Go to *Grade 6 Everyday Mathematics* Sample Lesson

1•6 Broken-Line Graphs

Objective To create, read, and interpret broken-line graphs.

1 Teaching the Lesson

Key Activities

Students use broken-line graphs to examine variations in precipitation and temperature data.

Key Concepts and Skills

- Construct broken-line graphs. [Data and Chance Goal 1]
- Read and interpret broken-line and double broken-line graphs. [Data and Chance Goal 1]
- Describe and predict patterns and trends represented by broken-line graphs. [Data and Chance Goal 2]

Key Vocabulary line graph • broken-line graph • precipitation • graph key

Ongoing Assessment: Informing Instruction See page 45.

Ongoing Assessment: Recognizing Student Achievement Use journal page 19. [Data and Chance Goal 1]

materials

- ☐ *Math Journal 1,* pp. 18 and 19
- ☐ *Student Reference Book,* p. 140
- ☐ Study Link 1•5
- ☐ Transparency (*Math Masters,* p. 18; optional)
- ☐ straightedge

2 Ongoing Learning & Practice

Students practice finding and analyzing data landmarks by playing *Landmark Shark.*

Students practice and maintain skills through Math Boxes and Study Link activities.

materials

- ☐ *Math Journal 1,* p. 20
- ☐ *Student Reference Book,* pp. 325 and 326
- ☐ Study Link Master (*Math Masters,* p. 19)
- ☐ Game Masters (*Math Masters,* pp. 456 and 457)
- ☐ Per group: 4 each of number cards 0–10; 1 each of number cards 11–20
- ☐ straightedge

3 Differentiation Options

materials

- ☐ *Student Reference Book,* p. 140
- ☐ Game Masters (*Math Masters,* pp. 465 and 466)
- ☐ Per partnership: 2 different-colored pencils; 2 six-sided dice; computer; spreadsheet/graphing software

READINESS

Students practice reading and plotting points on a coordinate grid.

ENRICHMENT

Students use computer software to generate and analyze broken-line graphs.

ELL SUPPORT

Students use the Graphs Museum to develop fluency with graphing vocabulary.

Technology

Assessment Management System
Journal page 19, Problem 2
See the **iTLG.**

Getting Started

Mental Math and Reflexes

Students compare and order positive and negative numbers. Remind students that zero is neither positive nor negative. *Suggestions:*

- ●○○ Name two numbers between 3 and 4.
  Sample answers: 3.009; 3.998
- ●●○ Name two numbers between −4 and −5.
  Sample answers: $-4\frac{1}{8}$; −4.99
- ●●● Name five positive numbers less than 3.
  Sample answers: 2, $2\frac{1}{4}$; $1\frac{3}{4}$; 1.3; 0.31

Math Message

Turn to page 140 in your Student Reference Book.
Use the graph in the example to answer the following questions:

- *What do the horizontal and vertical axes show?*
- *What can you conclude from the graph?*

Study Link 1•5 Follow-Up

Twelve-year-old boys tend to be slightly shorter than twelve-year-old girls. The data samples in Study Link 1-5 support this conclusion. Discuss and compare the median and mean for each set of data.

NOTE Some students may benefit from doing the Readiness activity before beginning Part 1 of the lesson. See Part 3 for details.

NOTE *Math Masters,* page 18 is identical to journal page 18. You may want to use an overhead transparency of the master during your discussion.

Student Page

Date Time

LESSON 1•6 **The Climate in Omaha**

Omaha, the largest city in Nebraska, is located on the eastern border of the state on the Missouri River.

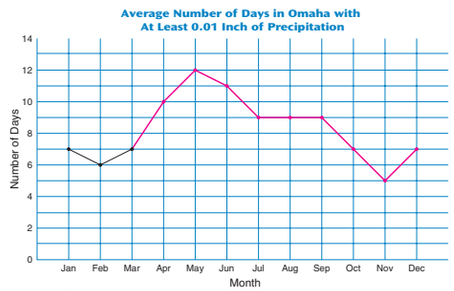
Precipitation is moisture that falls as rain or snow. Rainfall is usually measured in inches; snowfall is usually translated into an equivalent amount of rain.

Average Number of Days in Omaha with At Least 0.01 Inch of Precipitation

Number of days	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	7	6	7	10	12	11	9	9	9	7	5	7

These averages are the result of collecting data for more than 58 years.

1. Complete the following graph.
   First make a dot for each month to represent the data in the table.
   Then connect the dots with line segments. The result is called a **broken-line graph.**
   This type of graph is often used to show trends.



Source: The Times Books World Weather Guide

Math Journal 1, p. 18

1 Teaching the Lesson

Math Message Follow-Up

WHOLE-CLASS DISCUSSION

(*Student Reference Book,* p. 140)

Review the information in the essay. The terms **line graph** and **broken-line graph** refer to graphs whose points are connected by a line or line segments to represent data. If the graph is one line or line segment, it is usually called a line graph. If the graph includes two or more line segments, it is usually called a broken-line graph.

Have students share their answers to the Math Message with a partner. Ask a few volunteers to share with the class. Help students understand how they can use graphs to analyze information and make predictions.

Drawing and Interpreting a Broken-Line Graph

WHOLE-CLASS ACTIVITY

(*Math Journal 1,* p. 18; *Math Masters,* p. 18)

Science Link Broken-line graphs are often used to show trends and the results of scientific studies. Complete and discuss the broken-line graph with students. Call their attention to the title of the graph, the axes labels, and so on.

Point out that the average number of days with a trace of **precipitation** (at least 0.01 inch) is shown with a dot for each month and that line segments connect consecutive dots. Discuss the meaning of *precipitation.* Ask students to give examples. Rain, sleet, snow, hail

Ask students to cover the table above the graph. Then ask the following questions:

- Which month has the greatest number of days with precipitation? May How can you tell? May shows the highest point on the graph.
- Which season has more days with precipitation—winter or summer? summer
- Which month has the least number of days with precipitation? November How can you tell? November shows the lowest point on the graph.
- Can you tell from the graph which month has the greatest amount of precipitation? No. May has the most days with precipitation, but it may rain less each day in May than in another month having fewer days with precipitation.
- Is there a period in which little change occurred? Yes; July to September
- How would you describe the pattern or trend shown by the graph? The number of days with at least 0.01 inch of precipitation generally increases until May and then decreases each month until November.

