

## Weather and Seasons

### Lesson 3a: Weather during the Day

<b>Grade:</b> Kindergarten	<b>Length of lesson:</b> 35 minutes	<b>Placement of lesson in unit:</b> lesson 3a of 5 lessons on weather
<b>Unit central questions:</b> Is weather the same everywhere all of the time? How do you know?		<b>Lesson focus question:</b> How can weather change during the day?
<b>Main learning goal:</b> Weather can change quickly during the day.		
<b>Science content storyline:</b> Weather patterns can change slowly from month to month, but they can also change quickly during the day. The weather can be sunny in the morning and then become cloudy and rainy in the afternoon. Temperatures can change during the day too. Graphing weather data can help us identify weather patterns and show how they change from month to month or during the day. We can use weather data to describe how the weather in our story about Alisa’s trip to the zoo changed throughout the day. But how does the weather change in Pomona during the day? We can also investigate how weather changes from morning to afternoon in Pomona and look for patterns.		
<b>Ideal student response to the focus question:</b> Weather can change quickly during the day. For example, it can be sunny and warm in the morning and then turn stormy, rainy, and cold in the afternoon.		

#### Preparation

##### Materials Needed

- Science notebooks
- Chart paper and markers

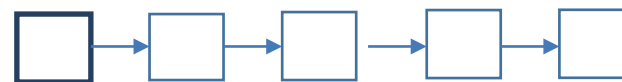
##### Student Handouts and Teacher Masters

- 3.1 Alisa’s Trip to the Zoo (Teacher Master) (laminated, 8.5 × 11" or 11 × 17")

##### Ahead of Time

- Review the content background document.
- Prepare handout 3.1 (Alisa’s Trip to the Zoo) for print or display on a document reader, Elmo projector, or use the PowerPoint presentation.
- On chart paper, create a weather flow chart to track changes in weather throughout the story about Alisa’s trip to the zoo (handout 3.1).

##### Weather Flow Chart



- **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 *weather/temperature pattern*, *zoo*, and *flow chart*.

### Lesson 3a General Outline

Time	Phase of Lesson	How the Science Content Storyline Develops
5 min	<b>Link to previous lessons:</b> The teacher engages students in reviewing the weather patterns they identified in previous lessons and how these patterns can change from month to month. Then the teacher elicits ideas from students about how the weather can change during the day.	<ul style="list-style-type: none"> <li>• Weather can change from month to month.</li> <li>• Counting and graphing weather data can help us see weather and temperature patterns from month to month.</li> <li>• Weather can change slowly over time, but it can also change quickly.</li> </ul>
2 min	<b>Lesson focus question:</b> The teacher introduces the focus question, <i>How can weather change during the day?</i> Then the teacher reviews the unit central questions.	
4 min	<b>Setup for activity:</b> The teacher sets up a short story about a girl named Alisa and her trip to the zoo by asking if students have ever been to the zoo and what the weather was like. Then the teacher introduces the flow chart they'll use to track how the weather changes in the story.	<ul style="list-style-type: none"> <li>• We can use a flow chart to track how weather can change during the day.</li> </ul>
10 min	<b>Activity:</b> The teacher reads the story about Alisa's trip to the zoo, and students answer questions about the weather on each page. As students share their observations about weather and temperature changes in the story, the teacher records them on a flow chart.	<ul style="list-style-type: none"> <li>• Weather can change quickly during the day. The weather can be sunny in the morning and become cloudy and rainy in the afternoon. Temperatures can also change during the day.</li> </ul>
7 min	<b>Follow-up to activity:</b> Students use the weather flow chart to help them identify weather patterns and describe how the weather changed in the story during the day.	<ul style="list-style-type: none"> <li>• We can use weather data to help us identify weather and temperature patterns and describe changes in the weather during the day.</li> </ul>
5 min	<b>Synthesize/summarize today's lesson:</b> The teacher revisits the focus question. Then students use the flow chart to help them create stories that show how weather patterns can change during the day.	<ul style="list-style-type: none"> <li>• Weather can change slowly over time, such as from one month to another month, but weather can also change quickly during the day.</li> <li>• Graphing weather data can help us identify weather patterns and show how they can change from month to month or during the day.</li> </ul>
2 min	<b>Link to next lesson:</b> The teacher foreshadows the next lesson by asking students if the weather in Pomona can change as quickly during the day as the weather in Alisa's story.	

