Name _____

Represent and Interpret Line Graphs

Florida's B.E.S.T.
- **Data Analysis & Probability** 5.DP.1.1
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.5.1

I Can use a line graph to display and analyze real-world data.

UNLOCK the Problem Real World

A **line graph** is a graph that uses line segments to show how data changes over time. The series of numbers placed at fixed distances that label the graph are the graph's **scale**. The **interval**, or difference between one number and the next on the scale, should be equal.

Graph the data. Use the graph to determine the times between which the greatest temperature change occurred.

Recorded Temperatures							
Time (a.m.)	1:00	2:00	3:00	4:00	5:00	6:00	7:00
Temperature (in °F)	51.4	49.3	47.2	44.9	45.1	44.7	46.5

- Write related number pairs of data as ordered pairs.

(1:00, 51.4) (_____, _____)

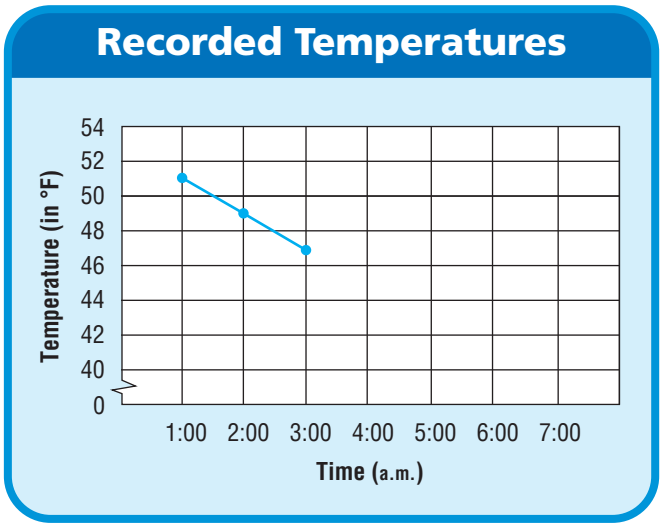
(_____, _____) (_____, _____)

(_____, _____) (_____, _____)

(_____, _____)

STEP 1 For the vertical axis, choose a scale and an interval that are appropriate for the data. You can show a break in the scale between 0 and 40, since there are no temperatures between 0°F and 44°F.

STEP 2 For the horizontal axis, write the times of day. Write a title for the graph and name each axis. Then graph the ordered pairs. Complete the graph by connecting the points with line segments.



Look at each line segment in the graph. Find the line segment that shows the greatest change in temperature between two consecutive points.

The greatest temperature change occurred between _____ and _____.

Try This! Sirvat used a rain gauge to collect data on the total rainfall during 6 days at her home in Miami. She read the amount of rain collected in the rain gauge each day and did not pour it out. Her data is shown in the table. Make a line graph to display Sirvat's data.

STEP 1 Write related pairs of data as ordered pairs.

(Mon, $2\frac{1}{2}$) (____, ____) (____, ____)

(____, ____) (____, ____) (____, ____)

STEP 2 Choose a scale and an interval for the data.

STEP 3 Label the horizontal and vertical axes. Write a title for the graph. Graph the ordered pairs. Connect the points with line segments.

Rainfall Collected

Day	Rainfall (in inches)
Mon	$2\frac{1}{2}$
Tue	$2\frac{1}{2}$
Wed	$3\frac{1}{4}$
Thu	$6\frac{3}{4}$
Fri	$8\frac{1}{4}$
Sat	$9\frac{1}{2}$

Math Talk

MTR 6.1 Assess the reasonableness of solutions.

How could you use the graph to identify the two readings between which it did not rain? Explain.

Use the graph to answer the questions.

1. On which day was the total rainfall recorded the greatest?

_____

2. On which day did Sirvat record the greatest increase in rainfall collected from the previous day?

_____

Name _____

Share and Show

Math Board

Use the table at the right for 1–3.

Average Monthly Temperature in Tupelo, Mississippi					
Month	Jan	Feb	Mar	Apr	May
Temperature (in °F)	40.1	43.9	54.6	62.5	69.8

1. What scale and interval would be appropriate to make a graph of the data?

_____

_____

2. Write the related pairs as ordered pairs.

_____

_____

3. Make a line graph of the data.

4. Use the graph to determine between which two months the least change in average temperature occurs.

_____

On Your Own

Use the table at the right for 5–7.

