

Weather and Seasons

Lesson 4a: Weather in Different Places

Grade: Kindergarten	Length of lesson: 40 minutes	Placement of lesson in unit: 4a of 5 lessons on weather
Unit central questions: Is weather the same everywhere all of the time? How do you know?		Lesson focus questions: How is weather the same or different in different places? What is the weather like in January in a faraway city called Detroit?
Main learning goal: Different places have different weather patterns.		
Science content storyline: Weather can change from morning to afternoon and from month to month. Does weather also change from place to place? Graphing and analyzing weather data can help us identify weather patterns in January in a faraway city like Detroit, Michigan. Detroit’s weather pattern in January is cool or cold and snowy. We predict that this pattern is different from our weather pattern in Pomona in January.		
Ideal student response to the focus questions: Weather isn’t the same everywhere. When we made a graph of the weather and temperatures in Detroit, Michigan, during the month of January, we found out that the weather pattern there is cool or cold and snowy. We think this pattern is different from the weather pattern in Pomona in January because we’ve never seen snow in Pomona, except up in the mountains.		

Preparation

Materials Needed

- Science notebooks
- Chart paper and markers
- Class weather calendars for September, December, and January in Pomona
- Thermometer from handout 0.3 (Weather Cards) or handout 3.2 (Class Thermometer)
- Map of the United States and/or a world globe
- *Observe Precipitation* video clip from PBS LearningMedia (1 min) (link: <http://www.pbslearningmedia.org/resource/ess05.sci.ess.watcyc.precipitation/observe-precipitation/>)

Student Handouts

- 1.2 Pomona Weather Patterns for September (from lesson 1b)
- 1.4 Pomona Temperature Patterns for September (from lesson 1c)
- 1.5 Blue, Green, Red, and Yellow Temperature Stickers, 1/2" size (from lesson 1c) (11 blue, 7 green, and 2 yellow stickers per student)
- 2.1 Pomona Weather Patterns for January (from lesson 2a)
- 2.3 Pomona Temperature Patterns for January (from lesson 2c)
- 3.3 Morning and Afternoon Temperature Chart (from lesson 3b)
- 4.1 Detroit Temperature Patterns for January, 8.5 × 14" (1 per student, 1 for teacher)
- 4.2 Detroit Weather Calendar for January (1 per student, 1 for teacher)

Ahead of Time

- Review the content background document.
- Place temperature stickers on students’ desks or tables (11 blue, 7 green, and 2 yellow stickers per student).
- Review and modify the PowerPoint slides as needed.
- If any of your students are unfamiliar with different types of precipitation (rain, sleet, or snow), you might want to show them a short video clip from PBS LearningMedia. You can download the clip from <http://www.pbslearningmedia.org/resource/ess05.sci.ess.watcyc.precipitation/observe-precipitation/>.
- **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, data, observe, predict/prediction, evidence, represent, and graph.*

Lesson 4a General Outline

Time	Phase of Lesson	How the Science Content Storyline Develops
5 min	Link to previous lessons: The teacher engages students in reviewing the weather and temperature patterns they identified for Pomona in previous lessons.	<ul style="list-style-type: none"> Weather can change from morning to afternoon and from month to month. We can use weather data to help us identify patterns in how weather changes from month to month and throughout the day. Our graphs showed a pattern of warmer, sunnier weather in Pomona in September and cooler, cloudier weather in January. Our weather data also showed a pattern of cooler, cloudy mornings and warmer, sunnier afternoons.
2 min	Lesson focus questions: The teacher reviews the unit central question and introduces the focus questions, <i>How is weather the same or different in different places? What is the weather like in January in a faraway city called Detroit?</i> Then students consider how the weather in faraway places might compare with the weather in Pomona.	
7 min	Setup for activity: The teacher orients students to the location of Detroit, Michigan, in relation to Pomona. Then students predict what the weather is like in Detroit during the month of January.	<ul style="list-style-type: none"> Weather is different in different places. We can find out what the weather is like in faraway places by studying weather data.
10 min	Activity: Students study weather and temperature data for Detroit in January. Then they graph the temperature data to help them identify patterns.	<ul style="list-style-type: none"> Graphing weather data can help us identify weather patterns in January in faraway places like Detroit.
8 min	Follow-up to activity: Students analyze their weather and temperature data for Detroit and draw conclusions about the weather pattern in January.	<ul style="list-style-type: none"> Graphing and analyzing weather data can help us identify weather patterns in January in faraway places like Detroit. Detroit's weather pattern in January is cool or cold and snowy.
7 min	Synthesize/summarize today's lesson: The teacher revisits the focus questions, and students summarize the weather pattern in Detroit in January. Then students predict whether the weather patterns for Detroit and Pomona are the same or different.	<ul style="list-style-type: none"> Weather patterns are different in different places. We can use graphs to help us identify weather patterns in January in faraway places like Detroit. Detroit's weather pattern in January is cool or cold and snowy.
1 min	Link to next lesson: The teacher foreshadows the next lesson in which students compare weather data for Pomona and Detroit in January and find out if the evidence supports their predictions.	