Ongoing Assessment: Informing Instruction

Watch for students who may not recognize the subtle difference between data in the form of a table and data in the form of a graph. A table is a collection of data, while a graph is a picture of the patterns or trends in the data set.

Reading and Interpreting Broken-Line Graphs

INDEPENDENT ACTIVITY

(*Math Journal 1,* p. 19)

Introduce double-line graphs and explain that these graphs are often used to show comparative changes over time.

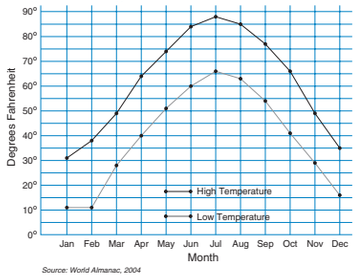
The graph on journal page 19 consists of two broken-line graphs on the same set of axes. The graphs can be analyzed separately or together for a comparison. Draw attention to the **graph key** and discuss its importance. To support English language learners, discuss and compare the mathematical uses of the word *key*.

Student Page

Date Time

LESSON 1•6 **The Climate in Omaha** *continued*

Averages of Daily High and Low Temperatures in Omaha, Nebraska



Source: World Almanac, 2004

Here is more information about the climate in Omaha. Black line segments connect the dots for high temperatures. Gray line segments connect low temperatures.

2. On average, what is the
   a. warmest month of the year? July
   b. coldest month of the year? January
3. Compare the average daily high and low temperatures in April.
   About how many degrees warmer is the high temperature? About 25° warmer
4. Use the graph to fill in the missing data in the table below.

Month	Average Daily High Temperature	Month	Average Daily Low Temperature
January	31°F	April	40°F
November	49°F	Oct.	41°F
May	74°F	June	60°F
April	64°F	March	28°F

***Math Journal 1,* p. 19**

Student Page

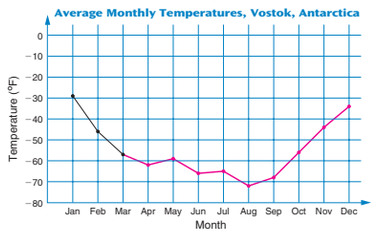
Date Time

LESSON 1•6 **Math Boxes**

1. The coldest temperature on Earth was recorded at the Russian research station in Vostok, Antarctica. The average temperatures in Vostok for 2002 are shown in the table below.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	−29	−46	−57	−62	−59	−66	−65	−72	−68	−56	−44	−34

Use the data table to complete the broken-line graph below.



2. Estimate the product 57 * 34.

About 1,800

Find the exact answer to 57 * 34.

1,938 = 57 * 34

3. Use estimation to insert the decimal point in each product.

a. 1.2 * 3 = 3.6

b. 20.2 * 6 = 1 2 1.2

c. 3.8 * 2.6 = 9.8 8

Math Journal 1, p. 20

Links to the Future

The activities in this lesson are the first of several opportunities for students to recognize the value of line graphs as a tool for analyzing information and for making predictions. In Lesson 1-11, students will learn that graphs can be misleading, requiring that they think critically about how information is represented.

Study Link Master

Name Date Time

STUDY LINK 1•6 **Cooling Off**

The graph shows how a cup of hot tea cools as time passes.

1. Use the graph to fill in the missing data in the table.

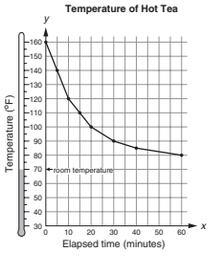
2. What is the tea's approximate temperature after 30 minutes? 90°F

3. About how many minutes does it take for the tea to cool to a temperature of 95°F?
About 25 minutes

4. a. About how many minutes do you think it will take the tea to cool to room temperature (70°F)?
Sample answers: About 100 minutes

b. Why do you think so?
The rate of cooling levels off to $2\frac{1}{2}$°F every 10 min.

Elapsed Time (minutes)	Temperature (°F)
0 (pour tea)	160
10	120
40	85
20	100
12.5	115
5	140



5. a. Does the tea cool at a constant rate? no

b. Explain your answer.
The tea cools very quickly at first, but then the temperature drops slowly.

Practice

6. 32 * 54 = 1,728

7. 3,306 = 87 * 38

8. 59 * 76 = 4,484

9. 2,538 = 94 * 27

Math Masters, p. 19

Ask students to suggest data sets that could be displayed using double-line graphs. Sample answers: Average rainfall of two cities over a year; weekly or monthly sales of two different brands of peanut butter

Circulate and assist as students work on the journal page.

Ongoing Assessment: Recognizing Student Achievement

Journal Page 19 Problem 2 ★

Use **journal page 19, Problem 2** to assess students' ability to read data values from a broken-line graph. Students are making adequate progress if they are able to identify the warmest and coldest months of the year. Some students may be able to interpret the relationship between the two graphs and apply this understanding to successfully complete Problems 3 and 4.

[Data and Chance Goal 1]

2 Ongoing Learning & Practice

Playing *Landmark Shark*

SMALL-GROUP ACTIVITY

(*Student Reference Book,* pp. 325 and 326; *Math Masters,* pp. 456 and 457)

If necessary, have students review game directions on pages 325 and 326 in the *Student Reference Book.* Challenge them to find the mean of their five card numbers mentally. One way to do this is to add the five numbers, divide the total by 10, and then multiply that number by 2.

NOTE Consider spending the first or last 10 minutes of each math class playing *Landmark Shark* or any of the other games in this unit. Refer to the game section of the Unit Organizer for an overview of Unit 1 games.

Math Boxes 1•6

INDEPENDENT ACTIVITY

(*Math Journal 1,* p. 20)

Mixed Practice Math Boxes in this lesson are paired with Math Boxes in Lesson 1-8. The skills in Problems 2 and 3 preview Unit 2 content.

Writing/Reasoning Have students write their responses to the following: *Explain why your estimate in Problem 2 may be greater or less than the exact answer.* Sample answer: It depends on how I round the factors.

Study Link 1•6

INDEPENDENT ACTIVITY

(*Math Masters,* p. 19)

Home Connection Students interpret a broken-line graph that shows how a cup of hot tea cools over time.

