Weather and Seasons
Lesson 1a: Weather Patterns

Grade: Kindergarten	**Length of lesson:** 32 minutes	**Placement of lesson in unit:** 1a of 5 lessons on weather (This is a bridge lesson between the prelessons (lesson 0) taught at the beginning of the school year and the remainder of the lesson series.)
Unit central questions: Is weather the same everywhere all of the time? How do you know?		**Lesson focus question:** What was our weather in Pomona like in September?

Main learning goal: By observing and studying the weather over time, we can identify patterns. Weather patterns tell us what the weather is mostly like at a given time of year in a specific place, such as the weather in Pomona during the month of September.

Science content storyline: Weather is what it looks like and feels like outside. Weather includes temperature, sunlight, clouds, rain or snow, and wind. Sometimes it can be sunny, but other times, it might be cloudy or rainy. When weather is observed and recorded over time in a specific place, we can identify patterns in the weather. These weather patterns can tell us what the weather is like most of the time. Is it sunny, cloudy, or rainy most of the time? Is it hot or warm, cool or cold most of the time? In Pomona in September, the weather pattern is mostly sunny and hot.

Ideal student response to the focus question: Every day during the month of September, we observed and recorded the weather in Pomona on a class weather calendar. When we studied our calendar, we saw that Pomona is mostly sunny and hot in September. This is called a *pattern*.

Preparation

Materials Needed	**Ahead of Time**
• Science notebooks • Chart paper and markers • Crayons (1 set per student for drawing activity) • Class weather calendar with weather data collected in September (from lessons 0a–d) • **Optional:** Video clip of a local weather forecast (https://www.youtube.com/watch?v=E1--PAFPtHw)	• Review the Weather and Seasons Content Background Document. • **Optional:** Find a video clip of a local weather forecast to show students if time allows (e.g., https://www.youtube.com/watch?v=E1--PAFPtHw). • Use the class weather calendar from September for lessons 1a–c of this series. September should show the most noticeable contrast in weather compared to January and February. • **ELL support:** Meet with ELL students in advance and introduce them to the lesson content, structure, materials, and activities so they know what's expected and can participate more fully in the lesson. Identify vocabulary terms in the lesson plan to review with students in advance, including *pattern* (something that does or doesn't happen again and again), *weather*, *observe*, *temperature*, *thermometer*, *measure*, and *degrees*. Post weather words on a word wall for students to refer to as needed (e.g., *sunny*, *cloudy*, *rainy*, *windy*, *hot/warm*, *cool/cold*).

Lesson 1a General Outline

Time	Phase of Lesson	How the Science Content Storyline Develops
5 min	**Introduction and link to previous lessons:** The teacher introduces the unit central questions. Then students review the weather data they collected and recorded on their class weather calendar for the month of September.	• Weather is what it looks like and feels like outside. Weather includes temperature, sunlight, clouds, rain or snow, and wind. Sometimes it can be sunny, but other times, it might be cloudy or rainy.
2 min	**Lesson focus question:** The teacher introduces the focus question, *What was our weather in Pomona like in September?* and asks students what they remember.	
5 min	**Setup for activity:** Students look at different weather photographs and discuss whether Pomona experiences each kind of weather. Then the teacher introduces the term *weather pattern*.	• Weather is what it looks like and feels like outside. Weather includes temperature, sunlight, clouds, rain or snow, and wind. Sometimes it can be sunny, but other times, it might be cloudy or rainy.
8 min	**Activity:** Students examine the data they recorded on their weather calendar and identify weather patterns as they discuss what the weather in Pomona was mostly like during the month of September.	• By observing the weather every day for a month, we can identify patterns that tell us what the weather is mostly like at a given time of year in a specific place.
6 min	**Follow-up to activity:** Students draw pictures in their science notebooks to show what the weather was mostly like in Pomona during the month of September.	• Over the span of a month, we can observe weather patterns at a given time of year in a specific place. These patterns can include whether it was mostly sunny or cloudy, mostly rainy or dry, and mostly hot or cold.
5 min	**Synthesize/summarize today's lesson:** Students share their drawings and describe one weather pattern they observed in Pomona during the month of September.	
1 min	**Link to next lesson:** The teacher foreshadows the next lesson in which students count and graph weather patterns.	