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
5 min	<p>Link to Previous Lessons</p> <p>Synopsis: The teacher engages students in reviewing the weather and temperature patterns they identified for Pomona in previous lessons.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> • Weather can change from morning to afternoon and from month to month. • We can use weather data to help us identify patterns in how weather changes from month to month and throughout the day. Our graphs showed a pattern of warmer, sunnier weather in Pomona in September and cooler, cloudier weather in January. Our weather data also showed a pattern of cooler, cloudy mornings and warmer, sunnier afternoons. 	<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>Show slides 1 and 2.</p> <p>What have we learned so far about weather patterns?</p> <p>In our last lesson, we looked at morning and afternoon temperatures in Pomona.</p> <p>What weather patterns did we find?</p> <p>NOTE TO TEACHER: <i>For this review, display the class weather calendars for September and January, as well as the weather calendar with the data collected a month before the Weather unit</i></p>	<p>Weather doesn't stay the same all the time.</p> <p>Well, it can get colder during the day, like in Alisa's story.</p> <p>It snowed!</p> <p>And Alisa's father had to bring her a jacket!</p> <p>The weather pattern was cooler in the morning and warmer in the afternoon.</p>	<p>What do you mean by "doesn't stay the same?" Can you give me an example?</p> <p>Yes. And what happened in the story when it got colder?</p> <p>That's right!</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Engage students in constructing explanations and arguments.</p> <p>Ask questions to probe student ideas and predictions.</p> <p>Summarize key science ideas.</p>	<p><i>began. Also display a completed chart of morning and afternoon temperatures from the previous lesson (handout 3.3) and have students refer to their weather and temperature graphs from previous lessons as needed (handouts 1.2, 1.4, 2.1, and 2.3).</i></p> <p>ELL support: Use visual aids from the previous lesson, such as the morning and afternoon temperature charts, to help ELL students participate more fully in the discussion.</p> <p>Did we find any other weather or temperature patterns for the mornings and afternoons?</p> <p>So our weather calendar and our temperature graphs helped us see changes in the weather pattern from morning to afternoon in Pomona. In the mornings, the weather pattern was cooler and cloudier, and in the afternoons, the weather was warmer and sunnier.</p> <p>Now let's talk about the weather patterns in September and January. How did the weather patterns change from September to January?</p>	<p>It was sunnier in the afternoons than it was in the mornings.</p> <p>From our weather calendar and our temperature graphs.</p> <p>It was cloudier in the mornings than the afternoons.</p> <p>September was sunnier, and January was cloudier.</p> <p>From our graphs!</p>	<p>Where did we get our evidence?</p> <p>How do you know? Where did you get your evidence?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		Summarize key science ideas.	<p>Did we find any other weather patterns in September and January?</p> <p>So we've learned that there are patterns in our weather, and these patterns can change over time. Some weather patterns change more slowly from month to month, and other patterns change more quickly from morning to afternoon.</p>	<p>In September, the weather pattern was warmer, and in January, it was cooler.</p> <p>My temperature graph shows lots of warm days in September because the stack is tall. But stack in January isn't so tall for warm days.</p>	Can you show us your evidence on the graphs?
2 min	<p>Lesson Focus Question</p> <p>Synopsis: The teacher reviews the unit central questions and introduces the focus questions, <i>How is weather the same or different in different places? What is the weather like in January in</i></p>	Set the purpose with a <u>focus question</u> or goal statement.	<p>Show slide 3.</p> <p>We've been talking mostly about weather patterns here in Pomona. But today we'll explore the weather in another place that's far away from us. What we learn will help us answer our big questions for this unit: <i>Is weather the same everywhere all of the time? How do you know?</i></p> <p>Show slide 4.</p>		