3 Differentiation Options

READINESS

PARTNER ACTIVITY

Playing *Over and Up Squares*

15–30 Min

(*Math Masters,* pp. 465 and 466)

To provide experience naming and plotting points on a coordinate grid, have students play *Over and Up Squares.* Review the game directions on *Math Masters,* page 465.

ENRICHMENT

SMALL-GROUP ACTIVITY

Generating and Analyzing Broken-Line Graphs

5–15 Min

(*Student Reference Book,* p. 140)

To extend students' understanding of broken-line graphs, use graphing software and the Check Your Understanding data set (*Student Reference Book,* p. 140) to have students generate broken-line graphs.

ELL SUPPORT

SMALL-GROUP ACTIVITY

Using the Graphs Museum

5–15 Min

Ask students to identify, compare, and describe the types of graphs displayed in the Graphs Museum. Encourage students to use terms related to graphs.

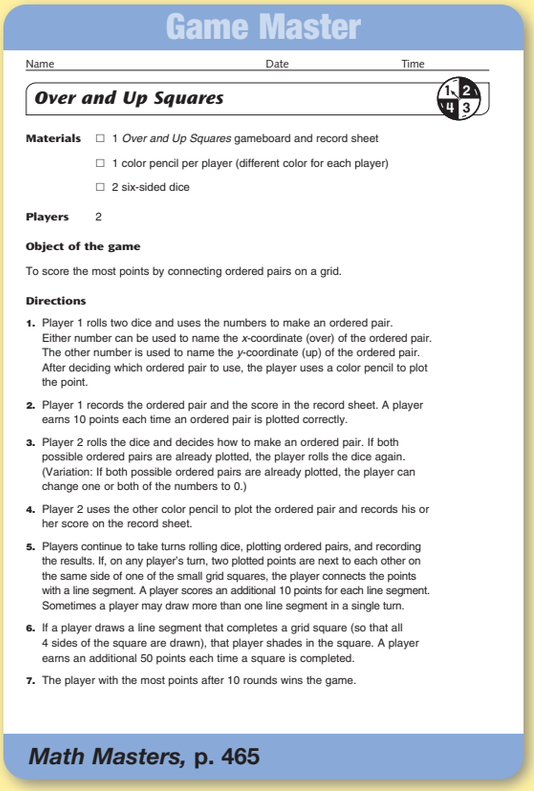
Examples:

- This is a bar graph. A bar graph makes it easy to read and compare data.
- This is a line plot. A line plot makes it easy to see how data are grouped.
- This is a circle graph. A circle graph makes it easy to see how parts make up a whole.

In this unit students will encounter various uses of the word *difference.* For example: "Find the difference between the highest and the shortest height." "What is the difference between a bar graph and a line plot?" Discuss these different meanings.

Planning Ahead

Consider using graphing software in Part 1 of Lesson 1-7 to extend students' knowledge of bar graphs. You will need a computer, spreadsheet/graphing software, and a large-screen display.



Game Master

Name Date Time

Over and Up Squares

Materials ☐ 1 *Over and Up Squares* gameboard and record sheet
☐ 1 color pencil per player (different color for each player)
☐ 2 six-sided dice

Players 2

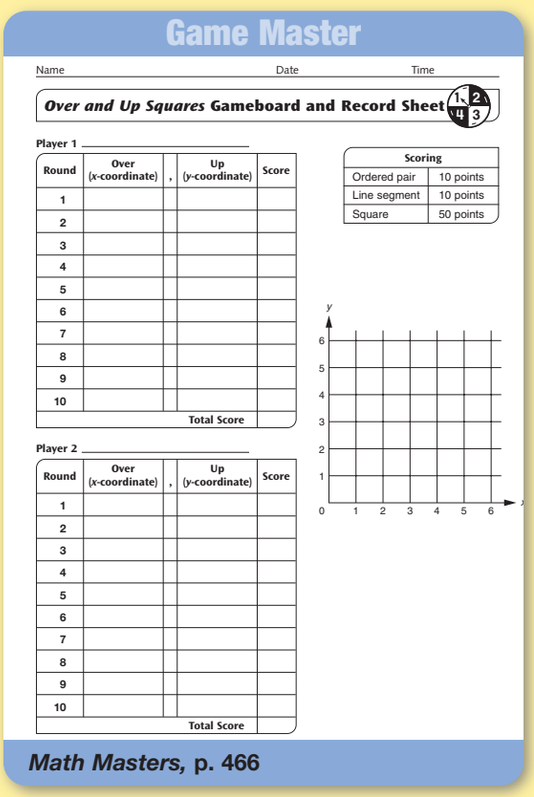
Object of the game

To score the most points by connecting ordered pairs on a grid.

Directions

1. Player 1 rolls two dice and uses the numbers to make an ordered pair. Either number can be used to name the *x*-coordinate (over) of the ordered pair. The other number is used to name the *y*-coordinate (up) of the ordered pair. After deciding which ordered pair to use, the player uses a color pencil to plot the point.
2. Player 1 records the ordered pair and the score in the record sheet. A player earns 10 points each time an ordered pair is plotted correctly.
3. Player 2 rolls the dice and decides how to make an ordered pair. If both possible ordered pairs are already plotted, the player rolls the dice again. (Variation: If both possible ordered pairs are already plotted, the player can change one or both of the numbers to 0.)
4. Player 2 uses the other color pencil to plot the ordered pair and records his or her score on the record sheet.
5. Players continue to take turns rolling dice, plotting ordered pairs, and recording the results. If, on any player's turn, two plotted points are next to each other on the same side of one of the small grid squares, the player connects the points with a line segment. A player scores an additional 10 points for each line segment. Sometimes a player may draw more than one line segment in a single turn.
6. If a player draws a line segment that completes a grid square (so that all 4 sides of the square are drawn), that player shades in the square. A player earns an additional 50 points each time a square is completed.
7. The player with the most points after 10 rounds wins the game.

