



Grade 5 Science
Unit # 2 – Earth and Space Science
Topic 4 Earth's Water – 18 Days

Unit Overview: In Topic 3 students will learn how patterns in the natural world contribute to the interactions of Earth's four spheres – Geosphere, hydrosphere, atmosphere, and biosphere. Water is the primary emphasis in **Topic 4**. Students will explore the water cycle and the interactions among water and land. Topic 5 focuses on renewable and non-renewable resources on Earth and how humans use the resources. Topic 6 and Topic 7 both investigate the Solar System. Students will develop models to observe brightness, orbits, and object sizes. Students should be able to recognize the position of the Earth, and key characteristics of the sun, planets, and other space objects. Students will then study patterns of the moon phases, star movement, rotation and revolution of Earth.

Topic Essential Question: How much water can be found in different places on Earth?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Water Cycle
- Lesson 2 Earth's Freshwater
- Lesson 3 Earth's Ocean
- Topic Close –Assessment, Quest Findings

NYSSLS Performance Expectations

5-ESS2-2. Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. [Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.]

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

Topic Opener

PE: 5-ESS2-2

SEP: Constructing Explanations and Designing Solutions

DCI:

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

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

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Highlighted labs are important to the understanding of the instructional concepts in this lesson and must be completed during Science instructional time.

- ***u*Connect Lab – Where Does Water Flow...and How Fast?**
- Quest Kickoff – Water, Water Everywhere!
- Leveled Readers
- STEM Engineering Reader
- Reading Check – Draw Conclusions

Lesson 1 – Water Cycle

PE: 5-ESS2-2, 3-5 ETS1-1

SEP: Constructing Explanations and Designing Solutions

DCI:

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)

CCC: Scale, Proportion, and Quantity

zSpace Activities (code)

Water Cycle (E451)

[Water Cycle - Teacher Activity Plan](#)

Students will explore the phases of the water cycle as well as the driving forces behind them (gravity and the Sun).

[Water Cycle - Student Worksheet](#)

[Water Cycle - Student Worksheet GoogleDocs](#)

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Guiding Objective

- Students will explain parts of the water cycle.
- Students will recognize that the ocean is an important part of the water cycle.

Literacy Skill

- Draw Conclusions

Vocabulary

- water cycle
- evaporation
- condensation
- precipitation

Academic Vocabulary

- cycle

Connect - TE/SB p. 144

- Sports Connection

Investigate - TE/SB pp. 145-149

- **Investigate Lab – Where did that water come from?**
- Video – Water Cycle
- Crosscutting Concepts Toolbox – Energy and Matter
- Reading Check – Draw Conclusions
- *u*Be a Scientist
- Visual Literacy Connection – How does water cycle on Earth?
- Interactivity – Tracing the Water Cycle

Synthesize - TE/SB pp. 149-151

- Interactivity – Stages of the Water Cycle
- Quest Check-In- Follow the Flow
- Literacy Toolbox – Draw Conclusions
- Quest Connection

Demonstrate – TE/SB p. 150

- Lesson 1 Check
- Lesson Quiz 1

Lesson 2 – Earth’s Freshwater

PE: 5-ESS2-2

SEP: Developing and Using Models; Constructing Explanations and Designing Solutions

DCI:

ESS2.C – The Roles of Water in Earth’s Surface Processes

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

CCC: Scale, Proportion, and Quantity

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Guiding Objective:

- Students will identify that most of Earth’s freshwater is in glaciers, in ice caps, or underground.
- Students will explain that some freshwater is found in lakes, rivers, wetlands, and the atmosphere.

Literacy Skill

- Draw Conclusions

Vocabulary

- glacier
- aquifer
- reservoir

Academic Vocabulary

- distribute

Connect - TE/SB p. 154

- Local-to-Global Connection
- Reading Check – Draw Conclusions

Investigate - TE/SB pp. 155-157

- Video – Earth’s Freshwater
- ***u*Investigate Lab – How can you find water underground?**
- Visual Literacy Connection – How is freshwater distributed across Earth?
- Virtual Lab – Where has all the water gone?

