

## **EarthComm, Second Edition**

### **Project-Based Space and Earth System Science**

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## **Correlation to**

### **The Next Generation Science Standards (NGSS)**

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Correlation of EC Sections to NGSS Standards

**Chapter 1 Astronomy**

<b>EarthComm Section</b>	<b>Section 1 The Size and Scale of the Universe</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-4.</b> Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

<b>EarthComm Section</b>	<b>Section 2 Locating Astronomical Objects in the Night Sky</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-4.</b> Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

<b>EarthComm Section</b>	<b>Section 3 Origin of the Universe and the Solar System</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-2.</b> Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe. <b>HS-ESS1-6.</b> Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.

<b>EarthComm Section</b>	<b>Section 4 Orbits and Effects</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-4.</b> Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

<b>EarthComm Section</b>	<b>Section 5 The Sun-Earth-Moon System</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-4.</b> Use mathematical or computational representations to predict the motion of orbiting objects in the solar system. <b>HS-ESS1-6.</b> Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.

<b>EarthComm Section</b>	<b>Section 6 Impact Events and the Earth System</b>
<b>Correlating</b>	<b>HS-ESS1-6.</b> Apply scientific reasoning and evidence from ancient Earth materials,

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<b>Performance Expectation</b>	meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
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<b>EarthComm Section</b>	<b>Section 7 The Electromagnetic Spectrum</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-1.</b> Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy in the form of radiation.

<b>EarthComm Section</b>	<b>Section 8 The Sun and its Effects</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-1.</b> Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy in the form of radiation.

<b>EarthComm Section</b>	<b>Section 9 The Lives of Stars</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-1.</b> Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy in the form of radiation. <b>HS-ESS1-3.</b> Communicate scientific ideas about the way stars, over their life cycle, produce elements.

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**Chapter 2 Plate Tectonics**

<b>EarthComm Section</b>	<b>Section 1 Where are the Volcanoes and Earthquakes?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-3.</b> Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.</p>

<b>EarthComm Section</b>	<b>Section 2 Earth’s Moving Lithospheric Plates</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-3.</b> Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.</p>

<b>EarthComm Section</b>	<b>Section 3 What Drives the Plates?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-3.</b> Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.</p>

<b>EarthComm Section</b>	<b>Section 4 Plate Motions and Plate Interactions</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</p> <p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p>

<b>EarthComm Section</b>	<b>Section 5 Plate Boundary Environments</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</p> <p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p>

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<b>EarthComm Section</b>	<b>Section 6 The Changing Geography of Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. <b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.

<b>EarthComm Section</b>	<b>Section 7 Volcanic Landforms</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.

<b>EarthComm Section</b>	<b>Section 8 Volcanic Hazards: Flows</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

<b>EarthComm Section</b>	<b>Section 9 Volcanoes and the Atmosphere</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. <b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate. <b>HS-ESS2-6.</b> Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

<b>EarthComm Section</b>	<b>Section 10 Earthquakes</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-3.</b> Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.

<b>EarthComm Section</b>	<b>Section 11 Detecting Earthquake Waves</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-3.</b> Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.

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<b>EarthComm Section</b>	<b>Section 12 Earthquake Magnitude</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

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**Chapter 3 Minerals, Rocks, and Structures**

<b>EarthComm Section</b>	<b>Section 1 What Are Minerals?</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

<b>EarthComm Section</b>	<b>Section 2 Igneous Rocks and the Geologic History of Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. <b>HS-ESS2-3.</b> Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection. <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

<b>EarthComm Section</b>	<b>Section 3 Sedimentary Rocks and the Geologic History of Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

<b>EarthComm Section</b>	<b>Section 4 Metamorphic Rocks and the Geologic History of Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

<b>EarthComm Section</b>	<b>Section 5 Rock Units and Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

<b>EarthComm Section</b>	<b>Section 6 Structural Geology and Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

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<b>EarthComm Section</b>	<b>Section 7 Reading the Geologic History of Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

<b>EarthComm Section</b>	<b>Section 8 Geology of the United States</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

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Chapter 4 Surface Processes

EarthComm Section	Section 1 The Water Cycle
Correlating Performance Expectation	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>

EarthComm Section	Section 2 Rivers and Drainage Basins
Correlating Performance Expectation	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>

EarthComm Section	Section 3 Slopes and Landscapes
Correlating Performance Expectation	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p> <p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p>

EarthComm Section	Section 4 High-Gradient Streams
Correlating Performance Expectation	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p> <p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects</p>

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	<p>on Earth materials and surface processes.  <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p>
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<b>EarthComm Section</b>	<b>Section 5 Low-Gradient Streams</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.  <b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>

<b>EarthComm Section</b>	<b>Section 6 Sediments in Streams</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.  <b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>

<b>EarthComm Section</b>	<b>Section 7 Soil and Land Use</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.  <b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.  <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p>

<b>EarthComm Section</b>	<b>Section 8 Glaciers and the Landscape</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.  <b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s</p>

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	<p>surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>
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<b>EarthComm Section</b>	<b>Section 9 Wind and the Landscape</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.  <b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>

<b>EarthComm Section</b>	<b>Section 10 Coastal Processes</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-1.</b> Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.  <b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-5.</b> Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>

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**Chapter 5 Winds, Oceans, Weather, and Climate**

