

## Unit 1: Building Strong Communities

### WEEK 3 Lesson 2

# Science and Engineering

## Observing the Sky: Measuring Temperature

|                                    |   |
|------------------------------------|---|
| <b>S &amp; E Big Ideas</b>         | Weather describes the condition of the air outside.<br>Temperature describes how hot or cold something is.<br>Temperature is measured using a thermometer.<br>Clouds are composed of droplets of water.<br>The sun and moon can be observed moving across the sky.  |
| <b>S &amp; E Guiding Questions</b> | How do we measure temperature and daylight?<br>What is a thermometer?   |
| <b>Content Objective</b>           | I can measure and record data about the outside temperature. (SE.ESS.1, Practice 5)   |
| <b>Language Objective</b>          | I can answer questions about temperature. (SL.1.1)  |
| <b>Vocabulary</b>                  | <b>weather:</b> the condition of the air outdoors<br><b>weather conditions:</b> the state of the weather, such as temperature, cloud type, rainfall, and wind speed and direction<br><b>meteorologist:</b> a person who studies the weather<br><b>temperature:</b> a description of how hot or cold something is<br><b>thermometer:</b> a weather instrument used to measure temperature  |
| <b>Materials and Preparation</b>   | This lesson requires collecting data about the outside temperature at three different times during the day (morning, noon, and afternoon). Plan to take the class outside to record the temperature. <ul style="list-style-type: none"><li>● <a href="https://www.weather.gov/gyx/">National Weather Service</a><br/>link: <a href="https://www.weather.gov/gyx/">https://www.weather.gov/gyx/</a><br/>Prior to the lesson, spend a few minutes orienting to the information offered on the website.</li><li>● projector and screen</li><li>● thermometers, one for each pair of children and one demonstration</li></ul> |

Science and Engineering U1 W3 L2

|                                    |  |
|------------------------------------|--|
|                                    | <p>thermometer</p> <ul style="list-style-type: none"> <li>● science journals</li> <li>● Week 3 journal question strips (What time of day is the air the warmest?), cut apart, 1 for each child</li> <li>● glue sticks</li> <li>● Teacher Science Journal</li> </ul>  |
| <b>Safety Precaution</b>           | Children should not look directly into the sun.  |
| <b>Opening</b><br>3 minutes        | <p>Using the demonstration thermometer, review how it shows temperature.<br/><i>What would the thermometer show on a sunny summer day? On a warm spring afternoon? On a cold winter morning?</i></p> <p><i>We know that the temperature changes throughout the year, from season to season. The temperature can also change throughout the day. Why do you think this is?</i></p> <p><i>What time of day do you think the temperature might be most hot? Why do you think so?</i><br/><i>What time of day do you think the temperature might be most cold? Why do you think so?</i></p>  |
| <b>Text</b><br>5 minutes           | <p>Project yesterday’s temperature data from The National Weather Service website.<br/><i>How did the temperature change during the day?</i><br/><i>When did the temperature get higher? When did it get lower?</i><br/><i>When was the temperature the warmest? The coolest?</i></p> <p>Draw children’s attention to today’s temperature reading at sunrise. Indicate where that temperature would read on the thermometer.<br/><i>Do you think this is the temperature outside right now? Is it warmer? Cooler? Why do you think so?</i></p> <p>Think, Pair, Share.<br/><i>What could make the temperature of the air outside warmer or cooler now than it was early this morning?</i></p> |
| <b>Investigation</b><br>16 minutes | <p><i>Let’s go outside with the thermometers and see what we find. We’ll record the position of the sun in the sky and the temperature of the air.</i></p> <p>Set up science journals.</p>   |

|                                |  |
|--------------------------------|--|
|                                | <p>Once outside, look for the sun. In the teacher’s journal, model recording the position of the sun.</p> <p><i>We can see that the sun is there in the sky [point]. What does that tell us about the time of the day? The time right now is _____.</i></p> <p><i>Notice what the air feels like. Is it warm, cool, or cold? Tell your partner your guess for what the thermometer might read right now. Remember, the temperature early this morning was _____.</i></p> <p>Distribute a working thermometer to each pair of children. Have children hold the thermometers out in the air. Remind them to hold the sides (not the bulb) of the thermometer to get an accurate reading. Allow a few moments for the thermometers to adjust to the outside temperature.</p> <p>Ask each pair to read the temperature on their thermometer. Use the demonstration thermometer to show the reading to the whole group. Model recording this information in the teacher’s science journal.</p> <p><i>How does the temperature of the air now compare to the temperature this morning?</i></p> <p><i>Like yesterday, work with your partner to measure the temperature of the air in a few different places around the schoolyard.</i></p> <p>Give children time to take a few measurements around the outside space.</p> <p>Then, either outside or returning to the classroom, facilitate a brief discussion of the data children have collected.</p> <p><i>Is the temperature different in different parts of the schoolyard? Why do you think that is? Did anyone measure the temperature of anything besides air? What could cause the temperature to change?</i></p> |
| <b>Closing</b>                 | <p><i>Do you think the warmest temperature will be at the same time tomorrow? How could we find out?</i></p> <p><i>You can record the air temperature as often as you like in your science journals. You’ll do this at the Science Literacy Station, too. At the Science and Engineering Studio, you can make your own model thermometer.</i></p>  |
| <b>Standards and Practices</b> | <p><b>SE.ESS.1</b> Use observations of the sun, moon, and stars to describe patterns that can be predicted. (Further explanation: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set and that stars other than our sun are visible at night but not during the day. Analyzing and Interpreting</p>   |

|                           |  |
|---------------------------|--|
|                           | Data, The Universe and Its Stars, Patterns)<br><b>Practice 5.</b> Using mathematical and computational thinking<br><b>SL.1.1</b> Participate in collaborative conversations with diverse partners about Grade 1 topics and texts with peers and adults in small and larger groups. |
| <b>Ongoing assessment</b> | Reflect on the class discussions.<br>What do children understand about thermometers?<br>What words do children use to describe the temperature? [hot, warm, cool, cold, freezing]<br>How do they explain how the temperature changes throughout the day?                           |

**Notes**