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5 min	**Introduction and Link to Previous Lessons** **Synopsis:** The teacher introduces the unit central questions. Then students review the weather data they collected and recorded on their class weather calendar for the month of September. **Main science idea(s):** • Weather is what it looks like and feels like outside. Weather includes temperature, sunlight, clouds, rain or snow, and wind. Sometimes it can be sunny, but other times, it might be cloudy or rainy.		**Show slide 1.** Today we're going to start a new unit on weather. Who remembers our class weather calendar from September where we recorded the weather we observed and the temperatures we measured outside every day? In this unit, we're going to use our weather calendar to help us think about what the weather is like in Pomona. **Show slide 2.** During each lesson, we'll also think about two big weather questions: *Is weather the same everywhere all of the time? How do you know?* These questions are called our *unit central questions*. To help us answer these questions, we'll study the observations we recorded on our weather calendars. **Show slide 3.** So today let's think about the kinds of information we recorded on our class weather calendar for September.		
		Ask questions to elicit student ideas and	What kind of weather information do you see on our calendar? What does our calendar show us about the weather?	Our calendar shows	

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		predictions.		the days in September.	Yes, it shows us the days, but what does it show us about our weather in September?
				If it was sunny or cloudy.	
				If it was windy or rainy.	
				If it was hot or cold.	
			That's right! This calendar shows us what the weather was like for the month of September right here in Pomona. It shows us sunny days and cloudy days, hot days and warm days, when it rained, and if it was windy. All of those things make up our weather, right?		
		Summarize key science ideas.	So we know that weather is what it looks like and feels like outside. It can be sunny or cloudy or cold or hot. It can also be rainy, snowy, or windy outside.		
			What are some ways we observed and felt what the weather was like outside in September?	We looked to see if the Sun was out.	
				We looked to see if there were clouds in the sky.	

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			And how did you know how hot or cold it was outside? So we could feel on our skin whether it was hot or cold. But did we measure how hot or cold it was in another way? That's right, we used a thermometer to measure the temperature or how hot or cold it was outside. So we know that weather is what it looks like and feels like outside, and we know we can find out what the weather is like by looking outside and by measuring the temperature with a thermometer.	We could feel how hot it was on our skin. When we were outside, we could feel the breeze on our skin. We could see and feel the rain, but it only rained *[once]*. I could feel it was hot because I started sweating. We looked at a thermometer that measured the temperature outside.	
2 min	**Lesson Focus Question** **Synopsis:** The teacher introduces the focus	Set the purpose with a <u>focus</u>	**Show slide 4.** Today we're going to think about the question, *What was our weather in Pomona like in*		

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	question, *What was our weather in Pomona like in September?* and asks students what they remember.	question or goal statement.	*September?* This is the focus question for our lesson. For each lesson in this unit, we'll have a different focus question to think about. **NOTE TO TEACHER:** *Write the focus question on the board and draw a box around it. Point to each word as you read the question aloud.* To help us answer this question, we'll look at all of the weather information we recorded so carefully on our class weather calendar using different kinds of weather stickers. We'll look at whether it was sunny or cloudy or windy or rainy or hot on a particular day. Does anyone remember way back to September?		
		Ask questions to elicit student ideas and predictions.	What was the weather like outside during that month? Was it cold or hot most of the time? Did we have a lot of cloudy days or a lot of sunny days? Well, luckily we recorded the weather every day we were at school in September, so we can look at our class weather calendar to help us remember.	I think it was hot most of the time! I think we had lots of sunny days. I don't remember!	
5 min	**Setup for Activity**		First, let's review what we've learned so far about what weather is.		

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	Synopsis: Students look at different weather photographs and discuss whether Pomona experiences each kind of weather. Then the teacher introduces the word *pattern*. **Main science idea(s):** • Weather is what it looks like and feels like outside. Weather includes temperature, sunlight, clouds, rain or snow, and wind. Sometimes it can be sunny, but other times, it might be cloudy or rainy.	Select content representations and models matched to the learning goal and engage students in their use. Engage students in analyzing and interpreting data and observations.	I'm going to show you some pictures of different kinds of weather. As you look at each picture, think about whether we have that kind of weather here in Pomona. **Show slide 5.** Here's our first picture. What do you think? Do we have sunny days in Pomona? **NOTE TO TEACHER:** *During this discussion, give students opportunities to share their own experiences or observations of each kind of weather, especially weather that isn't typical for Pomona, such as snow. Challenge them to use weather words when they share their experiences.* **Show slide 6.** Who can describe the weather in this next picture? Do we have many cloudy days in Pomona? **Show slide 7.** Look closely at this next picture. What kind of weather is happening here? Do we have rainy days in Pomona? **Show slide 8.**	Yes, we have lots of sunny days here. There are dark clouds! No, we don't have many cloudy days. It's raining really hard. Not very many.	

