Connecting to the Next Generation Science Standards (NGSS Lead States 2013)

5-ESS2 Earth's Systems and 5-ESS3 Earth and Human Activity

www.nextgenscience.org/5ess2-earth-systems

www.nextgenscience.org/5ess3-earth-human-activity

Performance Expectation The materials/lessons/activities outlined in this article are just one step toward reaching the Performance Expectations listed below. Additional supporting materials/lessons/activities will be required.	**Connections to Classroom Activity**
5-ESS2-1: Develop a model using an example to describe a scientific principle.	Students use models to deepen their understanding of how Earth's systems can influence each other, creating a cause-and-effect chain of events. They observe one impact the atmosphere has on the hydrosphere, which affects the geosphere and biosphere in turn.
Science and Engineering Practices	
Developing and Using Models Planning and Carrying Out Investigations Using Mathematics and Computational Thinking Obtaining and Communicating Information	Students • Use models to observe how melting land ice causes sea level rise. • Use models to observe how sea level rise causes coastal flooding. • Explain the chain of events causing coastal flooding. • Use standard measures to communicate scale. • Create an action plan based on their research and observations. • Disseminate their ideas for environmental stewardship to others.
Disciplinary Core Idea	
ESS2.A: Earth Materials and Systems • Earth's major systems are the geosphere, hydrosphere, atmosphere, and biosphere. The systems interact in multiple ways to affect Earth's surface materials and processes. ESS3.C: Human Impacts on Earth	Students • Research Earth's systems and disseminate that information to other students. • Explore the interactions among the four systems by simulating a warming atmosphere causing land ice to melt, causing ocean levels to rise and create coastal flooding. • Discuss causes of air pollution and effects on the

Systems • Human activities have had major effects on Earth. But individuals and communities are doing things to help protect Earth's environment.	atmosphere. • Research, discuss, and disseminate ways to help the atmosphere by reducing air pollution.
Crosscutting Concepts	
ESS 2-1 Systems and System Models	Students research, observe, and present Earth's systems.
ESS 1-2 Patterns	Students analyze natural system patterns to understand how Earth works, and use this information to predict future system interactions.
ESS 2-2 Scale, Proportion, and Quantity	Students compare the scale of sea level rise over different periods of time.
PS 2-1 Cause and Effect	Cause and effect relationships among Earth's systems is modeled, discussed, and sketched.

Connecting to Common Core State Standards (NGAC and CCSO 2010)
English Language Arts

Reading Standards
CCSS.ELA- Literacy.RI.5.2
Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
CCSS.ELA- Literacy.RI.5.3
Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.