Grade K Science
Unit 2 Earth and Space Science
Topic 4 Earth's Weather - 34 days

Unit Overview: In this unit students will expand on their ideas about the sun and weather. Topic 3 has students discovering that the Sun gives Earth heat and light. Students will also explore how the Sun affects Earth's surface. In **Topic 4** students will expand on their understanding of weather. Students will explore factors that affect different kinds of weather; recognize weather patterns and differences in these patterns in various places; recognize seasonal differences in temperature, storms, and plants; and finally, model and explore storms.

Topic Essential Question: How does the weather change?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Different Kinds of Weather
- Lesson 2 Weather Patterns
- Lesson 3 Seasons
- Lesson 4 Severe Weather
- Topic Close –Assessment, Quest Findings

NYSSLS Performance Expectations (PE)

K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas, and grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]

K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to severe weather. * [Clarification Statement: Emphasis is on local forms of severe weather and local resources available for preparedness measures.]

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.

K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Higher Order Thinking (HOTS)

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

- sequencing
- categorizing
- identifying patterns
- cause and effect
- researching
- brainstorming
- use of scientific method
- inferencing
- academic vocabulary

Topic Opener

PE: K-ESS2-1, K-ESS3-1, K-ESS3-2

SEP: Obtaining, Evaluating, and Communicating Information*
Analyzing and Interpreting*

DCI:

ESS2.D – Weather and Climate

- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.

ESS3.B - Conservation of Energy and energy Transfer

- Sunlight warms Earth's surface.

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.

- *u*Connect Lab – How does the weather change during the day?*
- Quest Kickoff – Changing Storms*
- Leveled Readers
- STEM Engineering Reader
- Science Song – Fun in the Weather

Lesson 1- Different Kinds of Weather **PE:** K-ESS2-1, K-ESS3-2, K-2-ETS1-1, K-2-ETS1-2, K-2-ETS1-3 **SEP:** Analyzing and Interpreting Data* Developing and Using Models* Planning and Carrying Out Investigations* **DCI:** **ESS2.D –** Weather and Climate ● Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. **ETS1.A -** Defining and Delimiting Engineering Problems ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● Before beginning to design a solution, it is important to clearly understand the problem. **CCC:** Patterns* ***Denotes Higher Order Thinking Skill**	**Savvas** **Guiding Objective** ● Students will describe different types of weather. **Vocabulary** ● temperature ● snow **Connect** ● TE/SB p. 108 ● Jumpstart Discovery **Investigate** ● TE/SB pp. 109-110 ● *u*Investigate Lab – How can you make it rain?* ● Video – Different Kinds of Weather **Synthesize** ● TE/SB pp. 111-113 ● Interactivity – Weather ● Literacy Toolbox – Main Idea and Details ● Quest Connection* ● Quest Check-In – Weather Words* **Demonstrate** ● TE/SB p.112 ● Lesson 1 Quiz
Lesson 2 Weather Patterns **PE:** K-ESS2-1, K-2-ETS1-2 **SEP:** Planning and Carrying Out Investigations* Analyzing and Interpreting Data* **DCI:** **ESS2.D –** Weather and Climate ● Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. **ETS1.A -** Defining and Delimiting Engineering Problems ● Asking questions, making observations, and gathering information are helpful in thinking about problems. **ETS1.B –** Developing Possible Solutions ● Designs can be conveyed trough sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. **CCC:** Patterns* ***Denotes Higher Order Thinking Skill**	**Savvas** **Guiding Objective** ● Students will observe weather changes from day to day. Students will observe patterns in weather. **Vocabulary** ● pattern **Connect** ● TE/SB p. 116 ● Jumpstart Discovery **Investigate** ● TE/SB pp. 117-118 ● Video – Weather Patterns* ● *u*Investigate Lab – How can you collect rain?* ● Crosscutting Concepts Toolbox: Patterns* **Synthesize** ● TE/SB pp. 119-120 ● Interactivity – Record the Weather* ● Quest Connection ● Quest Check In – Predict the Weather* **Demonstrate** ● TE/SB p. 120 ● Lesson 2 Quiz