Math Masters, p. 465



Game Master

Name Date Time

Over and Up Squares Gameboard and Record Sheet

Player 1

Round	Over (x-coordinate)	,	Up (y-coordinate)	Score
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
			Total Score	

Scoring	
Ordered pair	10 points
Line segment	10 points
Square	50 points

Player 2

Round	Over (x-coordinate)	,	Up (y-coordinate)	Score
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
			Total Score	

Math Masters, p. 466

Date Time

LESSON 1•6

The Climate in Omaha

Omaha, the largest city in Nebraska, is located on the eastern border of the state on the Missouri River.

SRB 140

Precipitation is moisture that falls as rain or snow. Rainfall is usually measured in inches; snowfall is usually translated into an equivalent amount of rain.

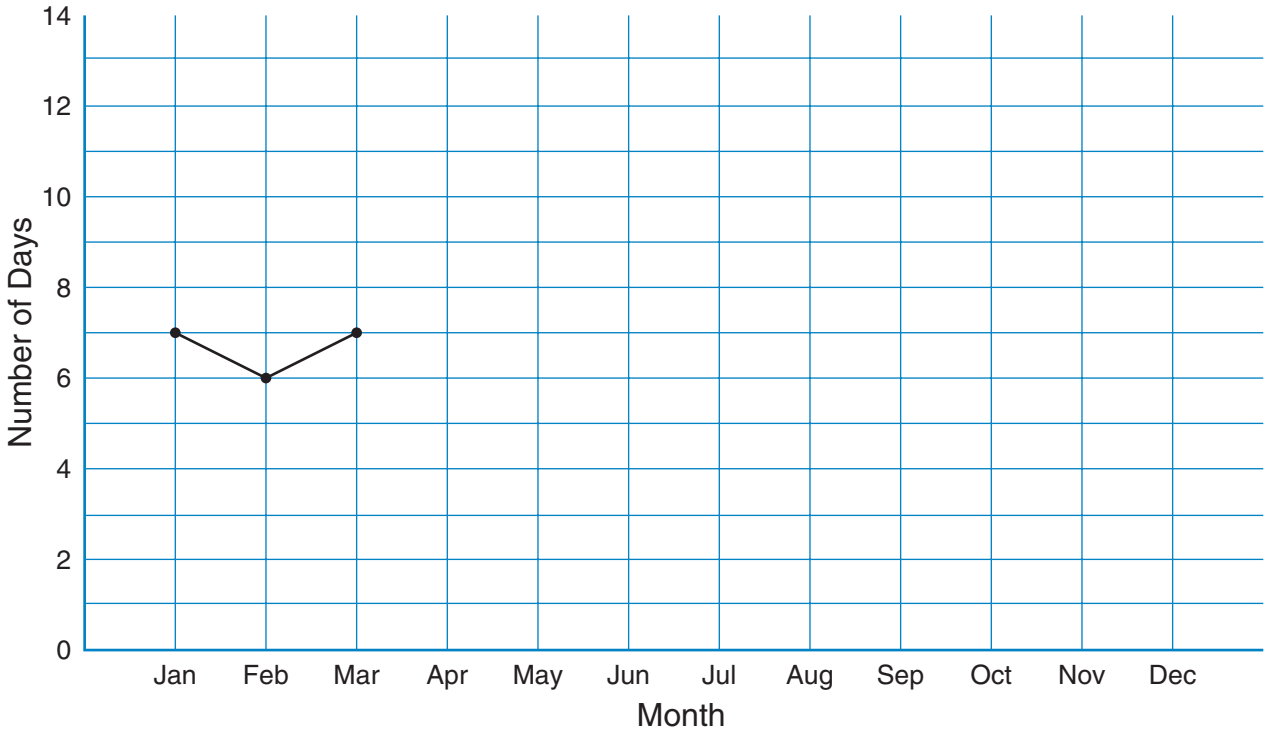
Average Number of Days in Omaha with At Least 0.01 Inch of Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of days	7	6	7	10	12	11	9	9	9	7	5	7

These averages are the result of collecting data for more than 58 years.

1. Complete the following graph.
   First make a dot for each month to represent the data in the table.
   Then connect the dots with line segments. The result is called a **broken-line graph.**
   This type of graph is often used to show trends.

Average Number of Days in Omaha with At Least 0.01 Inch of Precipitation



Source: *The Times Books World Weather Guide*

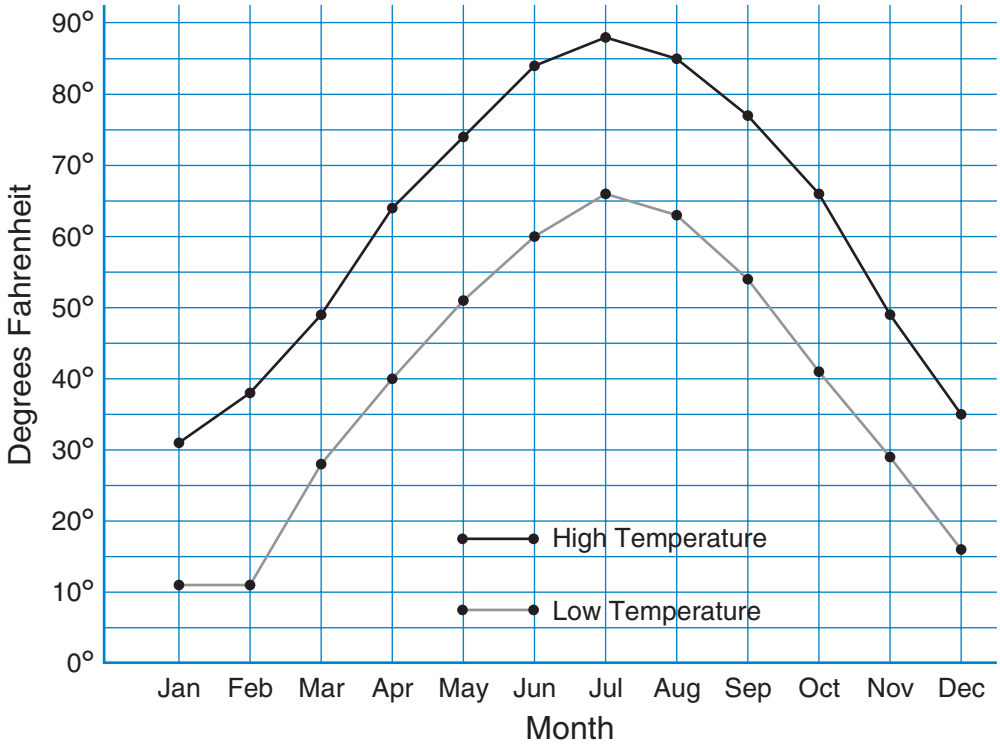
Date Time

LESSON 1•6

The Climate in Omaha *continued*

Averages of Daily High and Low Temperatures in Omaha, Nebraska

SRB 140



Source: World Almanac, 2004

Here is more information about the climate in Omaha. Black line segments connect the dots for high temperatures. Gray line segments connect low temperatures.

