



Earth's Place in the Universe

Essential Question: Why do we need to know about the weather?

Unit Summary: This unit is intended to be implemented throughout the school year. This unit will explore the different types of weather and encourage the students to have natural conversations about weather and weather words. You will introduce the vocabulary for weather and weather observation AFTER the students have had an opportunity to discover these vocabulary on their own. You will establish your weather routine during your calendar time. Students will initially learn how to record their weather observations as a whole group, on the class calendar, after observing and setting the classroom weather dial as an introduction into observing weather patterns. Then they will then have their own calendars to record their weather observations. You will also introduce the concept of weather reports.

- **Lesson 1: Discovering Weather** – Establishing a weather routine during calendar time. Students learn how to record weather and record observations on their own calendar.
- **Lesson 2: How Today's Weather Affects our Clothing Choices** – Introduction to weather reports and use of a weather bear to practice connect the weather to clothing choices.
- **Lesson 3: Forecasting the Weather** – Identify what a **meteorologist** does and the purpose of a **weather forecast**. Students read a forecast and **predict** appropriate clothing choices for tomorrow's weather.
- **Lesson 4: Weather Patterns** – Use monthly data the class has been tracking to create and analyze a graph.
- **Lesson 5; Effects of the Sun on Earth's Surface** – Explore and observe where it is warmer and cooler when outdoors on a sunny day.
- **Lesson 6: Shelter from Weather** – Each student uses prior knowledge to construct a shelter that will protect them from the sun.

Lesson 1 of 6: Discovering Weather AND Lesson 4 of 6: Weather Patterns

Standards SC4.1.5 Objects in the Sky		
Performance Expectations **The lesson outlined in this table is just one step toward reaching the performance expectation listed below** K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.		
Dimension	Name and NGSS code/citation	Specific Connections to Classroom Activity
Science and Engineering Practices	SEP 4: Analyzing and Interpreting Data <ul style="list-style-type: none"> ● Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. 	In Lesson 4, students will be using the data they have been collecting in the calendars on the weather. They will compile the observations into a graph, from which they will identify patterns in the weather they observed. Lesson 4 will provide students the opportunity to use their data to describe patterns in order to answer questions by proceeding through the following questioning progression: <ul style="list-style-type: none"> ● Week prompt: ● Month prompt: ● Multi-month prompt:
Disciplinary Core Ideas	Weather and Climate (ESS2.D) <ul style="list-style-type: none"> ● Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. 	In Lesson 1, students will be measuring conditions of weather by recording the relative temperature (hot, cold, warm, cool) and weather (windy, sunny, snowy, cloudy, rainy) onto their calendars every day.



	<ul style="list-style-type: none"> • People measure these conditions to describe and record the weather to notice patterns over time. 	<p>In lesson 4, they will use the data they recorded on their calendars to create a graph in order to notice patterns in the types of weather over time.</p>
<p>Crosscutting Concepts</p>	<p>CCC 1: Patterns</p> <ul style="list-style-type: none"> • Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. 	<p>In Lesson 1, students will be observing the local weather outside their school each morning. They will use this data as evidence to identify patterns in Lesson 4.</p>
<p>Connections to Engineering, Technology, and Applications of Science:</p> <p>Scientific Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> • Scientists look for patterns and order when making observations about the world. 		<p>Students will be using the weather data they collect on their calendar to identify patterns about number of sunny/cloudy/rainy/snowy days. They will also discuss what to wear based on these patterns.</p>
<p>Connecting to the Common Core State Standards</p> <p>ELA/Literacy –</p> <p>K.RL.9. With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.</p> <p>K.RF.1. Demonstrate understanding of the organization and basic features of print.</p> <p>K.RF.3. Know and apply grade-level phonics and word analysis skills in decoding words.</p> <p>K.L.4. Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on kindergarten reading and content.</p> <p>K.L.5. With guidance and support from adults, explore word relationships and nuances in word meanings.</p> <p>K.SL.1a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).</p> <p>K.SL.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p> <p>K.RI.1. With prompting and support, ask and answer questions about key details in a text.</p> <p>Mathematics –</p> <p>K.MD.3. Classify objects into given categories; count the number of objects in each category and sort the categories by count.</p>		
<p style="text-align: center;">Suggested Procedure</p> <p>Lesson 1: Discovering Weather</p> <p>ACTIVITY 1 (targets SEP4):</p> <p><i>**Preparation: Ensure all students have their own copy of weather bear and accompanying clothes laid out and ready (example below). You will have students dress weather bear and record weather observations on a daily basis; this will be used to learn about weather patterns over time and to practice analyzing and interpreting data throughout the year.**</i></p>		