<b>EarthComm Section</b>	<b>Section 1 Global Wind Patterns and Weather</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

<b>EarthComm Section</b>	<b>Section 2 Weather Basics</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

<b>EarthComm Section</b>	<b>Section 3 Thunderstorms and Flash Floods</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

<b>EarthComm Section</b>	<b>Section 4 Severe Winds and Tornadoes</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

<b>EarthComm Section</b>	<b>Section 5 Tropical Storms and Hurricanes</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

<b>EarthComm Section</b>	<b>Section 6 The Surface Circulation of the Oceans</b>
<b>Correlating</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's

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<b>Performance Expectation</b>	surface can create feedbacks that cause changes to other Earth systems.
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<b>EarthComm Section</b>	<b>Section 7 The Deep Circulation of the Ocean</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

<b>EarthComm Section</b>	<b>Section 8 El Niño and Ocean Circulation</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

<b>EarthComm Section</b>	<b>Section 9 Present-Day Climate in Your Community</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. <b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.

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**Chapter 6 Climate Change**

<b>EarthComm Section</b>	<b>Section 1 Paleoclimates</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.</p> <p><b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>

<b>EarthComm Section</b>	<b>Section 2 How Do Earth’s Orbital Variations Affect Global Climate?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.</p> <p><b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>

<b>EarthComm Section</b>	<b>Section 3 How Do Plate Tectonics and Ocean Currents Affect Global Climate?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.</p> <p><b>HS-ESS2-6.</b> Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p> <p><b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>

<b>EarthComm Section</b>	<b>Section 4 How Do Carbon Dioxide Concentrations in the Atmosphere Affect Global Climate?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</p> <p><b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.</p> <p><b>HS-ESS2-6.</b> Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p> <p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to</p>

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	<p>make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.  <b>HS-ESS3-6.</b> Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p>
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<b>EarthComm Section</b>	<b>Section 5 How Do Glaciers Affect Sea Level?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.  <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.  <b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>

<b>EarthComm Section</b>	<b>Section 6 How Do Rising and Falling Sea Levels Modify the Landscape?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.  <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.  <b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>

<b>EarthComm Section</b>	<b>Section 7 How Might Global Warming Affect Your Community?</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-2.</b> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.  <b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.  <b>HS-ESS2-6.</b> Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.  <b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.  <b>HS-ESS3-5.</b> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p>

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**Chapter 7 Earth’s Natural Resources**

<b>EarthComm Section</b>	<b>Section 1 Electricity and Your Community</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p><b>HS-ESS3-3.</b> Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p>

<b>EarthComm Section</b>	<b>Section 2 Energy From Coal</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p><b>HS-ESS3-3.</b> Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p>

<b>EarthComm Section</b>	<b>Section 3 Energy From Petroleum and Natural Gas</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p><b>HS-ESS3-3.</b> Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p>

<b>EarthComm Section</b>	<b>Section 4 Environmental Impacts and Energy Consumption</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-6.</b> Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p> <p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p>

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	<p><b>HS-ESS3-4.</b> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p> <p><b>HS-ESS3-6.</b> Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p>
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<b>EarthComm Section</b>	<b>Section 5 Renewable Energy Sources – Solar and Wind</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p><b>HS-ESS3-4.</b> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p>

<b>EarthComm Section</b>	<b>Section 6 Earth’s Mineral Resources</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p><b>HS-ESS3-3.</b> Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p>

<b>EarthComm Section</b>	<b>Section 7 The Costs and Benefits of Mining Minerals</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-2.</b> Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</p> <p><b>HS-ESS3-4.</b> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p>

<b>EarthComm Section</b>	<b>Section 8 Water Supplies</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</p> <p><b>HS-ESS3-3.</b> Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and</p>

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	biodiversity.
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<b>EarthComm Section</b>	<b>Section 9 Using and Conserving Water</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. <b>HS-ESS3-4.</b> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

<b>EarthComm Section</b>	<b>Section 10 Water Pollution and Treatment</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS3-1.</b> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. <b>HS-ESS3-4.</b> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

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**Chapter 8 Earth System Evolution**

<b>EarthComm Section</b>	<b>Section 1 The Evolution of the Geosphere</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS1-5.</b> Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</p> <p><b>HS-ESS1-6.</b> Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.</p> <p><b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</p>

<b>EarthComm Section</b>	<b>Section 2 The Evolution of the Fluid Spheres</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-6.</b> Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p> <p><b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</p>

<b>EarthComm Section</b>	<b>Section 3 The Origin of Life on Earth</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</p>

<b>EarthComm Section</b>	<b>Section 4 The Biosphere and the Evolution of the Atmosphere</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</p>

<b>EarthComm Section</b>	<b>Section 5 Geologic Time</b>
<b>Correlating Performance Expectation</b>	<p><b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</p>

<b>EarthComm Section</b>	<b>Section 6 The Fossil Record</b>
<b>Correlating Performance</b>	<p><b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</p>

Correlation of EC Sections to NGSS Standards

<b>Expectation</b>	
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<b>EarthComm Section</b>	<b>Section 7 Evolution</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.

<b>EarthComm Section</b>	<b>Section 8 North American Biomes</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-4.</b> Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate. <b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.

<b>EarthComm Section</b>	<b>Section 9 Mass Extinction</b>
<b>Correlating Performance Expectation</b>	<b>HS-ESS2-7.</b> Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.