

# Was the Groundhog Correct?

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**Reporting Category** Measurement

**Topic** Reading temperature

**Primary SOL** 3.13 The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used.

## Materials

- Poster board in two different colors
- Sticky notes
- Celsius thermometer
- Fahrenheit thermometer
- Internet site for average winter temperature and average spring temperature
- It's Getting Hot in Here! Temperature Game Board (attached)
- Thermometer Template (attached)

## Vocabulary

*temperature, groundhog, Celsius, Fahrenheit, thermometer, average, shadow, prediction, legend*

## Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Prior to this activity, students should have had practice reading temperatures in Celsius and Fahrenheit on real thermometers and physical models of thermometers. Before undertaking this activity, create two posters on different colored poster board, one labeled Celsius Temperatures and the other labeled Fahrenheit Temperatures. Each poster should have a bar graph with two vertical bars, one labeled Winter Temperatures and one labeled Spring Temperatures. Be sure that vertical axes are also labeled with degree increments, like the markings on a thermometer.

1. Discuss the meaning of the word *legend*, guiding students to understand that it is an old story that is likely untrue. As Groundhog Day approaches, discuss the legend of the groundhog's shadow, which says that if the groundhog sees his shadow on February 2, winter will last six more weeks, but if he does not see his shadow, spring will come early. Ask what "seeing his shadow" means in terms of weather. (That the sky is clear and the sun is shining) Emphasize that although Americans remember the legend and mark the day every year, this is not a scientific way to predict the weather. Nevertheless, it is fun, and it causes us to think about the coming change from winter to spring temperatures. Have students decide what temperatures qualify as winter temperatures and what temperatures are considered spring-like. Have students brainstorm about what temperature might be the change point from winter to spring temperatures.
2. On or about Groundhog Day, have pairs of students start taking turns reading and recording the outside temperature in both systems daily over a period of at least 30 days. Be sure the thermometer(s) is in the shade and that the readings are taken at the same time each day. Have pairs record the temperatures on sticky notes, and direct the class to

determine whether the temperature of the day is a winter or a spring temperature. As the class makes this decision each day, the pair should place the sticky notes in the proper locations on the two bar graphs. As data accumulate on the graphs, ask questions about the change of season as reflected in the graphs. Students may also make their own predictions about the coming days and weeks to see whether they agree or disagree with the groundhog's prediction.

3. At the end of the six weeks, use the data on the bar graphs to verify whether the groundhog was correct or not.

### Assessment

- **Questions**
  - If I have on a heavy coat, scarf, hat, and gloves, what could the temperature be in Celsius? How do you know?
  - If it's 85° Fahrenheit, what might you be wearing? Draw a picture of yourself and your location. Why are you wearing this kind of clothing?
- **Journal/Writing Prompts**
  - Read and record the temperature of the classroom to the nearest degree from a Fahrenheit thermometer and from a Celsius thermometer, and then write two statements comparing the two temperatures.
- **Other**
  - Put students in pairs. Give one student in each pair a list of temperatures and the other student a set of pictorial representations of thermometer readings. Have partners work together to match the listed temperatures to the corresponding thermometer readings.

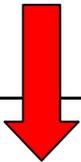
### Extensions and Connections (for all students)

- Have students collect weather information for the local area from newspapers, television news, and/or the Internet. Have students practice depicting the listed temperatures on physical models of thermometers.
- Have students work in pairs or groups to play the It's Getting Hot in Here! Temperature Game. Use the attached Thermometer Template to make thermometers representing the temperatures listed on the game board (e.g., shade one of the thermometers to show 45°F, and cut it out as one of the game cards).

### Strategies for Differentiation

- **Technology**
  - Have students look up the average local temperatures on the Internet and graph the results, using a graphing software program.
- **Multisensory**
  - Have students use two different colors to indicate temperatures in Celsius and temperatures in Fahrenheit.
- **Small-Group Learning**
  - Have students work together in groups of two or three to create, exchange, and solve five word problems dealing with the temperature changes that they have observed during the unit.

- **Vocabulary**
  - Since this is a long-term activity, post a wall chart with the vocabulary words and corresponding visual cues so students can refer to them as needed.
- **Student Organization of Content**
  - Have students develop a line graph of the temperatures that they are tracking during the activity. The graph could be kept in a notebook and updated daily.

<b>START</b> 	<b>50°C</b>	Lose a turn.	<b>45°F</b>	Lose a turn.
<b>50°C</b>	Go back 2 spaces.			Go back 2 spaces
<b>64°F</b>	<b>8°C</b>			<b>85°F</b>
Go ahead 2 spaces.	<b>END</b>			Go ahead 2 spaces.
<b>Temperature Game Board</b>				
<p><b>IT'S GETTING HOT IN HERE!</b></p> <p><u>Directions:</u></p> <ol style="list-style-type: none"> <li>1. Player 1 rolls the die.</li> <li>2. Move your game piece that many spaces.</li> <li>3. Find the thermometer to match the temperature written on your space.</li> <li>4. Show the other players the thermometer you chose. If you are correct, you stay on your space; if you are incorrect, you lose your next turn.</li> </ol>				
<b>28°C</b>			<b>23°C</b>	
<b>48°C</b>			<b>15°F</b>	
<b>5°F</b>			Lose a turn.	
Lose a turn.			<b>0°C</b>	
<b>37°C</b>	Go ahead 2 spaces.	<b>10°F</b>	Take an extra turn.	<b>50°F</b>

# Thermometer Template