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
	<p><i>a faraway city called Detroit?</i> Then students consider how the weather in faraway places might compare with the weather in Pomona.</p>	<p>Ask questions to elicit student ideas and predictions.</p>	<p>In this lesson, we'll think about two focus questions: <i>How is weather the same or different in different places? What is the weather like in January in a faraway city called Detroit?</i></p> <p>NOTE TO TEACHER: <i>Write the focus questions on the board and draw a box around them.</i></p> <p>If we got in a car and drove for a whole day, do you think the weather would be the same as Pomona, or do you think it might be different?</p> <p>ELL support: Open-ended questions that draw on students' experiences will encourage ELL students to participate more fully in the discussion. Examples include "What are some other places you've been to?" "What was the weather like in those places?" "Was the weather the same as the weather in Pomona or different?"</p> <p>NOTE TO TEACHER: <i>Students may need additional support and prompting during this discussion. For example, you might ask the following questions:</i></p> <ul style="list-style-type: none"> • <i>Have you ever been to another place to visit family? What was the weather like? Was it like the weather in Pomona or different?</i> • <i>Do you have family members who live somewhere else? Is the weather there like our weather in Pomona or different?</i> • <i>Have you read stories about places that</i> 	<p>I think the weather might be different.</p> <p>Because my grandparents live in Colorado, and the weather is colder there.</p> <p>I've been to the mountains, and it was colder than here.</p> <p>I've been to Mexico, and it's really sunny and hot there.</p> <p>I think it would be hotter farther south from here.</p>	<p>Why do you think that?</p> <p>What makes you</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
			<p><i>have different weather than ours?</i></p> <ul style="list-style-type: none"> • <i>Have you seen places on TV that have different weather than ours?</i> <p><i>You might also show students a map of the United States or a world globe and point out some of the places they mention during the discussion.</i></p> <p>Those are some great examples of places where the weather is different from our weather in Pomona!</p>	<p>Because my aunt and uncle live in Mexico, and it's very hot there.</p> <p>And it's really cold and snowy at the North Pole!</p>	<p>think that?</p>
7 min	<p>Setup for Activity</p> <p>Synopsis: The teacher orients students to the location of Detroit, Michigan, in relation to Pomona. Then students predict what the weather is like in Detroit during the month of January.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> • Weather is different in different places. • We can find out what the weather is like in faraway places by studying weather data. 	<p>Make explicit links between science ideas and activities before the activity.</p>	<p>Show slide 5.</p> <p>Today we're going to learn about the weather patterns in a city called <i>Detroit</i> in the state of Michigan.</p> <p>Can anyone find Michigan on this map of the United States?</p> <p>NOTE TO TEACHER: <i>Help students find Michigan on the PowerPoint map.</i></p> <p>A kindergarten class like ours collected some weather data for Detroit during the month of January to help them find patterns in the weather.</p> <p>What time of year or season is it in January? Is it winter, spring, summer, or fall?</p> <p>NOTE TO TEACHER: <i>Orient students to the time of year and the season when January occurs.</i></p>	<p>It's winter!</p>	

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		Ask questions to elicit student ideas and predictions.	<p><i>You might also refer students to the January weather calendar for Pomona and the graphs students created.</i></p> <p>Show slide 6.</p> <p>The city of Detroit in the state of Michigan is almost 2,300 miles away from Pomona. If you drove from Pomona to Detroit in a car, it would take about three or four days. It's a long way from here!</p> <p>Show slide 7.</p> <p>So do you think the weather pattern in Detroit will be the same as the weather pattern in Pomona, or will it be different? Why do you think so?</p> <p>Turn and Talk: Share your ideas and reasons with an elbow partner, and be ready to share your predictions with the class. Remember, to predict something is to say what you think will happen.</p> <p>NOTE TO TEACHER: <i>Review what a prediction is and remind students of the predictions they made in previous lessons. Link the concept to scientific practice.</i></p> <p>Whole-class share-out: Let's hear your predictions about whether Detroit's weather pattern will be the same as Pomona's weather pattern or different. Start your sentence with "Our prediction</p>		

