

## Lesson Plan and Next Generation Science Standards (NGSS) Matrix

The purpose of this matrix is to show how the four climate change lesson plans developed fit with the new NGSS standards. This matrix is supposed to be used as guidance; it is in no way an official alignment document.

### **Lesson 1: Introduction to Climate Change**

<b>PE: MS-ESS3-5</b> Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.					
<b>DCI</b>	<b>Phenomenon</b>	<b>Driving Questions</b>	<b>Science and Engineering Practices</b>	<b>Cross Cutting Concepts</b>	<b>ELA/Literacy</b>
ESS3.D Global Climate Change	Rising Temperatures	<p>What causes the Earth's temperature to rise?</p> <p>What are consequences of changing climate?</p> <p>Does human activity affect the climate?</p>	<p>-Asking questions and defining problems</p> <p>-Obtaining, evaluating, and communicating information</p>	-Stability and Change	<p>-MP.2 Reason abstractly and quantitatively.</p> <p>-RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.</p>

## Lesson 2: CO<sub>2</sub>, Temperature and Human Impact

<b>PE: MS-ESS3-1</b> Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resource are the result of past and current geoscience processes.					
<b>DCI</b>	<b>Phenomenon</b>	<b>Driving Questions</b>	<b>Science and Engineering Practices</b>	<b>Cross Cutting Concepts</b>	<b>ELA/Literacy</b>
ESS3.A Natural Resources	Increasing Atmospheric Carbon Dioxide  Rising Temperatures  Climate Change	How is carbon dioxide related to climate change?	Obtaining, evaluating, and communicating information	Cause and Effect	WHST.6-8.2
		Is increased carbon dioxide and increased temperature linked?	Using mathematics and computational thinking	Patterns	WHST.6-8.9
		Why is excess carbon dioxide in the atmosphere harmful?	Analyzing and interpreting data	Energy and Matter: Flows, Cycles, and Conservation	RST.6-8.7
		How has human activity led to excess carbon in the atmosphere?	Asking questions and defining problems	Stability and Change	
		What can we do to reduce carbon dioxide emissions?	Engaging in argument from evidence		
			Constructing explanations and designing solutions		

### Lesson 3: Projecting and Mapping Sea Level Rise

<b>PE: MS-ESS3-4</b> Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems					
<b>DCI</b>	<b>Phenomenon</b>	<b>Driving Questions</b>	<b>Science and Engineering Practices</b>	<b>Cross Cutting Concepts</b>	<b>ELA/Literacy</b>
ESSE.C Human Impacts on Earth Systems	Rising sea levels	<p>How will sea level rise affect Humboldt Bay in the future?</p> <p>How might present and future human activity affect sea level rise projections?</p> <p>How do scientists make projections?</p>	<p>-Using mathematics and computational thinking</p> <p>-Constructing explanations and designing solutions</p> <p>-Engaging in arguments from evidence</p>	<p>-Cause and Effect</p> <p>-(Connecting to Nature of Science)</p> <p>Addresses Questions about the Natural and Material World.</p>	

## Lesson 4: Sea Level Rise on Humboldt Bay: Creating Solutions

<b>PE: MS-ESS3-2</b> Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.					
<b>DCI</b>	<b>Phenomenon</b>	<b>Driving Questions</b>	<b>Science and Engineering Practices</b>	<b>Cross Cutting Concepts</b>	<b>ELA/Literacy</b>
ESS3.B Natural Hazards	Rising Sea Levels	<p>How will sea level rise affect the community and people around Humboldt Bay?</p> <p>How can the community prepare for sea level rise?</p> <p>Is collaboration important in response to natural hazards?</p> <p>What are some solutions to sea level rise?</p>	<p>-Engaging in arguments from evidence</p> <p>-Asking questions and defining problems</p> <p>-Obtaining, evaluating and communicating information</p> <p>-Constructing explanations and designing solutions</p>	<p>-Stability and Change</p> <p>-Systems and System Models</p> <p>-(Connections to Engineering, Technology, and Applications of Science) Influence of Science, Engineering, and Technology on Society and the Natural World</p>	<p>-WHST.6-8.1 Write arguments focused on discipline content</p> <p>-WHST 6-8.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content</p> <p>-WHST 6-8.9 Draw evidence from informal texts to support analysis, reflection, research</p>