1. Framing: To engage students in this unit, begin by having them notice differences in the types of clothing (e.g., t-shirt vs. long sleeves; shorts vs. pants) everyone in class is wearing. Ask students why they chose that clothing today. After allowing a couple of students to share, tell them that they are going to explore how what is happening outside might influence what they wear.
2. Tell students they will be shown some pictures and they have to dress their bear according to what they observe in the picture. Begin weather slideshow. This lesson is intended to be exploratory only, so teacher talk should be *very* minimal. As students are watching the slideshow, they are going to be dressing their weather bear for the weather on the screen. Pause the video after each type of weather and ask several students to share what clothes they chose and why.

Ex.

"How did you dress your weather bear?" (I dressed bear with a rain jacket and an umbrella.)

"Why did you dress him like that?" (Students should provide a coherent explanation; their clothing choices might not be your first choice and that is alright as long as they explain.)

Who else dressed weather bear like that? Was your reasoning the same?"

"Who dressed weather bear differently? Tell us why."

3. You may choose to stop the slideshow and allow for student discussion occasionally, but this should be student-driven. Have your students turn and talk with a partner and share how you dressed your bear and **why**.
 - a. I put _____ on my bear because _____. (Student sentence frame for discussion).
4. The vocabulary for weather words is expected to come naturally out of this lesson; students should have a desire to find the word that matches what they are seeing.
5. Gather the students for a whole-group discussion. Find out, through discussion, how students would define weather and how it might affect our daily lives (listen for some words defining weather or weather attributes, as well as the way weather affects day to day life, such as clothing, activities, travel, and safety, etc.)

Lesson 4: Weather Patterns

ACTIVITY 1 (targets SEP4, ESS2.D, CCC1):

As described in lesson 2, have students set the daily weather dial (picture at end of procedure) and record it on their personal calendars (example at end of procedure). You will begin to direct students to identify patterns in the weather they have noted over the week/month. The purpose of this lesson is to have students interpret and analyze the



weather data they have been collecting all month. The focus should be on students counting the number of days that were sunny, rainy, cloudy, etc. and noticing patterns surrounding differences in numbers.

To start this process, read a book or watch a video (e.g., *Weather with Freddy the Frog*: <https://www.youtube.com/watch?v=8HmhevBeSCA>) to dress they bear, collect data, and notice patterns. Ideally, this resource should have multiple days with some similar and some different weather. That way, you can model how to create a graph and use it to make several conclusions about patterns.

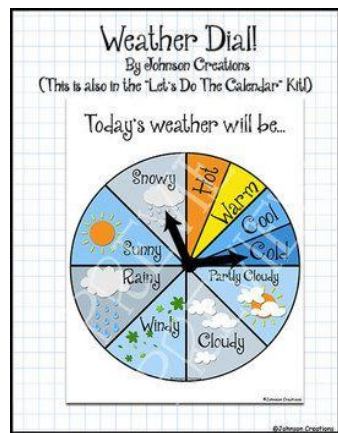
Within whole group discussion, guide students in making observations of patterns seen in their weather data over time.

Suggested discussion:

- *What do you notice about the weather so far this month? Why? Show me how you know that...*
- *What type of weather have we seen the most/least/not at all? Why? How did you figure that out?*
- *How has this affected your life (clothing, activities, travel, safety, animals/pets, etc.)?*

Model for students using the book/video how to create a graph of their observations (example graph set-up below). As the school year progresses, have the students identify patterns at larger scales (week, month, season) by comparing their increasing data sets.

Reminder: As stated in previous lessons, students should be recording and discussing weather patterns throughout the year during the calendar time. This is a constant and ongoing opportunity for discussion and formative assessment.



August 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	01	02	03	04	05	06
07	08	09	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

