Unit 4: Water on the Earth

Content Area: **Science**
Course(s):
Time Period: **Generic Time Period**
Length: **4 weeks**
Status: **Published**

Disciplinary Core Ideas

ESS2.C: The Roles of Water in Earth's Surface Processes

Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5- ESS2-2)

ESS3.C: Human Impacts on Earth Systems

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

Standards

LA.5.W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
LA.5.W.5.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
MA.K-12.2	Reason abstractly and quantitatively.
TECH.8.1.5.C.CS1	Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media
TECH.8.2.5.B.CS2	The effects of technology on the environment.
MA.K-12.4	Model with mathematics.
TECH.8.2.5.D.6	Explain the positive and negative effect of products and systems on humans, other species and the environment, and when the product or system should be used.
LA.5.RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
SCI.5-ESS2-2	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.
LA.5.RI.5.9	Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and

	background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.
CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
TECH.8.1.5.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
LA.5.RI.5.1	Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.5.SL.5.5	Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
SCI.5-ESS3-1	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
CAEP.9.2.8.B.1	Research careers within the 16 Career Clusters ® and determine attributes of career success.
TECH.8.1.5.A.3	Use a graphic organizer to organize information about problem or issue.
TECH.8.2.5.A.4	Compare and contrast how technologies have changed over time due to human needs and economic, political and/ or cultural influences.

Objectives and Essential Questions

Student Learning Objectives

A) Describe and graph the amounts and percentages of water and fresh water in various resivoirs to provide evidence about the distribution of water on Earth.

B) Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

Essential Questions

How do individual communities use science ideas to protect Earth's resources and environment?

Where is water found on Earth? What percentage of water is fresh water?

Concepts

Part A

• Standard units are used to measure and describe physical quantities such as weight and volume.

• Nearly all of Earth's available water is in the ocean.

• Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.

Part B

A system can be described in terms of its components and their interactions.

• Science findings are limited to questions that can be answered with empirical evidence.

• Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space.

• Individuals and communities are doing things to help protect Earth's resources and environments.

Activities and Lessons

Mystery Science - Watery Planet (Water Cycle, Resources and Systems) Mystery 1 and 2

Mystery 1) How much water is in the world?

Mystery 2) Why you turn on the faucet, where does the water come from?

(5- ESS2-2)

5th Grade NGSS Science Notebook

Distribution of Water on Earth

Human Impact on the Environment

Alternative Energy Resources

Agricultural Runoff Factsheet - Agricultural Runoff Model

(5-ESS3-1)

PBS: https://nj.pbslearningmedia.org/resource/ess05.sci.ess.watcyc.lp_waterconservation/water-conservation/#.WMAaKG8rLcs

Materials and Resources

www.mysteryscience.com

Mystery Science - Watery Planet (Water Cycle, Resources and Systems) Mystery 1 and 2

NEWSELA Text Set: Expeditionary Learning: The Role of Freshwater Around the World

NJ Model Curriculum Open Education Resources: Global Water Distribution - http://ngss.nsta.org/Resource.aspx?ResourceID=37

Simulating an Oil Spill to Understand Environmental Impact - http://ngss.nsta.org/Resource.aspx?ResourceID=65

Assessment

Part A

Students who understand the concepts are able to:

• Describe physical quantities, such as weight and volume, in standard units.

• Describe and graph quantities such as area and volume to address scientific questions.

• 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. (Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.).

Part B

Students who understand the concepts are able to:

• Describe a system in terms of its components and interactions.

• Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.

• Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Assessment Options

-Mystery Science Assessment - Watery Planet Assessments Tab

Mystery 1, Mystery 2, Summative Assessment

-NGSS 5th Grade Science Notebook

Accommodations and Modifications

Group lab/experiment groups

Additional time for classwork

Additional time for assessments

Tests in small group

Use of videos and visual models

Preferential seating

Notes/outlines provided