



Grade 1 Science
Unit 2 Earth and Space Science
Topic 4 Earth's Processes (28 Days)

Unit Overview: In this unit students will read about various bodies of water and landforms and learn about their features. Students will explore maps and learn to find places on them, learning to use the key and the scale on the map. Students will learn that Earth is constantly changing in a variety of ways. Earth can change quickly or slowly. Students will make and use models to compare and analyze design solutions that slow or prevent weathering due to wind and water to protect areas of human development.

Topic Essential Question: What can cause land to change?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Earth Changes Quickly
- Lesson 2 Earth Changes Slowly
- Lesson 3 People Can Change Earth
- Topic Close - Assessment, Quest Findings

NYSSLS Performance Expectations (PE)

2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

[Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and weathering and erosion of rocks, which may occur slowly.] [Assessment Boundary: Assessment does not include quantitative measurements of timescales.]

2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

[Clarification Statement: Examples of solutions could include different designs for using rocks, shrubs, grass, and trees to hold back wind, water, and land.]

K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Higher Order Thinking (HOTS)

Higher Order Thinking Skills (HOTS) will be identified within each topic plan. Grade 2 HOTS include:

- sequencing
- categorizing
- identifying patterns
- cause and effect
- researching
- brainstorming
- logic
- reasoning
- inferencing
- scientific method
- academic vocabulary

<p>Topic Opener PE: 2-ESS1-1, 2-ESS2-2, K-2 ETS1-3 SEP: Developing and Using Models* Constructing Explanations and Designing Solutions* DCI: ESS1.C: The History of Planet Earth</p> <ul style="list-style-type: none"> Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. <p>ESS2.A: Earth Materials and Systems</p> <ul style="list-style-type: none"> Wind and water can change the shape of the land. <p>ETS1.C: Optimizing the Design Solution</p> <ul style="list-style-type: none"> Because there is always more than one possible solution to a problem, it is useful to compare and test designs. <p>*Denotes Higher Order Thinking Skill</p>	<p>Savvas Highlighted labs are important to the understanding of the instructional concepts in this lesson and must be completed during Science instructional time.</p> <ul style="list-style-type: none"> uConnect Lab – Which solution is better?* Quest Kickoff – Save the Town! * Leveled Readers STEM Engineering Reader Science Song – That’s What Science Is
<p>Lesson 1 – Earth Changes Quickly PE: 2-ESS1-1 SEP: Constructing Explanations and Designing Solutions* Developing and Using Models* DCI: ESS1.C: The History of Planet Earth</p> <ul style="list-style-type: none"> Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. <p>CCC – Stability and Change* *Denotes Higher Order Thinking Skill</p>	<p>Savvas Guiding Objective</p> <ul style="list-style-type: none"> Students will provide evidence that fast changes happen on Earth. <p>Vocabulary</p> <ul style="list-style-type: none"> lava earthquake flood landslide <p>Connect - TE/SB p. 118</p> <ul style="list-style-type: none"> Jumpstart Discovery* <p>Investigate - TE/SB pp. 119-122</p> <ul style="list-style-type: none"> uInvestigate Lab – How do volcanoes change Earth?* Video – Earth Changes Quickly Literacy Toolbox - Sequence* Reading Check – Sequence* Quest Connection* <p>Synthesize - TE/SB pp.122-123</p> <ul style="list-style-type: none"> Interactivity – Quick Changes on Earth Quest Check-In – Prevent Floods* <p>Demonstrate - TE/SB p.122</p> <ul style="list-style-type: none"> Lesson 1 Quiz