2. On average, what is the

a. warmest month of the year? _____

b. coldest month of the year? _____

3. Compare the average daily high and low temperatures in April.

About how many degrees warmer is the high temperature? _____

4. Use the graph to fill in the missing data in the table below.

Month	Average Daily High Temperature	Month	Average Daily Low Temperature
January		April	
November			41°F
	74°F		60°F
	64°F	March	

Date Time

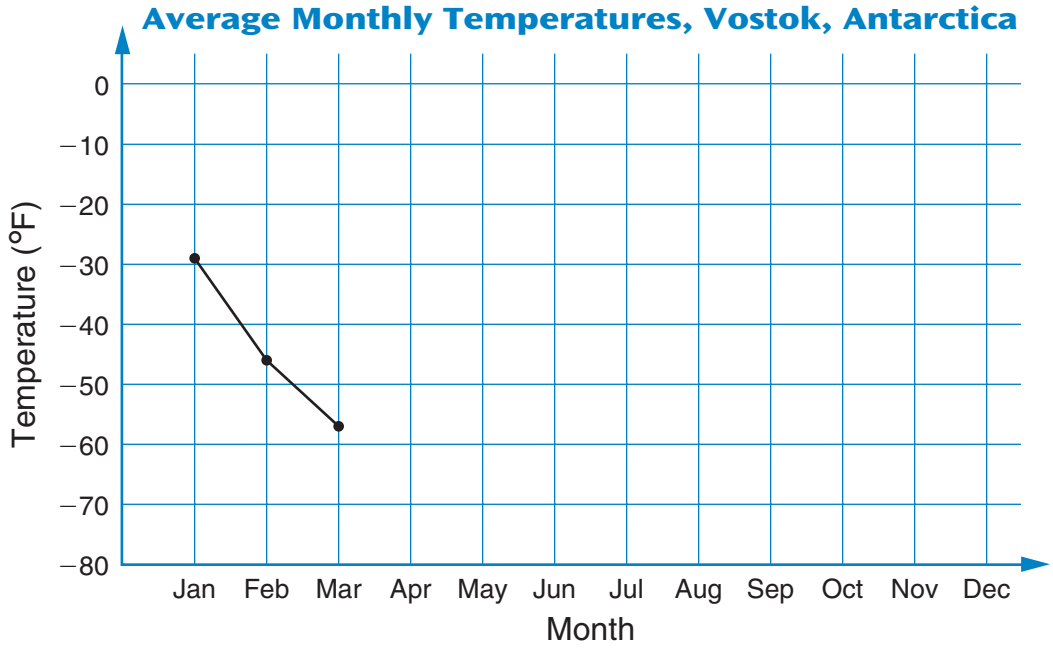
LESSON 1•6

Math Boxes

1. The coldest temperature on Earth was recorded at the Russian research station in Vostok, Antarctica. The average temperatures in Vostok for 2002 are shown in the table below.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	−29	−46	−57	−62	−59	−66	−65	−72	−68	−56	−44	−34

Use the data table to complete the broken-line graph below.



SRB 140

2. Estimate the product 57 ∗ 34.

About _____

Find the exact answer to 57 ∗ 34.

_____ = 57 ∗ 34

SRB 19 20

3. Use estimation to insert the decimal point in each product.

a. 1.2 ∗ 3 = 3 6

b. 20.2 ∗ 6 = 1 2 1 2

c. 3.8 ∗ 2.6 = 9 8 8

SRB 37

Name Date Time

LESSON 1•6

The Climate in Omaha

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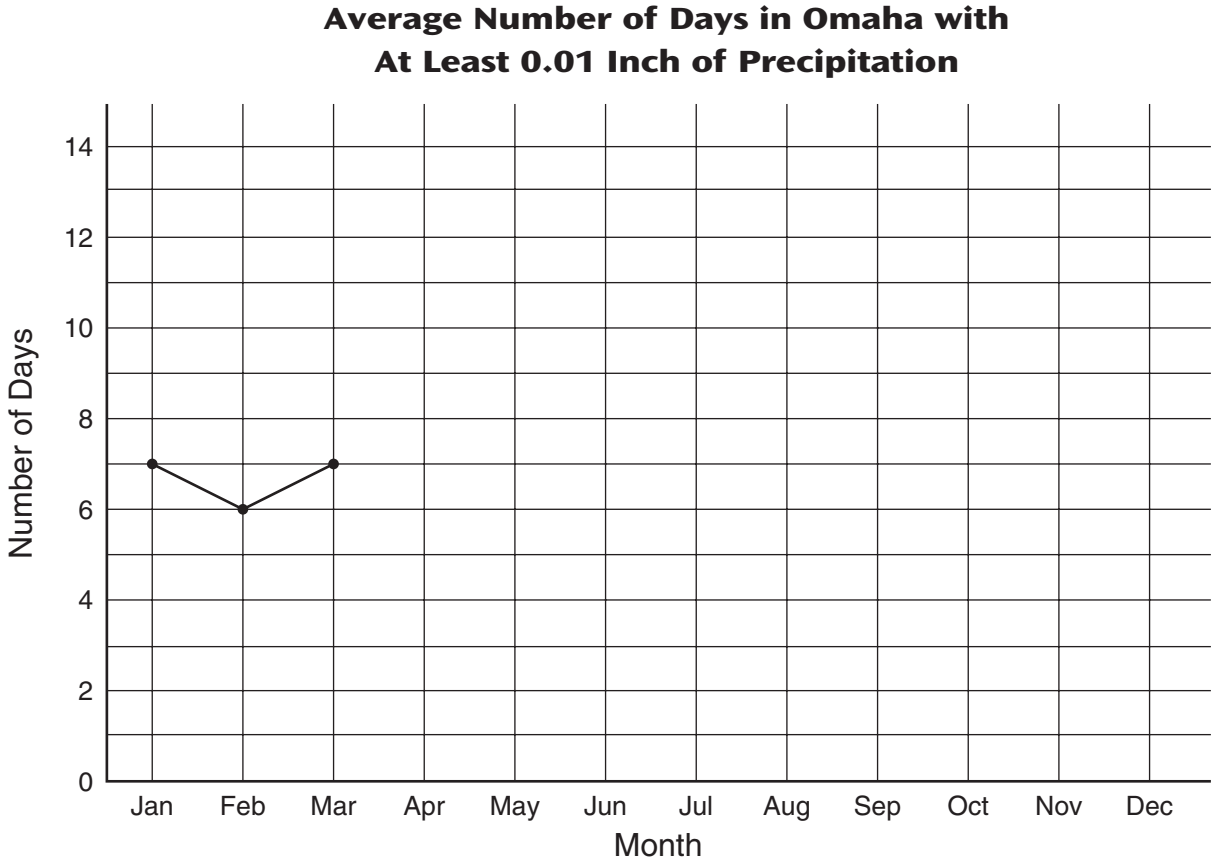