Plant Height				
Month	1	2	3	4
Height (in inches)	20	25	29	32

5. Write the related number pairs for the plant height as ordered pairs.

_____

6. What scale and interval would be appropriate to make a graph of the data?

_____

7. Make a line graph of the data.

8. Use the graph to find between which two months the plant grew the most? the least?

_____

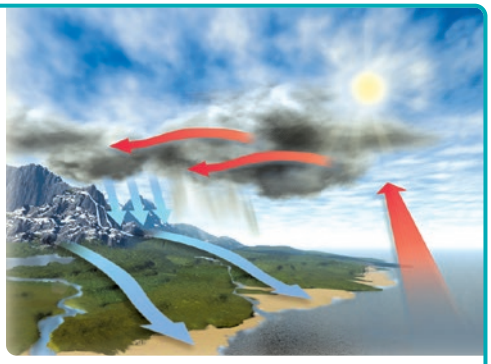
_____

9. Use the graph to estimate the height at $1\frac{1}{2}$ months.

_____

MATH on the Spot

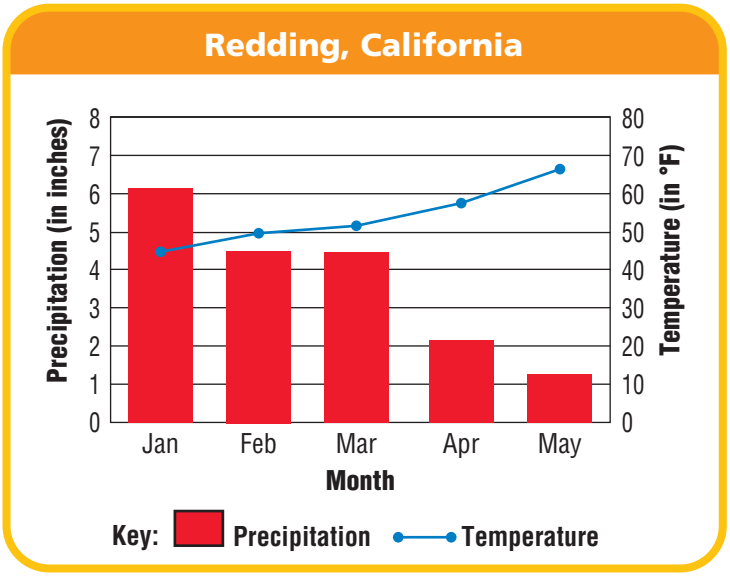
Connect to Science



Evaporation changes water on Earth's surface into water vapor. Water vapor condenses in the atmosphere and returns to the surface as precipitation. This process is called the water cycle. The ocean is an important part of this cycle. It influences the average temperature and precipitation of a place.

The overlay graph below uses two vertical scales to show monthly average precipitation and temperatures for Redding, California.

Use the graph for 10–11.

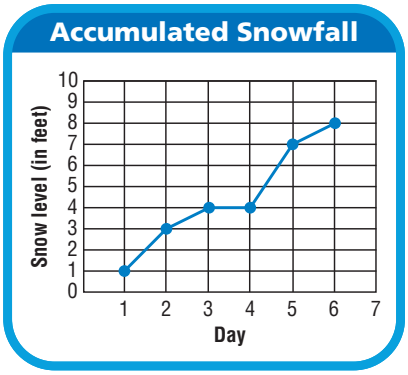


10. MTR Explain how the overlay graph helps you relate precipitation and temperature for each month.

11. Describe how the average temperature changes in the first 5 months of the year. Describe the relationship between the average temperature and the amount of precipitation.

12. The line graph shows the amount of snowfall over several days.

For 12a–12c, select True or False for each statement.



12a. There was no change in the amount of snow from Day 2 to Day 3. ○ True ○ False

12b. The greatest increase in the amount of snow between consecutive days occurred from Day 4 to Day 5. ○ True ○ False

12c. From Day 1 to Day 6, the amount of snow increased from 1 foot to 8 feet. ○ True ○ False