Synthesize - TE/SB pp. 158-159

- Interactivity – Earth’s Underground Water
- *u*Be a Scientist
- Quest Connection
- Model It!

Demonstrate – TE/SB pp. 159-161

- Lesson 2 Check
- Lesson 2 Quiz
- **Quest Check in Lab – How do we filter water?**

<p><u>Lesson 3 – Earth’s Ocean</u> PE: 5-ESS2-2 SEP: Developing and Using Models; Constructing Explanations and Designing Solutions DCI: ESS2.C – The Roles of Water in Earth’s Surface Processes</p> <ul style="list-style-type: none"> Nearly all of Earth’s available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5- ESS2-2) <p>CCC – Scale, Proportion, and Quantity</p> <p><u>CLRI Literacy Connections:</u> Embed: “Life in the Ocean” by Claire A. Nivola Synopsis: “Sylvia Earle could not resist nature her whole life. She was fascinated especially with water and the life that lived there. She spent her life being adventurous and curious as she explored the ocean deeper and deeper. She discovered many new creatures underwater and wants to share her love of the ocean with others so they will want to protect it as she does.”</p> <p>Questions:</p> <ol style="list-style-type: none"> What is meant by the phrase, “the oceans form the lungs of our planet”? What did Sylvia do, when she was young, that showed her as a natural scientist? Some might call Sylvia “relentless”. Why do you think people might describe her this way? How has Sylvia’s research helped us understand the ocean? How much more of the ocean is there to explore, even after Sylvia’s work? 	<p>Savvas Guiding Objective:</p> <ul style="list-style-type: none"> Students will describe how most of Earth’s water is in the ocean. <p>Literacy Skill</p> <ul style="list-style-type: none"> Draw Conclusions <p>Vocabulary</p> <ul style="list-style-type: none"> circulation tides salinity <p>Academic Vocabulary</p> <ul style="list-style-type: none"> primary <p>Connect - TE/SB p. 162</p> <ul style="list-style-type: none"> Local to Global Connection <p>Investigate - TE/SB pp. 163-167</p> <ul style="list-style-type: none"> Video – Earth’s Ocean <u>Investigate – How can you separate salt from water?</u> Quest Connection Reading Check – Draw Conclusions Visual Literacy Connection – What is the motion of the ocean? <p>Synthesize - TE/SB pp. 167-170</p> <ul style="list-style-type: none"> Interactivity – Earth’s Waters Model It! uBe a Scientist Reading Check – Draw Conclusions Quest Check-In – Water Resources <p>Demonstrate – TE/SB p. 169</p> <ul style="list-style-type: none"> Lesson 3 Check Lesson 3 Quiz
<p><u>Topic Close</u></p> <ul style="list-style-type: none"> Topic Assessment and Remediation TE/SB pp. 174-179 Quest Finding and Reflection TE/SB p. 172 	<p><u>Topic 4 Enrichment</u> Topic 4 - Lesson 1 Enrichment</p> <ul style="list-style-type: none"> Enrichment Activity TE p. 149 <p>Topic 4 - Lesson 2 Enrichment</p> <ul style="list-style-type: none"> Enrichment Activity TE p. 158 <p>Topic 4 - Lesson 3 Enrichment</p> <ul style="list-style-type: none"> Enrichment Activity TE p. 167

