BRIDGES IN MATHEMATICS 2

GRADE 2 SUPPLEMENT

Set D6 Measurement: Temperature

Includes

Skills & Concepts

★ read a thermometer to gather data

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Bridges in Mathematics Grade 2 Supplement
Set D6 Measurement: Temperature
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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.

Set D6 ★ Activity 1

ACTIVITY

What's the Temperature?

Overview

Students read the temperature on an outdoor thermometer 3 times during the same week, record the results, and compare the readings at the end of the week. This activity will be most interesting if you conduct it at a time of the year when your local temperatures fluctuate by at least a few degrees from one day to the next.

Skills & Concepts

★ read a thermometer to gather data

You'll need

★ What's the Temperature? (page D6.3, class set)

★ an outdoor thermometer (see note)

★ red crayons or colored pencils

Note If the rest of the teachers in your school are using *Bridges in Mathematics,* the first, third, and fifth grade teachers all have outdoor thermometers. In fact, it's possible that there are already several posted in various outdoor locations around the school. If not, borrow one from one of your colleagues or from a science kit and place it outdoors for at least an hour before this activity.

Instructions for What's the Temperature?

1. Talk with students about today's outdoor temperature. Does it seem cold, hot, or somewhere in between? Does anyone know what the predicted temperature for the day is? How do people measure temperature, anyway?

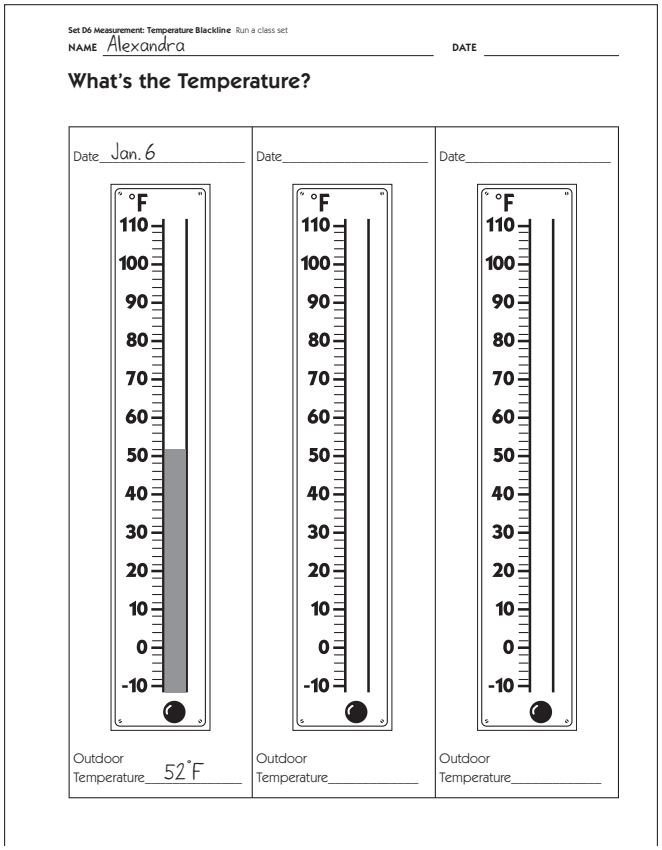
2. Give each student a copy of the What's the Temperature? blackline. Give them a minute to examine the sheet and pair-share their observations. Then call on volunteers to share their observations with the class.

3. As they discuss the sheet, be sure to note with students that the scale on the thermometers counts by 2s. Explain that the "ºF" at the top of each means "degrees Fahrenheit." People measure temperature in degrees, and there are two different scales, Fahrenheit and Celsius. In the U.S., temperature is often measured in degrees Fahrenheit rather than Celsius.

4. If possible, go outside with your class to read the outdoor thermometer so students can feel the temperature as they take the reading. If this isn't possible, ask a volunteer to bring the thermometer inside and have students quickly read it. (Some are sure to note how fast the mercury (alcohol) changes to match the indoor temperature.)

