

## Congruence with the NGSS

**Unit Title: Earth is a Habitable Planet**

### Science and Engineering Practices (SEPs)

SEPS	Activities
Asking Questions and Defining Problems	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• The Methane Circus</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Developing and Using Models	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• What do Banded Iron Formation Deposits Reveal about the Evolution of the Atmosphere?</li> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Planning and Carrying Out Investigations	<ul style="list-style-type: none"> <li>• The Methane Circus</li> </ul>
Analyzing and Interpreting Data	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• The Methane Circus</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
Using Mathematics and Computational Thinking	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
Constructing Explanations and Designing Solutions	<ul style="list-style-type: none"> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Engaging in Argument from Evidence	<ul style="list-style-type: none"> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
Obtaining, Evaluating and Communicating Information	<ul style="list-style-type: none"> <li>• TED Talk David Gallo: Life in the Deep Oceans</li> <li>• Expedition 15: Dark Life at Deep-sea Vents</li> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Scientific Knowledge is based on Empirical Evidence	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• The Methane Circus</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>

### Disciplinary Core Ideas (DCIs)

DCIs	Activities
ESS1B: Earth and the Solar System	<ul style="list-style-type: none"> <li>Shields Up!</li> </ul>
ESS1C: The History of Planet Earth	<ul style="list-style-type: none"> <li>Conditions that Support Life</li> <li>Shields Up!</li> <li>The Origins of the Atmosphere</li> <li>The 25 Biggest Turning Points in Earth's History</li> <li>Clues to Oxygen Formation</li> <li>What do Banded Iron Formation Deposits Reveal about the Evolution of the Atmosphere?</li> <li>The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>The Methane Circus</li> <li>Mass Extinctions</li> <li>NOVA Science NOW: Mass Extinction</li> <li>Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
ESS2A: Earth Materials and Systems	<ul style="list-style-type: none"> <li>The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>Expedition 15: Dark Life at Deep-sea Vents</li> </ul>
ESS2E: Biogeology	<ul style="list-style-type: none"> <li>Conditions that Support Life</li> <li>The Origins of the Atmosphere</li> <li>The 25 Biggest Turning Points in Earth's History</li> <li>Clues to Oxygen Formation</li> <li>What do Banded Iron Formation Deposits Reveal about the Evolution of the Atmosphere?</li> <li>Life Has a History</li> <li>The Methane Circus</li> <li>TED Talk David Gallo: Life in the Deep Oceans</li> <li>Expedition 15: Dark Life at Deep-sea Vents</li> <li>Aterra Explorer 4: Create an Organism</li> </ul>
ESS3B: Natural Hazards	<ul style="list-style-type: none"> <li>The Methane Circus</li> <li>Mass Extinctions</li> <li>NOVA Science NOW: Mass Extinction</li> <li>The Day the Mesozoic Died</li> </ul>

### Cross Cutting Concepts (CCCs)

CCCs	Activities
------	------------

Patterns	<ul style="list-style-type: none"> <li>• What do Banded Iron Formation Deposits Reveal about the Evolution of the Atmosphere?</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
Cause and Effect	<ul style="list-style-type: none"> <li>• The Methane Circus</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
Scale, Proportion, and Quantity	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• What do Banded Iron Formation Deposits Reveal about the Evolution of the Atmosphere?</li> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Systems and System Models	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• Expedition 15: Dark Life at Deep-sea Vents</li> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Energy and Matter	<ul style="list-style-type: none"> <li>• The Methane Circus</li> <li>• Expedition 15: Dark Life at Deep-sea Vents</li> </ul>
Structure and Function	<ul style="list-style-type: none"> <li>• Aterra Explorer 4: Create an Organism</li> </ul>
Stability and Change	<ul style="list-style-type: none"> <li>• The Goldilocks Principle: A Model of Atmospheric Gases</li> <li>• Weighing the Evidence for a Mass Extinction: In the Ocean</li> <li>• Weighing the Evidence for a Mass Extinction: On Land</li> </ul>
Interdependence of Science, Engineering and Technology	<ul style="list-style-type: none"> <li>• Shields Up!</li> <li>• TED Talk David Gallo: Life in the Deep Oceans</li> <li>• Expedition 15: Dark Life at Deep-sea Vents</li> </ul>