<p>English Language Learners (ELL) Enhancements To access hyperlinked material, you must be logged into your BPS Google Drive</p>	<p><u>Listening</u></p> <ul style="list-style-type: none"> ● <u>Cross- Linguistic Practices</u>: Gives students opportunities to make connections between what they hear and their home language (For example, allow students to listen to a passage and identify cognates). ● <u>Activating Prior Knowledge</u> Activating prior knowledge means both eliciting from students what they already know and building initial knowledge that they need in order to access upcoming content. ● <u>Visuals</u> - GIFs, pictures- will assist students in understanding what they are listening to. Use <u>visual thinking strategies</u> to set the lens for learning. ● Video to review or introduce a topic – use <u>closed captioning</u> to help students see the words and pronunciations while they listen to the content. ● <u>Word stretching / Vowel stretching</u> when instructing allows student to listen closely to the pronunciation of the word. ● <u>Performance Level Descriptors</u> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of listening.
	<p><u>Speaking</u></p> <ul style="list-style-type: none"> ● <u>Sentence Stems/Frames</u> - to begin a sentence - such as <i>Evolution is...</i> or <i>I think that evolution is...</i> ● <u>Academic Conversation Starters</u>: Have a visual of a list of academic sentence starters that students can refer to in a discussion. ● <u>Choral Reading</u> - To build fluency, self-confidence and motivation with <u>reading/speaking</u>. ● Create <u>movement</u> to go with the word. Movement can be a motivating factor, as well as a kinesthetic tool for conceptualizing the rhythm and flow of fluent reading while triggering brain function for optimal learning. ● <u>Performance Level Descriptors</u> This document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of speaking.
	<p><u>Reading</u></p> <ul style="list-style-type: none"> ● Supplementary Text to help reinforce concepts. ● <u>Visual Aids</u> - Pictures or models to support vocabulary words and concepts ● Video to review or introduce a topic - use <u>closed captioning</u> to help students read along while they listen to the content. ● <u>4 Square / Frayer models</u> to help students gain a deeper understanding of vocabulary. ● <u>Highlighting</u> important text to assist students in answering questions after the reading. ● <u>Chunking</u>-Break reading of text into chunks or paragraphs ● <u>Vocabulary Morphology</u>- Morphology relates to the segmenting of words into affixes (prefixes and suffixes) and roots or base words, and the origins of words. Understanding that words connected by meaning can be connected by spelling can be critical to expanding a student’s vocabulary. ● <u>Performance Level Descriptors</u> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of reading. Scroll for grade 5.
	<p><u>Instructional Accommodations (depending on the student’s needs)</u></p> <ul style="list-style-type: none"> ● Extended time for tests in class, projects and assignments ● Directions read. Broken down as necessary ● Model how to complete the activity in the lesson ● Oral simplification of directions or questions ● Translated version of test when available. Student may have both version English and native language version ● Use of <u>approved bilingual glossaries</u> from NYS in each subject

Grade 5 Unit 2 Earth and Space Science

<p>Special Education Modifications</p> <p>Special Education students must have accommodations as per Individual Educational Plan (IEP)</p>	<p><u>Instructional</u></p> <ul style="list-style-type: none"> ● Pre-teach vocabulary ● Use picture vocabulary ● Scaffold Depth of Knowledge questions ● Provide copy of notes/notes in “cloze” form ● Use of Think, Pair, and Share strategy to help process information ● Scaffold written assignments with the use of graphic organizers ● Allow for multiple ways to respond (verbal, written, response board) ● Provide model of performance task ● Modify informational text to fit the needs of the students ● Provide a digital or paper interactive notebook ● Present complex tasks in multiple ways ● Provide mnemonic strategies for scientific concepts <hr/> <p><u>Technology:</u></p> <ul style="list-style-type: none"> ● Audio reading of text ● Text to type functions ● Videos to clarify/visualize science concepts ● Record class lecture/discussions and make accessible to student ● Nearpod- interactive presentations of notes <hr/> <p><u>In Class Assessments</u></p> <ul style="list-style-type: none"> ● Provide multiple options for projects ● Use of timer in class ● Break all complex tasks into chunks
<p>Step Up to Writing</p> <p>Step Up to Writing Materials can be found in BPS Science K-12 Schoology Folder Grade 5 Resources Grade 5 SUTW materials</p>	<ul style="list-style-type: none"> ● Easy Two-Column Notes ● Breaking Down Definitions ● Paragraph Frame- What I Learned ● Performance Level Descriptors this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of writing.
<p>Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom</p>	<ul style="list-style-type: none"> ● Materials, resources, and/or discussions address diverse cultural backgrounds and real-world applications ● Artifacts (posters, charts, etc.) in the science classroom are representative of the cultures of the student population ● All students are given an opportunity to engage in science discourse ● Teacher demonstrates high expectations for all students