5. Once the class agrees on the outside temperature, have each student record the date and the temperature, and then color in the first thermometer to match. Encourage them to mark the temperature level on the thermometer with their pencil and check it with a partner before they color it in.

Activity 1 What's the Temperature? (cont.)



Set D6 Measurement: Temperature Blackline Run a class set

NAME Alexandra DATE _____

What's the Temperature?

Date Jan. 6	Date _____	Date _____
°F 110 100 90 80 70 60 50 40 30 20 10 0 -10	°F 110 100 90 80 70 60 50 40 30 20 10 0 -10	°F 110 100 90 80 70 60 50 40 30 20 10 0 -10
Outdoor Temperature 52°F	Outdoor Temperature _____	Outdoor Temperature _____

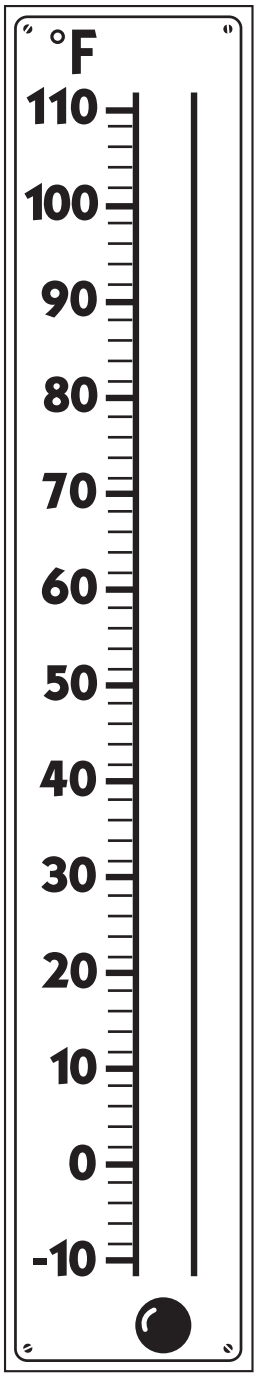
6. Repeat steps 4 and 5 at about the same time two other days during the same week if possible. Have students use the same record sheet each time so the three readings are side-by-side.

7. Ask students to compare the three readings at the end of the week. How has the temperature changed? Which day has been the warmest? The coldest? What's the difference between the temperatures?

NAME _____ **DATE** _____

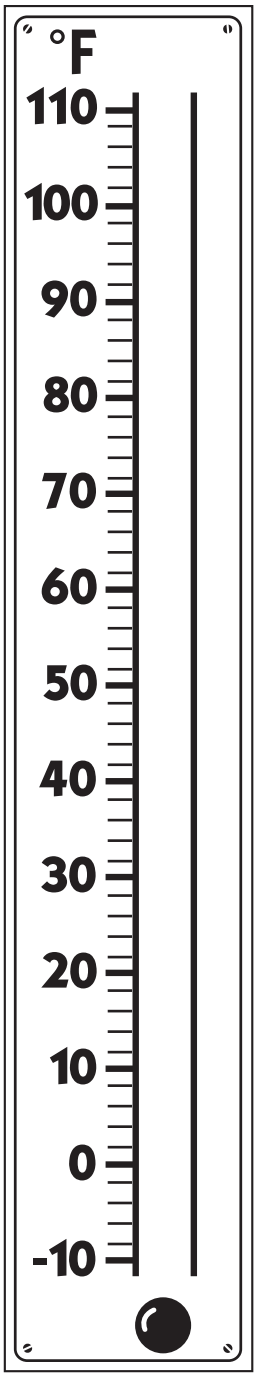
What's the Temperature?