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5 min	<p><b>Link to Previous Lessons</b></p> <p><b>Synopsis:</b> The teacher engages students in reviewing the weather patterns they identified in previous lessons and how these patterns can change from month to month. Then the teacher elicits ideas from students about how the weather can change during the day.</p> <p><b>Main science idea(s):</b></p> <ul style="list-style-type: none"> <li>• Weather can change from month to month.</li> <li>• Counting and graphing weather data can help us see weather and temperature patterns from month to month.</li> <li>• Weather can change slowly over time, but it can also change quickly.</li> </ul>	<p>Link science ideas to other science ideas.</p> <p>Engage students in making connections by synthesizing and summarizing key science ideas.</p> <p>Engage students in analyzing and interpreting data and observations.</p>	<p><b>Show slide 1.</b></p> <p>In our last few lessons, we used the information we recorded on our weather calendars for September and January to help us identify weather and temperature patterns in Pomona. Then we made picture and bar graphs to help us see these patterns in September and January more easily.</p> <p><b>Show slide 2.</b></p> <p>What are some of the weather and temperature patterns we noticed when we compared our graphs for September and January?</p> <p>What other weather or temperature patterns did we find when we compared our graphs for September</p>	<p>September and January have different weather.</p> <p>We noticed that the weather pattern in September is warmer than the pattern in January.</p> <p>The weather pattern in September was more sunny days than in January.</p>	<p>Can you use the words <i>weather patterns</i> or <i>patterns</i> to describe what you noticed?</p>

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		<p>Ask questions to elicit student ideas and predictions.</p>	<p>and January?</p> <p><b>Show slide 3.</b></p> <p>So we've been looking at how weather can change over long periods of time, like from one month to another. But do you think weather can change in shorter periods of time, like during the day?</p> <p><b>Think-Pair-Share:</b> Think about this question for a moment and then share your ideas with an elbow partner. Be ready to share with the class.</p> <p><b>Whole-class discussion:</b> So do you think the weather can change during the day? For example, have you ever worn something to school and then wished you had worn something else because the</p>	<p>We noticed the pattern that January had more cloudy days than September.</p> <p>We noticed the pattern that January and September had the same number of rainy days.</p> <p>We noticed the pattern that September didn't have any cold days, and January didn't have any hot days.</p>	

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			<p>weather changed during the day?</p> <p>So do we all agree that our weather in Pomona can change during the day?</p>	<p>Yes. Sometimes it's cold when I go to school, but it isn't cold anymore when I go home, so I just carry my jacket.</p> <p>Sometimes it's cloudy in the morning, and I take an umbrella in case it rains. But later it's sunny.</p> <p>Yeah. Sometimes I wish I had worn a jacket to school.</p> <p>Sometimes I wish I had worn a T-shirt to school instead of long sleeves, because it gets hot outside.</p> <p>Yes!</p>	
2 min	<p><b>Lesson Focus Question</b></p> <p><b>Synopsis:</b> The teacher introduces the focus question, <i>How can weather change during</i></p>	Set the purpose with a <u>focus question</u> or goal statement.	<p><b>Show slide 4.</b></p> <p>Today we're going to think about how the weather can change more quickly, like during from the morning to the afternoon.</p>		

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	<p><i>the day?</i> Then the teacher reviews the unit central questions.</p>		<p>Our focus question is <i>How can weather change during the day?</i></p> <p><b>NOTE TO TEACHER:</b> Write the focus question on the board and draw a box around it.</p> <p><b>Show slide 5.</b></p> <p>What we learn about the weather today will help us answer our big questions at the end of this unit: <i>Is weather the same everywhere all of the time? How do you know?</i></p>		
4 min	<p><b>Setup for Activity</b></p> <p><b>Synopsis:</b> The teacher sets up a short story about a girl named Alisa and her trip to the zoo by asking if students have ever been to the zoo and what the weather was like. Then the teacher introduces the flow chart they'll use to track how the weather changes in the story.</p> <p><b>Main science idea(s):</b></p> <ul style="list-style-type: none"> <li>We can use a flow chart to track how weather can change during the day.</li> </ul>	<p>Make explicit links between science ideas and activities <b>before</b> the activity.</p> <p>Ask questions to elicit student ideas and predictions.</p>	<p><b>Show slide 6.</b></p> <p>Next, I'm going to read a short story about a girl named Alisa who went on a field trip to the zoo with her class.</p> <p>Have you ever been to the zoo to see all the animals?</p> <p>What was the weather like when you went to the zoo?</p> <p><b>ELL support:</b> ELL students may not be familiar with the English word zoo, so you could ask students to describe what a zoo is and what they might see there. Being explicit about what the word zoo means will ensure that everyone understands the context of the story.</p> <p>In Alisa's story, we'll find out what happens to the weather on the day of the field trip.</p>	<p>Yes. It was really fun!</p> <p>It was sunny and warm!</p>	