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Engage students in communicating in scientific ways.</p> <p>Ask questions to probe student ideas and predictions.</p>	<p>is”</p> <p>NOTE TO TEACHER: <i>During this discussion, encourage students to respond to each other’s ideas by agreeing, disagreeing, adding on, or asking questions. Also ask probe questions to clarify student thinking.</i></p>	<p>Our prediction is that it will be colder.</p> <p>The weather pattern in Detroit.</p> <p>Yes.</p> <p>Because it looks like it’s at the top of the map like the North Pole, and we know the North Pole is cold.</p> <p>We agree, but we have a different reason.</p> <p>We read a story about Michigan, and it talked about snow.</p>	<p>What do you mean by “it”?</p> <p>So you’re saying that the weather in Detroit in January will be colder than the weather in Pomona?</p> <p>And why do you think that the weather pattern will be colder in Detroit?</p> <p>Does anyone agree, disagree, or want to add on?</p> <p>What’s your reason?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
			<p>Any other predictions? Remember to start your sentence with “Our prediction is”</p> <p>Does anyone think the weather in Detroit will be the same as the weather in Pomona in January?</p>	<p>Our prediction is that the weather in Detroit will be different. Our reason is because it’s far away from Pomona.</p> <p>Yes! Our prediction is that the weather will be the same because I went to Michigan one time, and it was sunny and warm.</p>	<p>What time of year did you go to Michigan? Was it January?</p>
10 min	<p>Activity</p> <p>Synopsis: Students study weather and temperature data for Detroit in January. Then they graph the temperature data to help them identify patterns.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> Graphing weather data can help us identify weather patterns in January in faraway 	<p>Make explicit links between science ideas and activities during the activity.</p>	<p>Show slide 8.</p> <p>Next, we’re going to look at a weather calendar for Detroit and see what the weather and temperatures were like during the month of January.</p> <p>NOTE TO TEACHER: <i>Remind students that evidence is a clue that helps scientists answer a question or explain something that happens in the world around them. Give an example or two of evidence students found in a previous lesson.</i></p> <p><i>Distribute handouts 4.1 (Detroit Temperature</i></p>		

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
	places like Detroit.	Ask questions to elicit student ideas and predictions.	<p><i>Patterns for January) and 4.2 (Detroit Weather Calendar for January). Make sure students have enough thermometer stickers for the activity (11 blue stickers, seven green stickers, and two yellow stickers per student).</i></p> <p><i>In addition to the PowerPoint slide, display handout 4.2 (Detroit Weather Calendar for January) on a document reader.</i></p> <p>This weather calendar for January in Detroit shows us what the temperature was each day and whether Detroit got any snow.</p> <p>NOTE TO TEACHER: <i>Point to the key at the bottom of the weather calendar on the handout and make sure that students understand what the symbols or icons represent.</i></p> <p>What do you notice right away about the weather symbols on the calendar?</p>	<p>There are lots of snowy days.</p> <p>There are eight snowy days!</p>	<p>Yes. Can you count the number of snowy days Detroit had in January?</p> <p>So do you think Detroit is warm or cold in January?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Select content representations and models matched to the learning goal and engage students in their use.</p>	<p>Show slide 9.</p> <p>Next, we're going to make temperature graphs to help us see just how cold it can be in Detroit in January.</p> <p>First, I want you to count the number of cool or cold days in Detroit. What color thermometers represent the cool and cold days?</p> <p>Let's count the number of cool and cold days on the weather calendar together.</p> <p>NOTE TO TEACHER: <i>Point to each cool and cold day on the weather calendar as students help you count the total number of cool and cold days. Use either the thermometer from handout 0.3 (Weather Cards) or handout 3.2 (Class Thermometer) to show students that cool and cold temperatures are below 70 degrees.</i></p> <p>How many cool and cold days did we count altogether?</p> <p>Yes! There were 18 cool and cold days in Detroit for January.</p> <p>How many <i>cold</i> days were there?</p>	<p>Detroit must be cold in January because snow is cold.</p> <p>The green and blue thermometers.</p> <p>Eighteen!</p> <p>Eleven.</p>	