Date_____



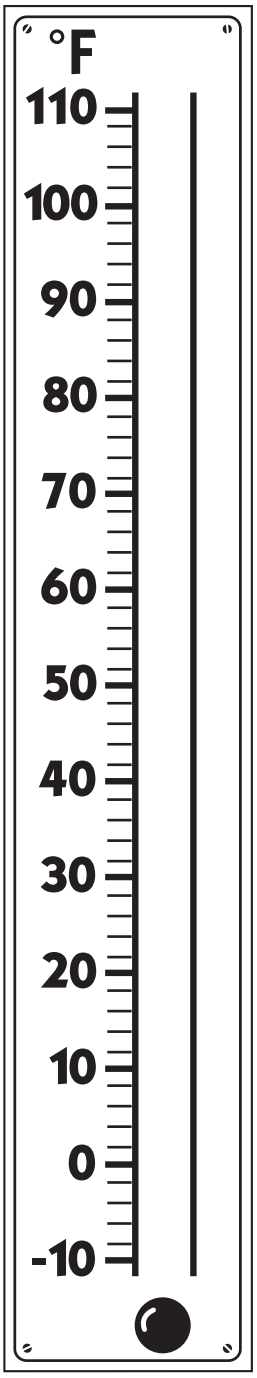
Outdoor Temperature_____

Date_____



Outdoor Temperature_____

Date_____



Outdoor Temperature_____

Set D6 ★ Activity 2

ACTIVITY

How Does the Temperature Change During the Day?

Overview

Students read the temperature on an outdoor thermometer in the morning, around noon, and later in the afternoon, record the results, and compare the readings at the end of the day.

Skills & Concepts

★ read a thermometer to gather data

You'll need

★ Time & Temperature Record Sheet (page D6.7, run a class set)

★ an outdoor thermometer

★ red crayons or colored pencils

Recommended Timing

After Set D6 Activity 1

Instructions for How Does the Temperature Change During the Day?

1. As early in the school day as possible, talk with students about the outdoor temperature right now. Does it seem cold, hot, or somewhere in between? What do students predict the temperature is at the moment? Have them pair-share their conjectures and then invite volunteers to share their thinking with the class.

> ***Students*** *It's really cold out there right now!*
> *I was freezing while we were waiting for the bus.*
> *The weather guy on TV said that it was colder than usual for Austin this week.*
> *I think it's about 30 or 40 degrees.*
> *I heard it was 32 degrees last night.*
> *I think it's lower than that, like about 20!*

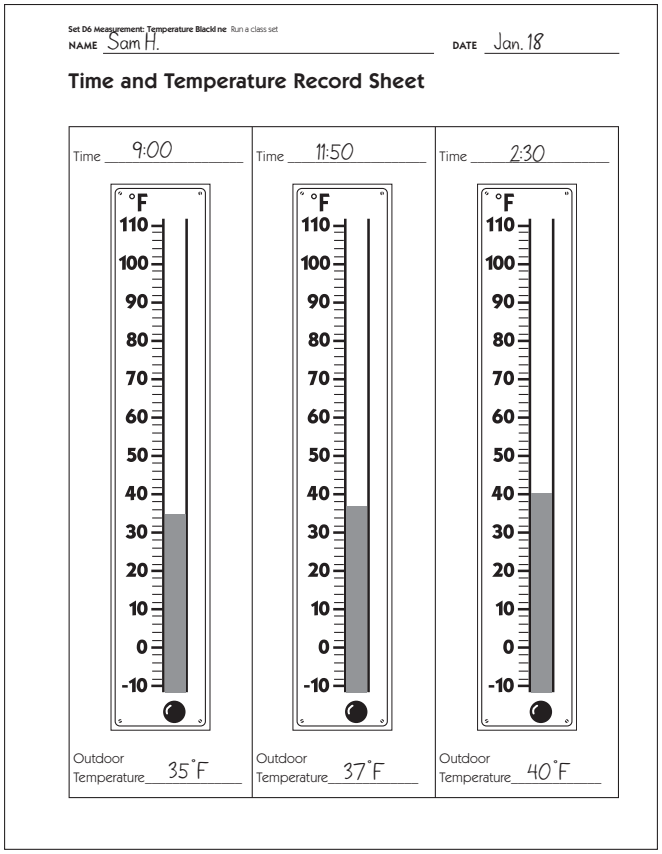
2. Then explain that the class will be taking 3 temperature readings today, one right now, one around noon, and one in the afternoon. Do they think the temperature will change from one time to the next? Why or why not?