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		<p>Select content representations and models matched to the learning goal and engage students in their use.</p>	<p>As I read the story aloud, think about our focus question, <i>How does the weather change during the day?</i> At different points in the story, I'll stop and ask you some questions about what's happening with the weather. So pay close attention to the story!</p> <p>To help us keep track of how the weather is changing in the story, we'll use this flow chart.</p> <p><b>NOTE TO TEACHER:</b> <i>Show students the class flow chart you created on chart paper and explain how it works.</i></p> <p>So are you ready for a story about a field trip to the zoo?</p>		
10 min	<p><b>Activity</b></p> <p><b>Synopsis:</b> The teacher reads the story about Alisa's trip to the zoo, and students answer questions about the weather on each page. As students share their observations about weather and temperature changes in the story, the teacher records them on a flow chart.</p> <p><b>Main science idea(s):</b></p> <ul style="list-style-type: none"> <li>Weather can change quickly during the day.</li> </ul>	<p>Make explicit links between science ideas and activities <b>during</b> the activity.</p> <p>Select content representations and models matched to the learning goal and engage students in their use.</p>	<p>Let's find out what happens with the weather when Alisa and her class go on a field trip to the zoo. Be ready to answer some weather questions during our story!</p> <p><b>NOTE TO TEACHER:</b> <i>Gather students in a circle and read aloud the story Alisa's Trip to the Zoo. Alternately, display handout 3.1 on a document reader or use the PowerPoint presentation and track the words as you read the story. Read one page at a time and ask students the question(s) at the bottom of each page before moving on to the next page. Give students time to think about the questions, talk with an elbow partner, and then share their ideas with the class.</i></p>		

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	<p>The weather can be sunny in the morning and become cloudy and rainy in the afternoon. Temperatures can also change during the day.</p>	<p>Engage students in communicating in scientific ways.</p>	<p><i>Consider using equity sticks to call on students during the share-out. Encourage students to ask their own questions during the story as well. You can use student questions to facilitate further discussion that will help students explore ideas about weather and develop their understandings collaboratively.</i></p> <p><i>As students describe how the weather and temperatures change during the story, record the changes on the weather flow chart you created. If you think it would be helpful for students, use two flow charts—one for observable weather, and one for temperatures.</i></p>		
7 min	<p><b>Follow-Up to Activity</b></p> <p><b>Synopsis:</b> Students use the weather flow chart to help them identify weather patterns and describe how the weather changed in the story during the day.</p> <p><b>Main science idea(s):</b></p> <ul style="list-style-type: none"> <li>We can use weather data to help us identify weather and temperature patterns and describe changes in the weather during the day.</li> </ul>	<p>Make explicit links between science ideas and activities <b>after</b> the activity.</p> <p>Engage students in analyzing and interpreting data and observations.</p> <p>Ask questions to probe student ideas and predictions.</p>	<p><b>Show slide 7.</b></p> <p>Now that we’ve finished our story about Alisa’s trip to the zoo, let’s talk about how the weather changed during the day. To help us think about these changes, we’ll look at the flow chart we made.</p> <p>What was the weather like when Alisa got up in the morning?</p>	<p>It was sunny and warm!</p> <p>The Sun was out, so it must have been warm.</p> <p>Alisa was wearing a</p>	<p>What makes you think the temperatures were warm in the morning?</p>



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		Ask questions to challenge student thinking.	<p>What was the weather like when Alisa went outside to board the bus for the zoo? How did the weather change?</p> <p>What was the weather like at the zoo?</p> <p>What was the weather like on the bus ride back to school?</p> <p>And what happened when Alisa left school at the end of the day? What was the weather like?</p> <p>So how did the weather change from morning to afternoon? Was it still sunny and warm in the afternoon?</p>	<p>T-shirt, so it must have been warm.</p> <p>It was windy and cooler.</p> <p>Alisa got goose bumps on her legs when she went outside.</p> <p>It turned cloudy and got even colder.</p> <p>It started raining, and the bus driver turned on the windshield wipers.</p> <p>It was so cold, the rain changed to snow!</p> <p>No! The weather went from sunny in the morning to cloudy, rainy, and snowy in the afternoon. It was windy, too.</p>	<p>How do you know it was cooler?</p>

