



Grade 3 Science
Unit 2 Earth and Space Science
Topic 3 Weather - 26 days

Unit Overview: Students will analyze and interpret data about weather. Students will look for patterns in data to explore water on Earth and how the weather changes season to season. Students will explore the different types of climates on Earth and the patterns associated with them. Students will build on this knowledge as they learn about climate change, climate zones, and world climate.

Topic Essential Question: What are ways to reduce the impacts of hazardous weather?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Water and Weather
- Lesson 2 Seasonal Weather Changes
- Lesson 3 Weather Hazards
- Topic Close –Assessment, Quest Findings

NYSSLS Performance Expectations (PE)

3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.]

[Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]

3-ESS2-3. Plan and conduct an investigation to determine the connections between weather and water processes in Earth systems. [Clarification Statement: Emphasis should be on the processes that connect the water cycle and weather patterns.]

3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*

[Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]

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.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Higher Order Thinking Skills (HOTS)

Higher Order Thinking Skills (HOTS) will be identified within each topic plan. Grade 3 HOTS include:

sequencing	reasoning
categorizing	recognizing attributes
identifying patterns	determining relevant/irrelevant information
cause and effect	distinguishing fact vs. opinion
researching	using complete sentences
brainstorming	inferencing
using logic	academic vocabulary

Topic Opener

PE: 3-ESS2-1, 3-ESS2-3, 3-ESS3-1, 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3

SEP: Analyzing and Interpreting Data*

DCI:

ESS2.D - Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.
- (NYSED) Earth's processes continuously cycle water, contributing to weather and climate.

ESS3.B - Natural Hazards

- A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

CCC: Patterns*

***Denotes Higher Order Thinking Skill**

Savvas

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

- **uConnect Lab – How can temperature damage a house?***
- Quest Kickoff – Hold on to your Roof! *
- Leveled Readers
- STEM Engineering Reader

Lesson 1- Water and Weather

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

SEP: Analyzing and Interpreting Data*

DCI:

ESS2.D - Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

CCC: Cause and Effect*

***Denotes Higher Order Thinking Skill**

Savvas

Guiding Objective

- Students will explain how water affects weather.

Literacy Skill

- Main Idea and Details

Vocabulary

- atmosphere
- weather
- humidity
- evaporate
- condense
- precipitation

Academic Vocabulary

- affect

Connect - TE/SB p. 90

- STEM Connection
- Write About It*

Investigate - TE/SB pp. 91-95

- **uInvestigate Lab – How does the amount of water change over time?***
- Video – Water and Weather
- Literacy Toolbox – Main Idea and Details*
- **uBe a Scientist – Transforming Water***
- Visual Literacy Connection – How does precipitation form?*

Synthesize - TE/SB pp. 95-97

- Interactivity – Fog and the Water Cycle?*
- Quest Connection *
- Reading Check – Main Idea and Detail*

- **Quest Check-In – Rainy Weather is Coming***

Demonstrate - TE/SB p. 96

- Lesson 1 Quiz
- Lesson 1 Check

Lesson 2 Seasonal Weather Changes

PE: 3-ESS2-1

SEP: Analyzing and Interpreting Data*

DCI:

ESS2.D - Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

CCC: Patterns*

***Denotes Higher Order Thinking Skill**

Savvas

Guiding Objective

- Students will describe the weather conditions for each season.

Literacy Skill

- Main Idea and Detail

Vocabulary

- temperature
- barometric pressure

Academic Vocabulary

- predict

Connect - TE/SB p.100

- STEM Connection
- Explain*

Investigate - TE/SB pp. 101-105

- Video – Seasonal Weather Changes
- ***uInvestigate Lab – When is the air dry?****
- *uBe a Scientist – Forecast the Weather**
- Quest Connection*
- Math Toolbox – Average Temperature*
- Visual Literacy Connection – How can a snowstorm affect you?*

Synthesize - TE/SB pp. 106-108

- Interactivity – Weather in Different Seasons
- ***Quest Check-In – A Roof for All Seasons****

Demonstrate - TE/SB p.107

- Lesson 2 Check
- Lesson 2 Quiz

Lesson 3 Weather Hazards

PE: 3-ESS3-1, 3-5 ETS1-2, 3-5 ETS-1-3

SEP: Developing and Using Models*
Planning and Carrying Out Investigations*

DCI:

ESS3.B - Natural Hazards

- A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

ETS1.B - Developing Possible Solutions

- Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

CCC: Cause and Effect*

***Denotes Higher Order Thinking Skill**

Savvas

Guiding Objective

- Students will demonstrate how to stay safe in severe weather.

Literacy Skill

- Main Idea and Detail

Vocabulary

- storm
- tornado
- hurricane
- flood
- drought

Academic Vocabulary

- impact

Connect - TE/SB p.110

- STEM Connection
- Identify*

Investigate - TE/SB pp. 111-113

- Video – Weather Changes
- ***uInvestigate Lab – How can you stop a flood?****
- Reading Check – Main Idea and Detail*
- Quest Connection*
- Plan It!*

Synthesize - TE/SB p. 114

- Interactivity – Severe Weather

Demonstrate - TE/SB pp.115-116

- Lesson 3 Check
- Lesson 3 Quiz
- ***Quest Check-In Lab – How can a roof be improved?****

Topic Close

- Assessment and Remediation TE/SE pp. 120-125
- Quest Finding p.118

Topic 3 Enrichment

Topic 3- Lesson 1 Enrichment - TE p. 95 - This activity extends student understanding of the lesson by having students learn what causes land and sea breezes. Then, they use a graphic organizer to identify cause-and-effect relationships.

Enrichment Skill- Cause and Effect

Topic 3- Lesson 2 Enrichment - TE p.106 - This activity extends student understanding of the lesson by giving the students the opportunity to research and record data about seasonal temperature changes in Buffalo, NY.

Enrichment Skill- Research

Topic 3- Lesson 3 Enrichment - TE p. 114 - This activity extends student understanding of the lesson by having them read text and answer questions about how tornadoes form.

Enrichment Skill- Inference

English Language Learners (ELL) Enhancements

To access [hyperlinked](#) material, you must be logged into your BPS Google Drive

Listening

- **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 3.

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 3.

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 3.
- **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.

	<p>Instructional Accommodations (depending on the student’s needs)</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 approved bilingual glossaries from NYS in each subject
<p>Special Education Modifications Special Education students must have accommodations as per Individual Educational Plan (IEP)</p>	<p>Instructional</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 <p>Technology:</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>In Class Assessments</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 3 Resources Grade 3 Curriculum Materials SUTW materials</p>	<ul style="list-style-type: none"> ● Breaking Down Definitions ● Four-Step summary Paragraph ● Sketch Then Write Responses ● Traffic Light Colors for Informative/Explanatory 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 writing. Scroll for grade 3.

Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom

- 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