3. If possible, go outside with your class to read the outdoor thermometer so students can feel the temperature as they take the reading. If this isn't possible, ask a volunteer to bring the thermometer inside and have students quickly read it.

4. Once the class agrees on the outside temperature, distribute copies of the Time & Temperature Record Sheet. Have each student record the date, the time the first reading was taken, and the temperature, and then color in the first thermometer to match. Encourage them to mark the temperature level on the thermometer with their pencil and check it with a partner before they color it in.

5. Repeat steps 3 and 4 sometime around noon and again later in the school day. Have students use the same record sheet each time so the 3 readings are side-by-side.

Activity 2 How Does the Temperature Change During the Day? (cont.)


Set D6 Measurement: Temperature Blackline Run a class set

NAME Sam H. DATE Jan. 18

Time and Temperature Record Sheet

Time 9:00	Time 11:50	Time 2:30
°F 110 100 90 80 70 60 50 40 30 20 10 0 -10	°F 110 100 90 80 70 60 50 40 30 20 10 0 -10	°F 110 100 90 80 70 60 50 40 30 20 10 0 -10
Outdoor Temperature 35°F	Outdoor Temperature 37°F	Outdoor Temperature 40°F

6. Ask students to discuss the data they've collected at the end of the day or the following day. Here are some questions to pose:

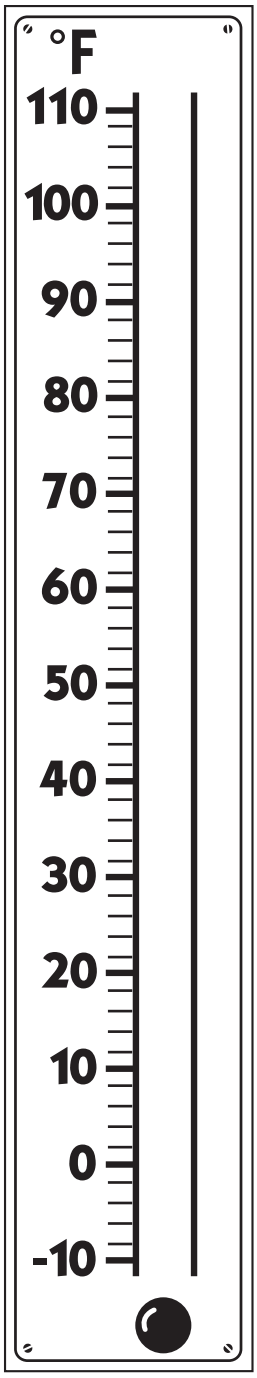
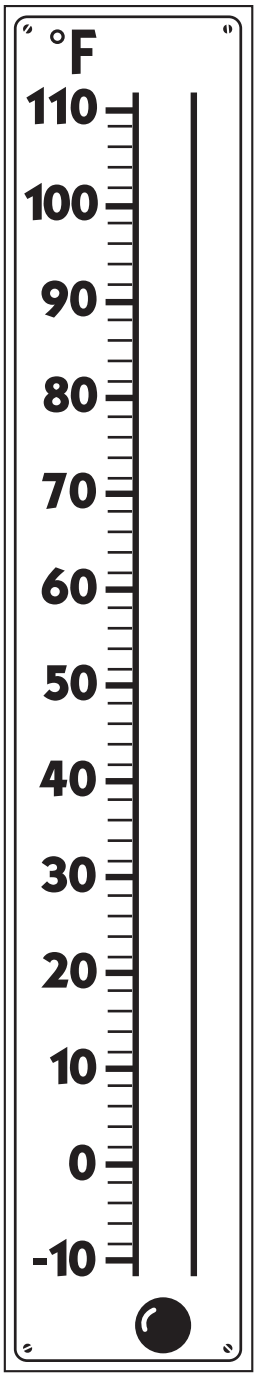
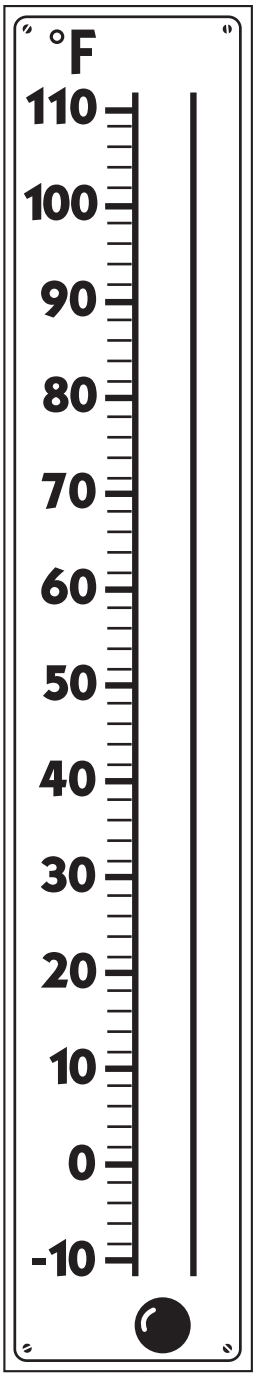
- Did the temperature change over the course of the day? If so, what's the difference between the 3 readings?
- At what time of the school day was it coldest? warmest?
- What might account for the temperature changes if there were any?
- Do students think they'd see a similar pattern of change on other days? Why? Why not?
- What time of the day or night do they think would be the coldest of all? the warmest? Why?