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
			<p>So count out 11 blue stickers and stack them on your graphs in the column for cool and cold days. Make sure to stack them one above another starting at the bottom of the graph.</p> <p>NOTE TO TEACHER: <i>Have students count out the correct number of green and blue thermometer stickers based on the number of days they counted on the calendar. Then direct student to stack the stickers one above another on the temperature graph, starting at the bottom of the column. As needed, demonstrate how to stack the stickers on a copy of the temperature graph (handout 4.1).</i></p> <p>Who can tell me how many <i>cool</i> days there were in Detroit in January?</p> <p>So count out seven green stickers and stack them above the blue stickers on your graph in the same column.</p> <p>OK. Now let's count the number of hot and warm days on our weather calendar.</p> <p>How many hot days were there in January in Detroit?</p> <p>If there weren't any hot days, do we need to count out any red stickers?</p> <p>How many warm days were there in January?</p>	<p>There were seven cool days.</p> <p>None!</p> <p>No.</p> <p>There were only two warm days!</p>	

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
			<p>That's right! There were only two warm days in Detroit in January. So count out two yellow stickers and stack them on your graphs in the column for hot and warm days. Make sure to start at the bottom and stack the stickers one above the other.</p> <p>NOTE TO TEACHER: <i>Have students count out the correct number of yellow stickers and stack them in the hot/warm column on their graphs.</i></p> <p><i>After students have finished placing their stickers on the graph, have them pair up with an elbow partner and check each other's work. Circulate around the room to check their work as well.</i></p>		
8 min	<p>Follow-Up to Activity</p> <p>Synopsis: Students analyze their weather and temperature data for Detroit and draw conclusions about the weather pattern in January.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> Graphing and analyzing weather data can help us identify weather patterns in January in faraway places like Detroit. Detroit's weather pattern in January is cool or cold and snowy. 	Make explicit links between science ideas and activities after the activity.	<p>Show slide 10.</p> <p>Now let's look at our weather calendar and our temperature graphs and see if we can find any weather patterns for Detroit in January.</p> <p>NOTE TO TEACHER: <i>During this discussion, encourage students to communicate in scientific ways by agreeing or disagreeing with each other's ideas, asking questions, and adding on. If time allows, you may want to have students pair up and identify weather patterns on the graph before sharing their ideas and evidence with the class.</i></p> <p>First, we'll look at the snowy days on our weather calendar. How many snowy days did Detroit have in January?</p>	There were eight	