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			What is happening to the trees in this picture?	The wind is blowing the palm trees.	
			Do we have windy days in Pomona?	Not very many.	
			Show slide 9.		
			What kind of weather do you see in this picture?	Snow!	
			Do we have snow in Pomona?	No! We don't get snow here.	
			Show slide 10.		
			What about hot and cold days? Do we have mostly hot and warm temperatures or mostly cool and cold temperatures?	It's mostly hot or warm here.	
			Show slide 11.		
		Highlight key science ideas and focus question throughout.	So *weather* is what it looks like and feels like outside. The weather can be sunny or cloudy, rainy or dry, windy or calm, and hot or cold.		
			Show slide 12.		
			We know what the weather is like outside by looking at it, feeling it, and measuring it.		
			NOTE TO TEACHER: *To emphasize that temperature is measured, you could say, "We know what weather is like outside by looking at it and feeling it. We can also tell whether it's hot, warm, cool, or cold by measuring the temperature with a thermometer.*		

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		Make explicit links between the science ideas and the activities **before** the activity.	**Show slide 13.** Next, we're going to study our weather calendar for September and see what the weather in Pomona is like, or not like, most of the time. This is called a *pattern* in the weather. A *pattern* is something that does or doesn't happen again and again. So a *weather pattern* is what the weather is like most of the time in a certain place. The information we recorded on our weather calendar will help us see if there are any weather patterns in Pomona during the month of September. For example, if most days were cloudy in September, that's a weather pattern. **NOTE TO TEACHER:** *If time allows, show the video clip of a local weather forecast and discuss students' observations*		
8 min	**Activity** **Synopsis:** Students examine the data they recorded on their weather calendar and identify weather patterns as they discuss what the weather in Pomona was mostly like during the month of September. **Main science idea(s):** • By observing the weather every day for a	Make explicit links between science ideas and activities **during** the activity. Engage students in analyzing and interpreting data and observations.	**Show slide 14.** So let's take a look at our class weather calendar and see what the weather was like in Pomona most of the time in September. What weather sticker or symbol do you see a lot of on our calendar? **NOTE TO TEACHER:** *Explain what a symbol is if students are unfamiliar with this word. This discussion may elicit a wide variety of responses about the weather. To keep things simple, reinforce the idea of weather patterns. For example, you could say, "If there are a lot of Sun stickers, that*	*Sample dialogue:* There are lots of Sun stickers! It was sunny most of the time.	What do you think "lots of Sun stickers" means?

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	month, we can identify patterns that tell us what the weather is mostly like at a given time of year in a specific place.		*means there is a* pattern *of sunny weather."* Or you could ask, *"If there are a lot of Sun stickers, what can we say about the pattern of weather?"* Mention that if there are few or no stickers on the calendar for a certain kind of weather, such as rain, that's also a weather pattern. Ask students, *"What weather do we have very little of in Pomona? What does our weather calendar show?"* What else do you notice about the weather on our calendar? So we could say that it's mostly sunny in Pomona during the month of September. We call that a *weather pattern*. Pomona has a *pattern* of sunny days in September. Do you notice anything else about our weather in September? So we could say that there aren't many windy days in Pomona during the month of September. That's	There weren't many cloudy days in September. Sunny days! There were only *[two]* windy days.	Which do we see more of in Pomona during the month of September: sunny days or cloudy days? Can you come up and show us the windy days on the calendar?

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			another weather pattern. Pomona has a pattern of very little wind in September. What about hot and cold days in September? What do you notice about the temperatures we recorded on our thermometers each day?	The thermometers are mostly red and yellow. It was mostly hot or warm.	What do these colors mean? What do they tell us about the weather? Are there any thermometers on our calendar that are blue or green?
			Would you say that it was mostly hot or mostly cold in September? **NOTE TO TEACHER:** *Use the words* hot, *warm,* cool, *and* cold. *Reinforce the definitions by eliciting examples from students.* So we could say that it's mostly hot in Pomona during the month of September. That's another weather pattern. Pomona has a pattern of hot temperatures in September. Now look at the rainy days on our calendar. What do you notice?	No. It was mostly hot. There are only *[three]* rainy days.	What does this

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					tell you about the weather in September? Is it mostly rainy or mostly dry?
				It's mostly dry.	
			So we can say that it's mostly dry in Pomona during the month of September. This is a weather pattern too. Pomona has a pattern of dry weather with very little rain in the month of September.		
6 min	**Follow-Up to Activity** **Synopsis:** Students draw pictures in their science notebooks to show what the weather was mostly like in Pomona during the month of September. **Main science idea(s):** • Over the span of a month, we can observe weather patterns at a given time of year in a specific place. These patterns can include whether it was mostly sunny or cloudy, mostly rainy or dry, and mostly hot or cold.	Make explicit links between science ideas and activities **after** the activity. Engage students in analyzing and interpreting data and observations. Select content representations and models matched to the learning goal	Today we observed several weather patterns in Pomona from studying our weather calendar for September. We found that during the month of September, Pomona is mostly sunny, hot, and dry, with very few clouds and hardly any wind or rain. That's our weather pattern! **Show slide 15.** If you were going to draw a picture in your science notebooks to show weather patterns in Pomona during September, what you would draw? Think about what our weather was like most of the time.	I'd draw a picture of the Sun! I'd draw only a few clouds! I'd draw a picture without any rain!	