Source: *The Times Books World Weather Guide*

Name Date Time

STUDY LINK 1•6

Cooling Off

back to lesson

The graph shows how a cup of hot tea cools as time passes.

1. Use the graph to fill in the missing data in the table.

2. What is the tea's approximate temperature after 30 minutes? _____

3. About how many minutes does it take for the tea to cool to a temperature of 95°F?

_____

4. a. About how many minutes do you think it will take the tea to cool to room temperature (70°F)?

_____

_____

b. Why do you think so?

_____

_____

_____

5. a. Does the tea cool at a constant rate? _____

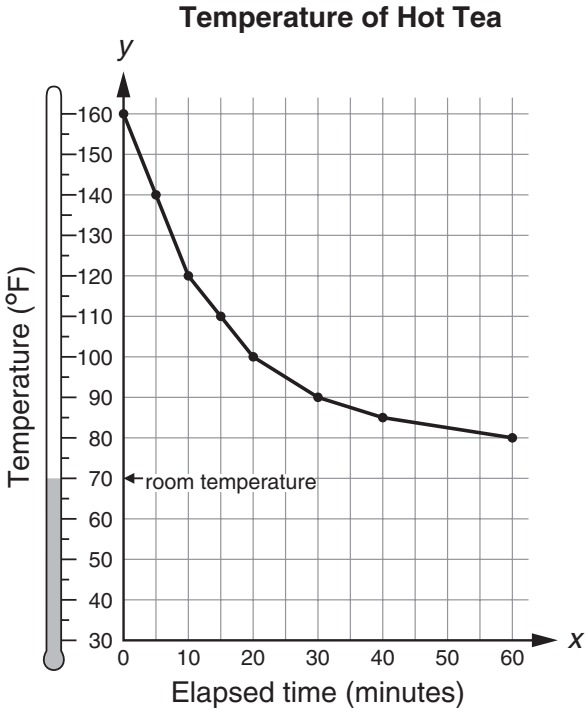
b. Explain your answer.

_____

_____

_____

Elapsed Time (minutes)	Temperature (°F)
0 (pour tea)	
10	
40	
	100
	115
5	



Practice

6. 32 * 54 = _____

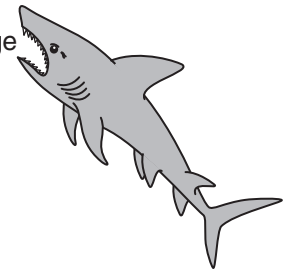
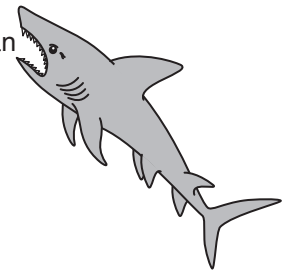
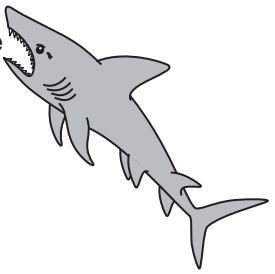
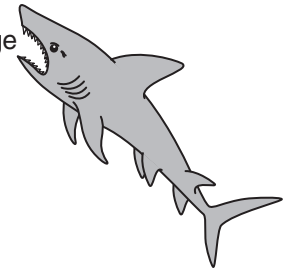
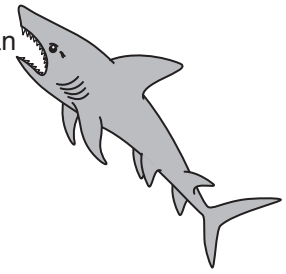
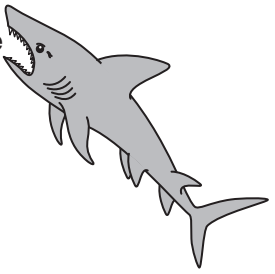
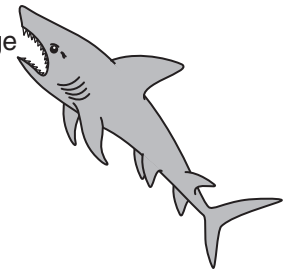
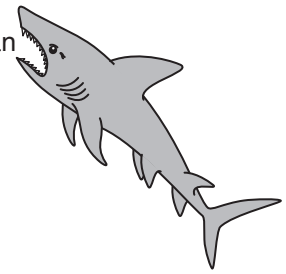
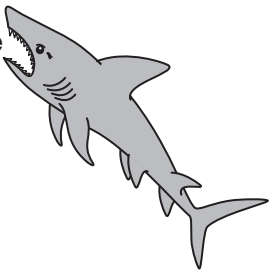
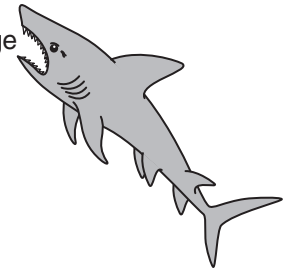
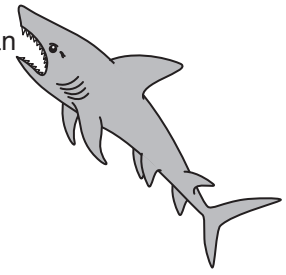
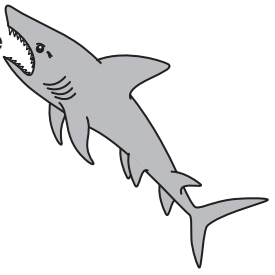
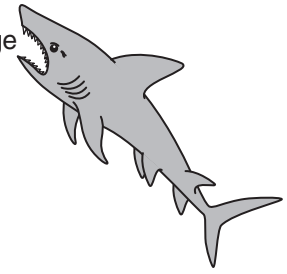
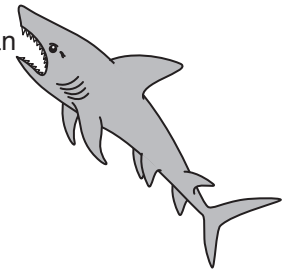
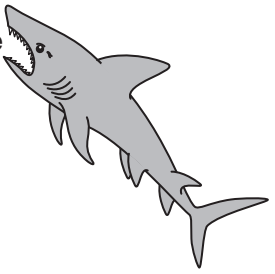
7. _____ = 87 * 38