Lesson 3 Seasons **PE:** K-ESS2-1 **SEP:** Analyzing and Interpreting Data* **DCI:** **ESS2.D –** Weather and Climate ● Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. **CCC:** Patterns* ***Denotes Higher Order Thinking Skill**	**Savvas** **Guiding Objective** ● Students will describe the seasons. **Vocabulary** ● season **Connect** ● TE/SB p. 122 ● Jumpstart Discovery **Investigate** ● TE/SB pp. 123-124 ● Video – Seasons ● *u*Investigate Lab – What is the weather like in different seasons?* ● Math Toolbox - Measure **Synthesize** ● TE/SB p. 125 ● Interactivity – Seasons of the Year ● Quest Connection* ● Quest Check In – Seasonal Changes* **Demonstrate** ● TE/SB p. 125 ● Lesson 3 Quiz
Lesson 4 Severe Weather **PE:** K-ESS2-1, K-ESS3-2, K-2 ETS1-2 **SEP:** Asking Questions and Defining Problems* Obtaining, Evaluating, and Communicating Information* **DCI:** **ESS2.D –** Weather and Climate ● Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. **ETS1.A -** Defining and Delimiting Engineering Problems ● Asking questions, making observations, and gathering information are helpful in thinking about problems. **ETS1.B –** Developing Possible Solutions ● Designs can be conveyed trough sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. **CCC:** Cause and Effect* ***Denotes Higher Order Thinking Skill**	**Savvas** **Guiding Objective** ● Students will understand why it is important to prepare for severe weather. **Vocabulary** ● thunderstorm ● tornado ● hurricane **Connect** ● TE/SB p. 128 ● Jumpstart Discovery **Investigate** ● TE/SB pp. 129-131 ● Video – Severe Weather ● *u*Investigate Lab – What does a storm look like?* ● Quest Connection **Synthesize** ● TE/SB pp. 132-133 ● Interactivity – Report Severe Weather ● Crosscutting Concepts Toolbox – Cause and Effect* **Demonstrate** ● TE/SB pp. 133-134 ● Lesson 3 Quiz ● Quest Check In Lab – How Does the Wind Move*

Topic Close	**Topic 4 Enrichment**
• Assessment and Remediation TE/SE pp. 138-141 • Quest Finding p.136	**Topic 4- Lesson 1 Enrichment-** TE p. 111 - This activity extends student understanding of the lesson by providing an opportunity to have them read about how to measure rain through academic vocabulary (measure, rain gauge, record). **Enrichment Skill - Academic vocabulary** **Topic 4- Lesson 2 Enrichment-** TE p. 120 - This activity extends student understanding of the lesson by providing an opportunity to have them read about how to stay cool in hot weather academic vocabulary (heat wave, cooling center). **Enrichment Skill - Academic vocabulary** **Topic 4- Lesson 3 Enrichment-** TE p. 125 - This activity extends student understanding of the lesson by providing an opportunity to have them text about a messy yard due to weather. **Topic 4- Lesson 4 Enrichment-** TE p. 133- This activity extends student understanding of the lesson by providing an opportunity to have them complete research on weather forecasts from the National Weather Service. **Enrichment Skill - Research**

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 K.
	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 K.

	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 K. ● **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 i**nteractive notebook** ● Present complex **tasks in multiple ways** ● Provide **mnemonic strategies** for scientific concepts
	Technology: ● **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
	In Class Assessments ● Provide **multiple options** for projects ● **Use of timer** in class ● Break all complex tasks into chunks

Step Up to Writing Step Up to Writing materials can be found in BPS Science K-12 Schoology Folder K Resources K Curriculum Materials SUTW materials	• 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 K.
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