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Engage students in analyzing and interpreting data and observations.</p> <p>Ask questions to elicit student ideas and predictions.</p> <p>Engage students in communicating in scientific ways.</p>	<p>Do you think that's a weather pattern? Why or why not?</p> <p>So what do you think the children in Detroit would need to wear outside on the playground on those snowy days?</p> <p>Now let's look at the temperatures on our graphs. Remember, even if it isn't snowing, it can still be cold.</p> <p>Who can tell us how many cool and cold days there were in Detroit in January?</p> <p>Do you think that's a weather pattern? Why or why not?</p>	<p>snowy days.</p> <p>I think it's a pattern because Detroit probably wouldn't have that much snow any other time of year.</p> <p>I disagree because eight days of snow isn't that much, and a pattern is supposed to be what happens most of the time.</p> <p>They'd need warm coats.</p> <p>Hats and gloves!</p> <p>There were 18 cool and cold days.</p> <p>I think it's a pattern because it's cool or</p>	<p>Does anyone agree or disagree? Why?</p> <p>What else would they need to wear?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
			<p>So if Detroit had eight snowy days and 18 cool and cold days, how many days would children need to wear a warm coat?</p> <p>How many warm days were there in Detroit in January?</p> <p>Do you think that's a weather pattern?</p> <p>What do you think the children would wear on those two warm days?</p>	<p>cold most of the time.</p> <p>They would need a warm coat for all 18 days!</p> <p>I think they'd only need a warm coat on cold days, not cool days. On cool days, they could just wear a jacket.</p> <p>Only two days were warm!</p> <p>No!</p> <p>Because it's not warm most of the time. It's only a pattern if it happens again and again.</p> <p>They'd wear jackets.</p>	<p>Does anyone agree or disagree?</p> <p>Does anyone agree, disagree, or want to add on?</p> <p>Why do you think that?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Engage students in analyzing and interpreting data and observations.</p> <p>Summarize key science ideas.</p>	<p>Show slide 11.</p> <p>So how would you describe the weather pattern for Detroit in January? Use the sentence starter “The weather pattern in January is”</p> <p>So we agree that the weather pattern for Detroit in January is mostly cool and cold. Some of us also</p>	<p>I think they might wear long-sleeved T-shirts on warm days!</p> <p>The weather pattern in January is mostly cool and cold.</p> <p>I agree that the weather pattern is mostly cool and cold, but it’s snowy, too.</p> <p>I disagree that the weather pattern is snowy because it only snowed eight days. So it wasn’t snowy <i>most</i> of the time.</p>	<p>Does anyone agree, disagree, or want to add on?</p> <p>Does everyone agree that the weather pattern is snowy, too?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
			think that the pattern is snowy, but others disagree because it wasn't snowy most of the time.		
7 min	<p>Synthesize/Summarize Today's Lesson</p> <p>Synopsis: The teacher revisits the focus questions, and students summarize the weather pattern in Detroit in January. Then students predict whether the weather patterns for Detroit and Pomona are the same or different.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> • Weather patterns are different in different places. • We can use graphs to help us identify weather patterns in January in faraway places like Detroit. Detroit's weather pattern in January is cool or cold and snowy. 	<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>Show slide 12.</p> <p>Let's revisit our focus questions, <i>How is weather the same or different in different places? What is the weather like in January in a faraway city called Detroit?</i></p> <p>Today we studied the weather pattern in Detroit during the month of January. What did we learn that can help us answer our second focus question: <i>What is the weather like in January in a faraway city called Detroit?</i></p> <p>In our next lesson, we'll compare the weather in Detroit with the weather in Pomona in January to help us answer our first focus question, <i>How is weather the same or different in different places?</i></p> <p>Show slide 13.</p>	<p>We learned that the weather in Detroit is cool and cold and snowy.</p> <p>It was cool or cold 18 days in January, and it snowed eight days.</p>	<p>What evidence do we have from our graphs and weather calendar?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Ask questions to elicit student ideas and predictions.</p> <p>Engage students in communicating in scientific ways.</p> <p>Engage students in constructing explanations and arguments.</p>	<p>Let's revisit the predictions we made earlier about the weather patterns in Detroit and Pomona. Do you think the weather pattern in Detroit will be the same as the weather pattern in Pomona, or will it be different? What would you think now?</p> <p>Do you think we'll find that Detroit and Pomona have the same or different <i>temperature</i> patterns in January?</p>	<p>We don't get snow here, so I think that Detroit and Pomona will have different weather patterns in January.</p> <p>Detroit has a lot of cool and cold days, so I think their temperature pattern is different from Pomona's.</p> <p>Because Pomona doesn't have cold temperatures in January. We usually have more warm and days in the wintertime, and it's sunnier.</p> <p>It's been cool a lot lately, so maybe Pomona has more cold days in the</p>	<p>Why do you think that?</p> <p>What do others think?</p>

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		<p>Highlight key science ideas and focus question throughout.</p> <p>Ask questions to elicit student ideas and predictions.</p> <p>Engage students in constructing explanations and arguments.</p> <p>Engage students in communicating</p>	<p>So we have some different ideas about whether Detroit and Pomona have the same or different weather patterns.</p> <p>Show slide 14.</p> <p>Now let's make some predictions about our first focus question, <i>How is weather the same or different in different places?</i> Do you think the weather is the same or different in different places? Why do you think so?</p> <p>Turn and Talk: Talk about this with an elbow partner, and be ready to share your ideas and reasons with the class.</p> <p>Whole-class share-out: So do you think the weather in different places is the same or different? What are your ideas and reasons?</p>	<p>winter now.</p> <p>Yeah. My mom said it's cold out, so we have to turn on the heat!</p> <p>We think that weather is different everywhere because there were eight snowy days in Detroit in January, and we've never had a snowy day in</p>	

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
		in scientific ways.	Does anyone think that the weather is the same in different places? Let's hear your ideas and reasons.	Pomona all year.	Does anyone agree or disagree?
1 min	<p>Link to Next Lesson</p> <p>Synopsis: The teacher foreshadows the next lesson in which students compare weather data for Pomona and Detroit in January and find out if the evidence supports their predictions.</p>	Make explicit links between science ideas and activities.	<p>Show slide 15.</p> <p>So today we explored what the weather is like in Detroit during the month of January, and we found that the weather pattern is mostly cool and cold, with some snow.</p> <p>Next time, we'll compare our weather graphs for Pomona in January with the graphs we made for Detroit today, and we'll see if the weather patterns are the same or different. I wonder which of our predictions are right!</p>		