8. 59 * 76 = _____

9. _____ = 94 * 27

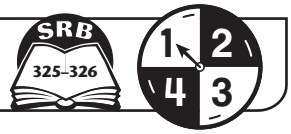
Name Date Time

Landmark Shark Cards

Range 	Median 	Mode 
Range 	Median 	Mode 
Range 	Median 	Mode 
Range 	Median 	Mode 
Range 	Median 	Mode 

Name Date Time

Landmark Shark Score Sheet



		Player 1	Player 2	Player 3
Round 1:	Points Scored			
	Bonus Points			
	Round 1 Score			
Round 2:	Points Scored			
	Bonus Points			
	Round 2 Score			
Round 3:	Points Scored			
	Bonus Points			
	Round 3 Score			
Round 4:	Points Scored			
	Bonus Points			
	Round 4 Score			
Round 5:	Points Scored			
	Bonus Points			
	Round 5 Score			
Total Score for 5 Rounds				

Name Date Time

Over and Up Squares

Materials
- ☐ 1 *Over and Up Squares* gameboard and record sheet
- ☐ 1 color pencil per player (different color for each player)
- ☐ 2 six-sided dice

Players 2

Object of the game

To score the most points by connecting ordered pairs on a grid.

Directions

1. Player 1 rolls two dice and uses the numbers to make an ordered pair. Either number can be used to name the *x*-coordinate (over) of the ordered pair. The other number is used to name the *y*-coordinate (up) of the ordered pair. After deciding which ordered pair to use, the player uses a color pencil to plot the point.
2. Player 1 records the ordered pair and the score in the record sheet. A player earns 10 points each time an ordered pair is plotted correctly.
3. Player 2 rolls the dice and decides how to make an ordered pair. If both possible ordered pairs are already plotted, the player rolls the dice again. (Variation: If both possible ordered pairs are already plotted, the player can change one or both of the numbers to 0.)
4. Player 2 uses the other color pencil to plot the ordered pair and records his or her score on the record sheet.
5. Players continue to take turns rolling dice, plotting ordered pairs, and recording the results. If, on any player's turn, two plotted points are next to each other on the same side of one of the small grid squares, the player connects the points with a line segment. A player scores an additional 10 points for each line segment. Sometimes a player may draw more than one line segment in a single turn.
6. If a player draws a line segment that completes a grid square (so that all 4 sides of the square are drawn), that player shades in the square. A player earns an additional 50 points each time a square is completed.
7. The player with the most points after 10 rounds wins the game.

Name Date Time

Over and Up Squares Gameboard and Record Sheet

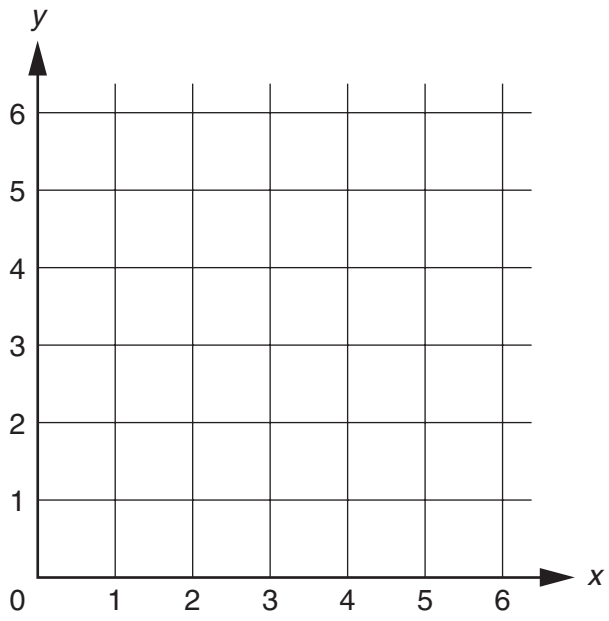
Player 1 _____

Round	Over (*x*-coordinate)	,	Up (*y*-coordinate)	Score
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
			Total Score	

Player 2 _____

Round	Over (*x*-coordinate)	,	Up (*y*-coordinate)	Score
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
			Total Score	

Scoring	
Ordered pair	10 points
Line segment	10 points
Square	50 points



Line Graphs

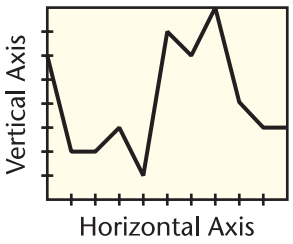
Line graphs are used to display information that shows trends. They often show how something has changed over a period of time.

Line graphs are often called **broken-line graphs.** Line segments connect the points on the graph. The segments joined end to end look like a broken line.

Line graphs have a horizontal and a vertical scale. Each of these scales is called an **axis** (plural: **axes**). Each axis is labeled to show what is being measured or counted and what the unit of measure or count unit is.

When looking at a line graph, try to determine the purpose of the graph. See what conclusions you can draw from it.