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		Summarize key science ideas.	<p>How did the temperatures change from morning to afternoon?</p> <p>Do you see any other weather changes on our flow chart?</p> <p>So the weather on the day Alisa and her class went to the zoo changed a lot, didn't it? The morning started off sunny and warm, but it quickly turned windy and cooler. By the time Alisa's class headed back to school from the zoo, it had turned cloudy and started to rain. And by the end of school, the rain turned to snow.</p>	<p>The morning started out warm and turned cooler and windy. But it got really cold in the afternoon!</p> <p>The rain changed to snow, so the temperatures must have gotten even colder!</p> <p>Alisa's father brought her a jacket when he picked her up from school.</p>	<p>How do you know the temperatures got cold in the afternoon?</p>

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			What did we learn about the weather from this story?	We learned how much the weather can change during the day.	
5 min	<p><b>Synthesize/Summarize Today's Lesson</b></p> <p><b>Synopsis:</b> The teacher revisits the focus question. Then students use the flow chart to help them create stories that show how weather patterns can change during the day.</p> <p><b>Main science idea(s):</b></p> <ul style="list-style-type: none"> <li>Weather can change slowly over time, such as from one month to another month, but weather can also change quickly during the day.</li> <li>Graphing weather data can help us identify weather patterns and show how they can change from month to month or during the day.</li> </ul>	<p>Highlight key science ideas and focus question throughout.</p> <p>Engage students in making connections by synthesizing and summarizing key science ideas.</p> <p>Engage students in using and applying new science ideas in a variety of ways and contexts.</p>	<p><b>Show slide 8.</b></p> <p>Now let's revisit today's focus question, <i>How can weather change during the day?</i></p> <p>If you were going to tell a story about how weather patterns can change in a single day, what would you say?</p> <p><b>Think-Pair-Share:</b> Think about a story you could tell about how weather can change from the morning to the afternoon. You can use our flow chart to help you think about the kinds of weather changes that can happen. Then share your story ideas with an elbow partner.</p> <p><b>NOTE TO TEACHER:</b> <i>Give students a few minutes to think about their stories and share their ideas with their partners. Walk around the room as they work on their stories and encourage them to use the flow chart. Also encourage students to use temperature and weather terms from the lessons (sunny, cloudy, windy, rainy, snowy, warm/cool/cold).</i></p> <p><b>ELL support:</b> Encourage ELL students to draw from own experiences as they construct their stories. You could also have them pair up with shared-</p>		

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			<p>language partners to share their story ideas. This will help them focus on weather patterns rather than searching for words in English. Make sure to post weather terms and images on a word wall for students to refer to as needed.</p> <p><b>Whole-class share-out:</b> Who would like to share your story about how weather patterns can change from morning to afternoon?</p> <p>Who has another weather story to tell us about how weather can change from morning to afternoon?</p>	<p>In my story, I said that even if it's warm in the morning, you should always take a jacket, in case the weather changes.</p> <p>Yes! She wouldn't have been so cold at the zoo.</p> <p>In my story, I said it might not be sunny the whole day because it could rain later.</p> <p>She wished she had</p>	<p>Would it have helped Alisa if she'd brought a jacket to school?</p> <p>And what did Alisa wish she had brought with her when it started raining?</p>

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			<p>Who has another story to tell us?</p> <p>You did a great job as storytellers to show how weather can change during the day and how important it is to be prepared for changes.</p>	<p>brought a big umbrella!</p> <p>In my story, I said that even if it looks sunny out, you should listen to the weather forecast, because maybe it's going to get really cold later.</p> <p>She would have brought a jacket and an umbrella to school!</p>	<p>That's a great idea! What might have happened if Alisa had listened to the weather forecast?</p>
2 min	<p><b>Link to Next Lesson</b></p> <p><b>Synopsis:</b> The teacher foreshadows the next lesson by asking students if the weather in Pomona can change as quickly during the day as the weather in Alisa's story.</p>	<p>Ask questions to elicit student ideas and predictions.</p>	<p><b>Show slide 9.</b></p> <p>Do you think our weather in Pomona could change as quickly during the day as the weather in our story?</p> <p><b>NOTE TO TEACHER:</b> <i>Elicit a variety of responses and encourage students to respond to each other's ideas by agreeing or disagreeing, asking questions, or adding on.</i></p>	<p>I don't think so.</p> <p>Because Pomona is usually sunny and warm.</p>	<p>Why not?</p> <p>Does anyone agree or</p>

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		Link science ideas to other science ideas.	<p>So in our story about Alisa’s field trip, the day started off warm and got colder. Could that happen here? Or could the day start out cold and get warmer?</p> <p><b>Show slide 10.</b></p> <p>Next time, we’ll think about how the weather in Pomona can change during the day, especially from the morning to the afternoon.</p>	Pomona isn’t always sunny and warm. Sometimes it’s cool and cloudy, like it was in January.	disagree? What did we learn from our graphs about the weather in Pomona?