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		and engage students in their use. Ask questions to elicit student ideas and predictions.	Is it mostly hot or cold in September? What would children in your drawing be wearing to show that it's mostly hot? Now open your notebooks to a blank page and draw a picture that shows what the weather patterns are like in Pomona during September. Remember, a *weather pattern* is what the weather is *mostly like* in a place at a certain time of year. **Individual work time.** **NOTE TO TEACHER:** *As students work on their drawings, circulate around the room and ask probe and challenge questions to find out more about what they're thinking.*	I'd draw a picture with no wind! It's mostly hot! T-shirts and shorts.	
		Ask questions to probe student ideas and predictions. Ask questions to challenge student thinking.			*Probe and challenge questions to ask while students work on their drawings:* • Why are you drawing *[the Sun, clouds, rain, wind, etc.]*? • What did we say the weather was mostly like in September? • Can you add some people to

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					your picture? What clothes will they be wearing? Why? • What was the pattern for sunny and cloudy days in September? • What was the pattern for temperatures in September? • What do we mean by a *weather pattern*? • So was it mostly hot or mostly cold in September?
5 min	**Synthesize/Summarize Today's Lesson** **Synopsis:** Students share their drawings and describe one weather pattern they observed in Pomona during the month of September. **Main science idea(s):** • Over the span of a	Highlight key science ideas and focus question throughout.	**Show slide 16.** The focus question we've been thinking about today is *What was our weather in Pomona like in September?* To help us answer this question, I'd like you to share the pictures you drew to show the weather patterns in Pomona during September. **Show slide 17.**		

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	month, we can observe weather patterns at a given time of year in a specific place. These patterns can include whether it was mostly sunny or cloudy, mostly rainy or dry, and mostly hot or cold.	Engage students in making connections by synthesizing and summarizing key science ideas. Ask questions to probe student ideas and predictions. Ask questions to challenge student thinking. Engage students in constructing explanations and arguments.	Let's have a few of you come up one at a time and show us your pictures. I'll project your pictures on the document reader, and then I'd like you to tell us about *one* weather pattern in your drawings. You could tell us about the weather pattern for sunny or cloudy days or the weather pattern for rainy or dry days, or the weather pattern for temperatures. When you describe your drawing, use the sentence starter on the slide: *In September, the weather pattern in Pomona was mostly _____.* **NOTE TO TEACHER:** *Display students' pictures on a document reader or Elmo projector. Try to include drawings that show different weather patterns. For instance, if it rained one day, some students might include a little bit of rain. Have them explain why they did that.* Let's have someone else share a different weather pattern.	In September, the weather pattern in Pomona was mostly sunny. Because there are lots of Sun stickers on our calendar. In September, it didn't rain much. In September, the weather pattern in Pomona was mostly dry.	How do you know that? Can you use the words *weather pattern* in your sentence? Do the children

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			What about the weather pattern for temperature? Remember to use our sentence starter, "In September, the weather pattern in Pomona was mostly _____."	In September, the weather pattern in Pomona was mostly hot.	in your picture need umbrellas or raincoats?
				They're wearing swimsuits, and they're swimming in a pool.	What are children wearing in your picture?
			Great job, everyone!		
			So today we talked about what weather is. Can anyone tell me what weather is?	Weather is what it looks like and feels like outside.	
			Show slide 18.		
			Yes! Weather is what it looks like and feels like outside. The weather can be sunny or cloudy, rainy or dry, windy or calm, and hot or cold.		
			Who can tell me what our weather in Pomona was like in September? What weather patterns did we find on our calendar?	It was mostly sunny and hot.	

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				There weren't very many clouds. There was hardly any rain or wind.	
		Summarize key science ideas.	**Show slide 19.** So in September, the weather pattern in Pomona is mostly sunny, hot, and dry, with very few clouds and hardly any rain or wind.		
1 min	**Link to Next Lesson** **Synopsis:** The teacher foreshadows the next lesson in which students count and graph weather patterns.	Link science ideas to other science ideas.	**Show slide 20.** Today we used our weather calendar to help us find weather patterns in Pomona during the month of September. We also drew pictures to show these weather patterns. Next time, we'll look for more patterns on our weather calendar, and we'll see how counting can help us find weather patterns. What kinds of things could we count on our calendar? .	How many Sun stickers there are. How many hot and warm days there were. How many cloudy and rainy days we had in September.	

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				How many wind stickers there are.	