ Identify differences in the origin and use of renewable (e.g., solar, wind, water, biomass) and nonrenewable (e.g., fossil fuels, nuclear [U-235]) sources of energy.	E2.2B
○ Describe natural processes in which heat transfer in the Earth occurs by conduction, convection, and radiation.	E2.2C
○ Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits.	E2.4A
○ Explain how the impact of human activities on the environment (e.g., deforestation, air pollution, coral reef destruction) can be understood through the analysis of interactions between the four Earth systems.	E2.4B

Location: Mt. Horace Greeley	
EarthComm Connections	ENR1 = Earth's Natural Resources: Chapter 1, Energy Resources, Activity 8, p. R72

Learning Outcomes:	HSCE
<ul style="list-style-type: none"> ○ Describe the Earth’s principal sources of internal and external energy (e.g., radioactive decay, gravity, solar energy). 	E2.2A
<ul style="list-style-type: none"> ○ Identify differences in the origin and use of renewable (e.g., solar, wind, water, biomass) and nonrenewable (e.g., fossil fuels, nuclear [U-235]) sources of energy. 	E2.2B
<ul style="list-style-type: none"> ○ Describe natural processes in which heat transfer in the Earth occurs by conduction, convection, and radiation. 	E2.2C
<ul style="list-style-type: none"> ○ Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits. 	E2.4A
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EarthComm Connections	<p>ESE2 = Earth System Evolution: Chapter 2, Climate Change, Activity 1, p. E64, Activity 4, p. E117</p> <p>ESE3 = Earth System Evolution: Chapter 3, Changing Life, Activity 2, p. E156, Activity 5. p.E182</p> <p>ENR1 = Earth’s Natural Resources: Chapter 1, Energy Resources, Activity 1. p.R4, Activity 8, p. R72</p>

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