Broken-Line Graph



Joined end to end, the segments look like a broken line.

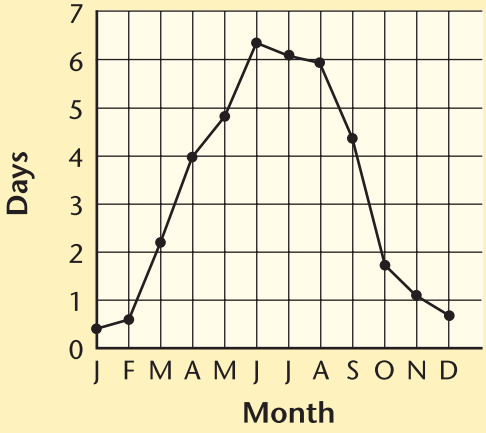
Example

The broken-line graph at the right shows the average number of thunderstorm days for each month in Chicago, Illinois.

The horizontal axis shows each month of the year. The average number of thunderstorm days for a month is shown with a dot above the label for that month. The labels on the vertical axis are used to estimate the number of days represented by that dot.

From January to June, the number of thunderstorm days increases each month. From June to January, the number decreases. The greatest change in number of thunderstorm days from one month to the next occurs from September to October.

Average Number of Thunderstorm Days in Chicago



Check Your Understanding

The following table shows average temperatures for Boston, Massachusetts. Make a line graph to show this information.

Average Temperatures for Boston, Massachusetts

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	29	32	39	48	59	68	74	72	65	54	45	35

Check your answer on page 419.

Landmark Shark

Materials ☐ 1 complete deck of number cards
☐ 1 each of Range, Median, and Mode *Landmark Shark* Cards for each player (*Math Masters,* p. 456)
☐ 1 *Landmark Shark* Score Sheet (*Math Masters,* p. 457)

Players 2 or 3

Skill Finding the range, mode, median, and, mean

Object of the game To score the most points by finding data landmarks.

Directions

1. To play a round:

- The dealer shuffles the number cards and deals 5 cards number-side down to each player.
- Players put their cards in order from the smallest number to the largest.
- There are 3 ways a player may score points using their five cards:

Range: The player's score is the range of the 5 numbers.

Example

Brian's hand: 1, 4, 6, 8, 12

Range = 12 − 1 = 11 **points scored** = 11

Median: The player's score is the median of the 5 numbers.

Example

Liz's hand: 4, 9, 13, 14, 15

Median = 13 **points scored** = 13

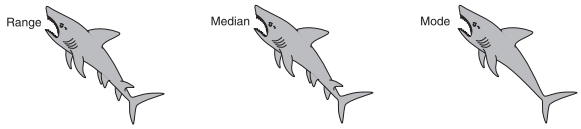
Mode: The player must have at least 2 cards with the same number. The player's score is found by multiplying the mode of the 5 numbers by the number of modal cards. If there is more than one mode, the player uses the mode that will produce the most points.

Example

Caroline's hand: 1, 2, 8, 8, 10

Mode = 8 **points scored** = 2 * 8 = 16

Landmark Shark (continued)

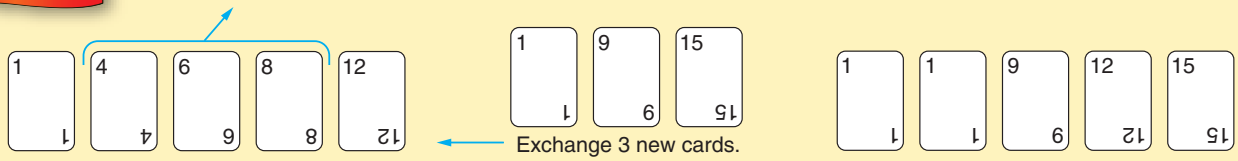


2. Each player decides which landmark will yield the highest score for their hand. A player indicates their choice by placing 1 of the 3 *Landmark Shark* cards (Range, Median, or Mode) on the table.

3. Players can try to improve their scores by exchanging up to 3 of their cards for new cards from the deck. However, the *Landmark Shark* card stays the same.

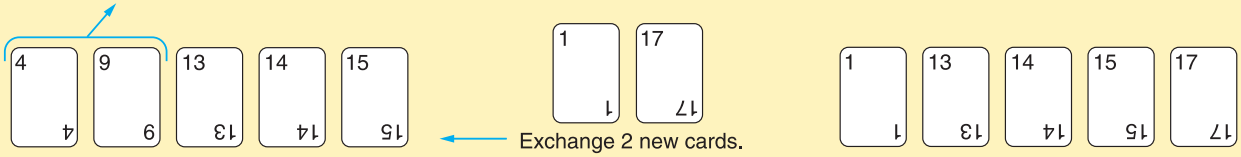
Examples

Brian's hand:



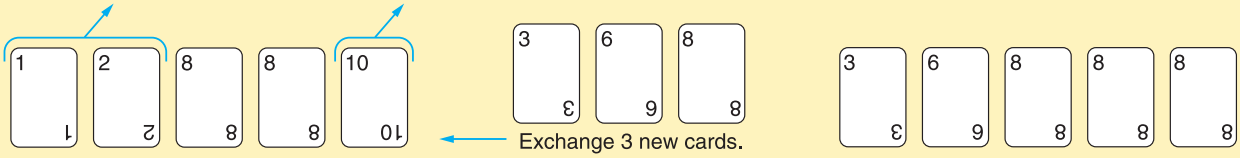
Range = 12 − 1 = 11 **points scored** = 11 new Range = 15 − 1 = 14 **new points scored** = 14

Liz's hand:



Median = 13 **points scored** = 13 new Median = 14 **new points scored** = 14

Caroline's hand:



Mode = 8 **points scored** = 2 * 8 = 16 new Mode = 8 **new points scored** = 3 * 8 = 24

4. Players lay down their cards and record their points scored on the score sheet.

Round 1:

	Player 1	Player 2	Player 3
Points Scored			
Bonus Points			
Round 1 Score			

5. **Bonus Points:** Each player calculates the *mean* of their card numbers, to the nearest tenth. Each player's score for the round is the sum of their points scored plus any bonus points.

6. Repeat Steps 1–5 for each round. The winner is the player with the highest total after 5 rounds.