

Stage 1 – Desired Results

Established Goal(s)/Content Standard(s):

Students will develop a model to show the way two of the Earth's systems interact.
Students will be able to describe how our activities affect these systems and how we can protect Earth's resources and environment.
Students will graph the amounts and percentages of water and fresh water on earth.

Understanding (s)

Students will

- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact (5-ESS2-1)
- Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. (5-ESS2-2)
- Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)

Essential Question(s):

- What are Earth's four systems?
- How do these systems interact with each other?
- How do people affect Earth's systems?
- What can people do to protect Earth's systems?

Student objectives (outcomes):

Students will be able to:

- Create and explain a model of two of Earth's spheres interacting
- Complete a graph showing the amount of water on earth and available fresh water
- Work with partners/small groups to research natural disasters that occurred in New Hampshire (e.g.-floods, ice storms, hurricane, microbursts)
- Identify weathering and erosion around the school.
- Identify ways that we can protect the environment and its resources.
- Identify ways that humans alter and modify our physical environment.
- Describe the challenges of restoring an altered natural environment.
- Define the following terms: hydrosphere, biosphere, atmosphere, geosphere, interaction, environment, precipitation, reservoir, conservation.

Stage 2 – Assessment Evidence

<p>Performance Task(s):</p> <ul style="list-style-type: none"> • Students will research a New Hampshire disaster and create a model of two of Earth's spheres interacting using household materials. They will give a short presentation to the class and answer questions from students. They will be assessed using a rubric. • A group of five students will research an ecosystem, each taking on a different role, and create a presentation (choice) to the class/rubric for scoring 	<p>Other Evidence:</p> <ul style="list-style-type: none"> • Science journals/reflections • Vocabulary/short answer quiz • Completed graph of salt/fresh water distribution • Lab write ups • Class discussions

Stage 3 – Learning Plan

<p>Activities to support learning targets:</p> <p>Day 1-Project Wet, “The Blue Planet”-Students predict the amount of water on earth. Students stand in a circle and toss an inflatable globe. Record how many times a student's right thumb lands on water or land and calculate the percents. Discuss.</p> <p>Day 2-Projects AIMS, “Were you Aware?” Students predict the amount of fresh and salt water on the Earth, graph actual percentages, and complete a reflection journal.</p> <p>Day 3-Water's Effect on the Environment lab- adapted from the New Jersey Center on Teaching and Learning Earth's systems lesson plan (www.njtl.org) Students will conduct an experiment to discover how the oceans influence the surrounding climate.</p> <p>Day 4-Model of Earth's systems-adapted from www.teachsci.com/science -Students use clay to create a model of the Earth's systems.</p> <p>Day 5 - Brainpop (www.brainpop.com)Earth's Atmosphere-Students watch the short video and complete the quiz.Discuss as a class</p> <p>Day 6-Weathering and Erosion Study Jam-Students watch Weathering and erosion video (studyjams.scholastic.com) with a partner, complete a graphic organizer while watching, and complete the short test at the end</p>
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Day 7-Weathering and Erosion Scavenger Hunt-The teacher leads the students around the school looking for signs of weathering and erosion. Students complete a graphic organizer while on the walk. Students share results when done.

Day 8 vocabulary /short answer quiz

Day 9-Four systems walk and slide show-adapted from www.cpalms.org Earth's systems lesson plan. Students will participate in a walk to identify systems interacting. They will then watch a slideshow and identify the systems using hand signals.

Day 10-Four systems foldable-adapted from www.cpalms.org Earth's systems lesson plan. Students create a paper foldable with each of the systems, including descriptions and illustrations.

Day 11-14- New Hampshire disaster research/projects/student presentations

Students work with a partner to research a New Hampshire disaster. They create a model of this disaster using household materials. Students present their models to the class, discussing the two spheres that are interacting and how people attempted to restore the environment after the disaster. Students can choose from the following:

- NH floods of 1936,1938
- Great New England Hurricane of 1938
- Hurricane Bob-1991
- Tornadoes of 2008,1821
- Microbursts-1991,1999
- Ice storms-December, 2008 and January, 1998

Lessons to show human impact and how we can protect the environment:

Day 1-Carrying Capacity-In this activity, students will explore the significance and factors that impact an area's carrying capacity. They will be acting as deer competing with other deer and animals for resources. Adapted from www.njctl.org

Day 2-7- Ecosystem project-Students will work in a group of 4-5 to research an ecosystem. Each student will have a different job: botanist, environmentalist, zoologist, meteorologist, cartographer. They will work together to create a presentation for the class. Choices of presentations include: powerpoint, poster, flipbook, research paper, video, play. Scored with a rubric

Supporting resources:

Unit Road Map

Ellen Harrington/Richards School, Newport, New Hampshire

Earth's Systems

<https://www.teachsci.com/science>

<https://pmm.nasa.gov>

www.cpalms.org

www.globe.gov

www.brainpop.com

studyjams.scholastic.com

Project Wet Curriculum and Activity Guide

Project Learning Tree Environmental Education Activity Guide

www.njctl.org

LSPA

Science text

Encyclopedias