Extension

- You may have a few students who are interested in following the daily changes in temperature over a period of a week or longer. If so, provide additional copies of the record sheet, and encourage these students to share their findings with the class periodically. Display their completed record sheets so other students can look for patterns and trends.

NAME _____ **DATE** _____

Time & Temperature Record Sheet

Time _____	Time _____	Time _____
		
Outdoor Temperature_____	Outdoor Temperature_____	Outdoor Temperature_____

Set D6 ★ Activity 3

ACTIVITY

Forecast & Actual Temperatures on a Thermometer

Overview

How accurate are weather forecasts? In this activity, students look at the day's predicted high for your area and color a thermometer to match. Then they read the outdoor thermometer to see the actual high at your school, record the reading, and compare the two temperatures. You'll want to conduct this activity on 3 afternoons during the same week if possible.

You'll need

- ★ Forecast & Actual Temperatures on a Thermometer (page D6.11, class set)
- ★ a copy of the local daily newspaper or access to the Internet
- ★ an outdoor thermometer
- ★ red crayons or colored pencils

Skills & Concepts

- ★ read a thermometer to gather data

Recommended Timing

After Set D6 Activity 2

Instructions for Forecast & Actual Temperatures on a Thermometer

1. Talk with students about today's outdoor temperature. Does it seem cold, hot, or somewhere in between? Does anyone know what the predicted temperature for the day is?

2. Show students the weather section of your local newspaper, or display an online web site that shows the local readings for the previous day and the predictions for today. What were the high and low temperatures yesterday? What is the predicted high for today? Do the children think it's accurate? Why or why not?