<p><u>Lesson 2 Earth Changes Slowly</u> PE: 2-ESS1-1 SEP: Developing and Using Models* Constructing Explanations and Designing Solutions* DCI: ESS1.C: The History of Planet Earth</p> <ul style="list-style-type: none"> Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. <p>CCC: Stability and Change*</p> <p>*Denotes Higher Order Thinking Skill</p>	<p>Savvas Guiding Objective</p> <ul style="list-style-type: none"> Students will investigate slow changes that happen on Earth. Students will explain how wind and water can change the shape of the land. <p>Vocabulary</p> <ul style="list-style-type: none"> weathering erosion deposition <p>Connect - TE/SB p. 124</p> <ul style="list-style-type: none"> Jumpstart Discovery* <p>Investigate - TE/SB pp. 125-127</p> <ul style="list-style-type: none"> Video – Earth Changes Slowly uInvestigate Lab – How do mountains change?* Crosscutting Concepts Toolbox – Stability and Change* Quest Connection* <p>Synthesize - TE/SB pp. 127</p> <ul style="list-style-type: none"> Interactivity – Slow Changes on Earth <p>Demonstrate - TE/SB p.127-128</p> <ul style="list-style-type: none"> Lesson 2 Quiz Quest Check-In Lab – How does the ocean affect a coastal town?*
<p><u>Lesson 3 People Can Change Earth</u> PE: 2-ESS1-1, 2-ESS2-1, K-2ETS1-3 SEP: Developing and Using Models* Constructing Explanations and Designing Solutions* DCI: ETS1.B: Developing Possible Solutions</p> <ul style="list-style-type: none"> Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. <p>CCC: Stability and Change*</p> <p>*Denotes Higher Order Thinking Skill</p> <p><u>CLRI Literacy Connections:</u> Embed: “Wangari’s Trees of Peace: A True Story from Africa” by Jeanette Winter Synopsis: “Wangari grew up in Kenya where there were many green trees. She came home years after leaving her homeland to get an education, and found her land unrecognizably transformed. When she saw the trees were gone, she went into action, and despite harsh opposition, she organized other women to join her in the quest to bring back the green to her land.”</p>	<p>Savvas Guiding Objective</p> <ul style="list-style-type: none"> Students will describe how people change the surface of Earth. <p>Vocabulary</p> <ul style="list-style-type: none"> dike levee windbreak <p>Connect - TE/SB p. 130</p> <ul style="list-style-type: none"> Jumpstart Discovery* <p>Investigate - TE/SB pp. 131-135</p> <ul style="list-style-type: none"> Video – People Can Change Earth uInvestigate Lab – How do plants protect fields from wind?* Reading Check – Sequence* Quest Connection* Math Toolbox – Solve Word Problems* <p>Synthesize - TE/SB pp. 132</p> <ul style="list-style-type: none"> Interactivity – How do people change Earth? <p>Demonstrate - TE/SB pp.135-136</p> <ul style="list-style-type: none"> Lesson 3 Quiz Quest Check-In Lab – How can you protect a coastal town from erosion?*

<p>Questions:</p> <ol style="list-style-type: none"> 1. What types of plants did Wangari have when she was a little girl in Kenya? 2. Why do you think Wangari had to go to America to study? 3. What happened in Kenya during the 5 years Wangari spent in America? 4. How did the loss of plants affect life in her home? 5. How did the loss of plants affect the wildlife, like birds? 6. Wangari was very sad about what she saw. What did she do about it? 7. Who helped Wangari when the government was against her plans? 8. What good came from Wangari’s passion and sacrifice? 	
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<p>Topic Close</p> <ul style="list-style-type: none"> ● Assessment and Remediation TE/SE pp. 142-147 ● Quest Finding TE/SB p. 140 	<p>Topic 4 Enrichment</p> <p>Topic 4- Lesson 1 Enrichment - TE p. 122 - This activity extends student understanding of the lesson by having students read text and answer questions about hurricane Katrina. Enrichment Skill- Inference</p> <p>Topic 4- Lesson 2 Enrichment - TE p. 127 - This activity extends student understanding of the lesson by sequencing events while learning about erosion and weathering caused by water. Enrichment Skill- Sequence</p> <p>Topic 4- Lesson 3 Enrichment - (available on SAVVAS Easybridge online) This activity extends student understanding of the lesson by having students read text and answer questions about the Transcontinental Railroad. Enrichment Skill- Inference</p>
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<p>English Language Learners (ELL) Enhancements</p> <p>To access hyperlinked material, you must be logged into your BPS Google Drive</p>	<p>Listening</p> <ul style="list-style-type: none"> ● Cross- Linguistic Practices: 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). ● Activating Prior Knowledge 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. ● Activating Prior Knowledge ● Visuals - GIFs, pictures- will assist students in understanding what they are listening to. Use visual thinking strategies to set the lens for learning. ● Video to review or introduce a topic – use closed captioning to help students see the words and pronunciations while they listen to the content. ● Word stretching / Vowel stretching when instructing allows student to listen closely to the pronunciation of the word. ● 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 listening. Scroll for grade 2.
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Speaking

- **Sentence Stems/Frames** - to begin a sentence - such as *Evolution is...* or *I think that evolution is...*
- **Academic Conversation Starters:** Have a visual of a list of academic sentence starters that students can refer to in a discussion.
- **Choral Reading** - To build fluency, self-confidence and motivation with [reading/speaking](#)
- Create **movement** 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
- **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 speaking. Scroll for grade 2.

Reading

- Supplementary Text to help reinforce concepts.
- **Visual Aids** - Pictures or models to support vocabulary words and concepts
- Video to review or introduce a topic - use **closed captioning** to help students read along while they listen to the content.
- **4 Square / Frayer models** to help students gain a deeper understanding of vocabulary.
- **Highlighting** important text to assist students in answering questions after the reading.
- **Chunking**-Break reading of text into chunks or paragraphs
- **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 reading. Scroll for grade 2.
- **Vocabulary Morphology**- 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.

Instructional Accommodations (depending on the student’s needs)

- **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 **approved bilingual glossaries** from NYS in each subject

Special Education Modifications

Special Education students must have accommodations as per Individual Educational Plan (IEP)

Instructional

- **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

Grade 2 Unit 2 Earth and Space Science

	<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 <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 Step Up to Writing materials can be found in BPS Science K-12 Schoology Folder Grade 2 Resources Grade 2 Curriculum Materials 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. Scroll for grade 2.
<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