

Earth Science Institute II June 25, 2010
Day 5 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: Hadean and Archean Rocks in L'Anse and Baraga	
EarthComm Connections	<p>ESE2 = Earth System Evolution: Chapter 2, Climate Change, Activity 2, p. E96, Activity 3, p. E105, Activity 4, p. E117</p> <p>ESE3 = Earth System Evolution: Chapter 3, Changing Life, Activity 1, p. E148, Activity 3, p. E165, Activity 4, p. E173, Activity 5, p. E182</p> <p>ESE1 = Earth System Evolution: Chapter 1, Astronomy, Activity 3. E31</p>

Learning Outcomes:	HSCE
<ul style="list-style-type: none"> ○ Explain why the Earth is essentially a closed system in terms of matter. ○ Analyze the interactions between the major systems (geosphere, atmosphere, hydrosphere, and biosphere) that make up the Earth. ○ Explain, using specific examples, how a change in one system affects other Earth systems. ○ 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). ○ Analyze the empirical relationship between the emissions of carbon dioxide, atmospheric carbon dioxide levels, and the average global temperature over the past 150 years. ○ 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). ○ Explain how the solar system formed from a nebula of dust and gas in a spiral arm of the Milky Way Galaxy about 4.6 Ga (billion years ago). 	<p>E2.1A</p> <p>E2.1B</p> <p>E2.1C</p> <p>E5.4B</p> <p>E5.4C</p> <p>E5.4D</p> <p>E5.3A</p>

<ul style="list-style-type: none"> ○ Explain 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
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Location: Banded Iron Formation

EarthComm Connections	<p>ESE3 = Earth System Evolution: Chapter 2, Changing Life, Activity 1, p. E148, Activity 2, p.E156, Activity 4, p.E173, Activity 5, p.E182</p> <p>ESE2 = Earth System Evolution: Chapter 2, Climate Change, Activity 5, p.E125, Activity 6, p.E136</p>
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Learning Outcomes:	HSCE
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<ul style="list-style-type: none"> ○ Explain why the Earth is essentially a closed system in terms of matter. 	E2.1A
<ul style="list-style-type: none"> ○ Analyze the interactions between the major systems (geosphere, atmosphere, hydrosphere, and biosphere) that make up the Earth. 	E2.1B
<ul style="list-style-type: none"> ○ Explain, using specific examples, how a change in one system affects other Earth systems. 	E2.1C
<ul style="list-style-type: none"> ○ Explain how interactions between the oceans and the atmosphere influence global and regional climate. Include the major concepts of heat transfer by ocean currents, thermohaline circulation, boundary currents, evaporation, precipitation, climatic zones, and the ocean as a major CO₂ reservoir. 	E4.2B
<ul style="list-style-type: none"> ○ 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
<ul style="list-style-type: none"> ○ 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
<ul style="list-style-type: none"> ○ 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
<ul style="list-style-type: none"> ○ 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

Location: Sudbury Impact

EarthComm Connections	ESE1 = Earth System Evolution: Chapter 1, Astronomy, Activity 4. E37
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Learning Outcomes:	HSCE
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<ul style="list-style-type: none"> ○ Explain how the solar system formed from a nebula of dust and gas in a spiral arm of the Milky Way Galaxy about 4.6 Ga (billion years ago). 	E5.3A
<ul style="list-style-type: none"> ○ Explain natural mechanisms that could result in significant changes 	E5.4B

in climate (e.g., major volcanic eruptions, changes in sunlight received by the Earth, and meteorite impacts.)	
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