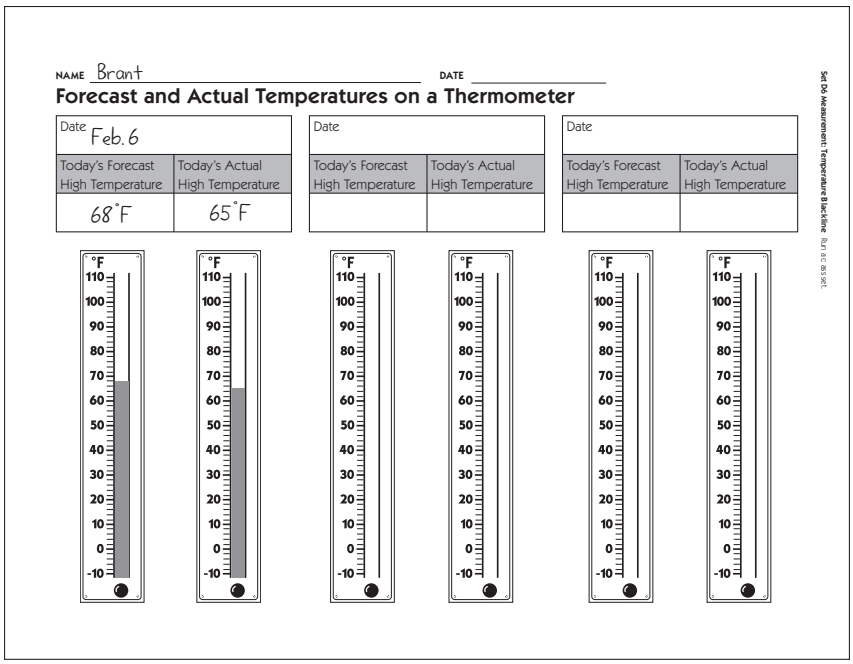
3. Give each student a copy of the Forecast & Actual Temperatures blackline. Give them a minute to examine the sheet and pair-share their observations. Then call on volunteers to share their observations with the class.

4. Have students record the date at the top of the sheet and color in the first thermometer to match the forecast high. Encourage them to mark the temperature level on the thermometer with their pencil and check it with a partner before they color it in.

5. Then go outside with your class to read the outdoor thermometer so students can feel the temperature as they take the reading. If this isn't possible, ask a volunteer to bring the thermometer inside and have students quickly read it. (This step will need to be done in the afternoon to capture the highest temperature for the day at your school.)

6. Once the class agrees on the outside temperature, have each student record the information on his or her sheet and color in the second thermometer to match.

Activity 3 Forecast & Actual Temperatures on a Thermometer (cont.)


NAME Brant DATE

Forecast and Actual Temperatures on a Thermometer

Date Feb. 6		Date		Date	
Today's Forecast High Temperature	Today's Actual High Temperature	Today's Forecast High Temperature	Today's Actual High Temperature	Today's Forecast High Temperature	Today's Actual High Temperature
68°F	65°F				

Set D6 Measurement: Temperature Blackline Run as desired.

7. Discuss the two temperatures with the class. How do they compare? Was the forecast accurate? What might account for the difference, if there is one?

> ***Students*** *It's 3 degrees cooler than they thought it would be.*
> *Maybe it'll get even warmer later on, like after school.*
> *Yeah, I'm going to check the thermometer at our apartment when I get home.*
> *Maybe our thermometer isn't in the warmest place. Maybe if we move it to the playground the temperature will be hotter there.*
> *It's a little cloudy. Maybe they didn't know that there were going to be clouds today.*

8. Repeat this activity twice more this week. At the end of the week, ask students to compare the three sets of forecasted and actual highs they've recorded. Have the forecasts been more accurate some days than others? If there are differences between the forecasted and actual temperatures, is there any pattern? (For instance, have your readings been consistently higher or lower than the forecasts?) How have the actual readings changed from one to the next? Which day has been the warmest? The coldest? Do those results match the forecasts?

Extension

- You may have a few students who are interested in following the forecasted highs and actual readings over a period of several weeks or longer. If so, provide additional copies of the record sheet, and encourage these students to share their findings with the class periodically. Display their completed record sheets so other students can look for patterns and trends.

NAME ______________________ **DATE** ______________

Forecast & Actual Temperatures on a Thermometer

Date	
Today's Forecast High Temperature	Today's Actual High Temperature

Date	
Today's Forecast High Temperature	Today's Actual High Temperature

Date	
Today's Forecast High Temperature	Today's Actual High Temperature