Go to *Grade 2 Everyday Mathematics* Sample Lesson

3•5 Data Day: Pockets

Objectives To provide experiences with gathering data, entering data in a table, and drawing a bar graph; and to demonstrate a strategy for finding the middle value in a data set.

1 Teaching the Lesson

Key Activities

Children count the number of pockets on their clothes and compare the greatest and least number of pockets. Children tally the class pocket data and make a bar graph of the data. Children also identify the middle value (median) of the data by displaying the data in order.

Key Concepts and Skills

- Compare and order numbers. [Number and Numeration Goal 7]
- Use parts-and-total diagrams to find totals. [Operations and Computation Goal 4]
- Make a tally chart and bar graph to represent data. [Data and Chance Goal 1]
- Discuss data in a tally chart and bar graph. [Data and Chance Goal 2]

Key Vocabulary

predict • middle number • bar graph • range

Ongoing Assessment: Informing Instruction See page 208.

materials

- ☐ *Math Journal 1,* pp. 66 and 67
- ☐ Home Link 3•4
- ☐ Teaching Master (*Math Masters,* p. 71)
- ☐ Transparencies (*Math Masters,* pp. 72 and 73)
- ☐ calculator (optional)
- ☐ Class Data Pad (optional)

See **Advance Preparation**

2 Ongoing Learning & Practice

Children find complements of 100 by playing *Dollar Rummy.*

Children practice and maintain skills through Math Boxes and Home Link activities.

Ongoing Assessment: Recognizing Student Achievement Use journal page 68. [Number and Numeration Goal 5]

materials

- ☐ *Math Journal 1,* pp. 65 and 68
- ☐ Home Link Master (*Math Masters*, p. 74)
- ☐ Game Masters (*Math Masters,* pp. 454 and 455)
- ☐ scissors

3 Differentiation Options

READINESS
Children do a Dice-Roll and Tally activity to practice tallying.

ENRICHMENT
Children create and compare data sets.

ELL SUPPORT
Children add *middle number* to their Math Word Banks.

materials

- ☐ *Differentiation Handbook*
- ☐ 1 die per partnership
- ☐ half-sheet of paper

Additional Information

Advance Preparation For the Math Message, make one copy of *Math Masters,* page 71 for every 2 children. Cut out the slips and place them near the Math Message. If your school requires a uniform, modify Part 1 activities to include the number of pencils, pens, or other objects children can tally. Make overhead transparencies of *Math Masters,* pages 72 and 73 for the last two pockets data activities.

Technology

Assessment Management System
Math Boxes, Problem 1
See the **iTLG.**

Getting Started

Mental Math and Reflexes

Pose −9 and −8 facts. *Suggestions:*

●○○ 13 − 9 = ? 4
17 − 9 = ? 8
●●○ ? = 15 − 8 7
? = 14 − 8 6
●●● ? − 8 = 5 13
? − 9 = 5 14

NOTE Remind children to think of "helper" 10-facts. For example, 13 − 10 = 3, so 13 − 9 = 4.

Math Message

Take one of the small pieces of paper labeled Counting Pockets. Follow the directions.

Home Link 3•4 Follow-Up

Have volunteers share the combinations of base-10 blocks that they used to represent numbers in the "What's My Rule?" table.

Links to the Future

The largest number in a data set is the maximum. The smallest number in a data set is the minimum. The children are not expected to use this vocabulary. Later lessons will include practice with both.

Teaching Master

Name Date Time

LESSON 3•5 **Counting Pockets**

Name _____

Math Message: Counting Pockets

1. How many pockets are in the clothes you are wearing now?
2. Count the pockets on your shirt, on your pants or skirt, and on anything else that you are wearing.
3. Complete the diagram.

Total		
Shirt	Pants or Skirt	Other

4. Write your total number of pockets very large on the back of this sheet.

Name _____

Math Message: Counting Pockets

1. How many pockets are in the clothes you are wearing now?
2. Count the pockets on your shirt, on your pants or skirt, and on anything else that you are wearing.
3. Complete the diagram.

Total		
Shirt	Pants or Skirt	Other

4. Write your total number of pockets very large on the back of this sheet.

Math Masters, p. 71

1 Teaching the Lesson

Math Message Follow-Up

WHOLE-CLASS ACTIVITY

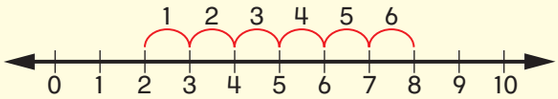
(*Math Masters,* p. 71)

Ask children to tell you how many pockets they have on their clothes. Have children with the greatest and least number of pockets stand. *Who has more? How many more?*

Ask children to explain their solution strategies. If no one mentions it, be sure to discuss and model the counting-up strategy for finding differences. For example, "The fewest number of pockets is 2. The greatest is 8. Count up from 2: 3 is 1 more, 4 is 2 more, ..., 8 is 6 more."

Ongoing Assessment: Informing Instruction

Watch for children who have difficulty understanding the counting-up strategy. Model the counting-up situation on the number line, as shown below.



Finding the Middle Number of Pockets

WHOLE-CLASS ACTIVITY

Ask children to pretend that a new child is joining the class. Ask them to **predict** how many pockets the new child will have. To support English language learners, discuss the meanings of the words *predict* and *prediction*.

Have children report their predictions and how they made them. Expect answers to be rather informal—"I think 5 pockets, because I have 5 pockets and I hope the new child will be like me." Some children may base their predictions on a middle number of pockets—"The fewest number of pockets is 2 and the greatest is 8. The new child might have 5, since 5 is in the middle."

Help children see that the **middle number** would be a good prediction for the new child. Then use the following procedure to find the middle, or median, number of pockets:

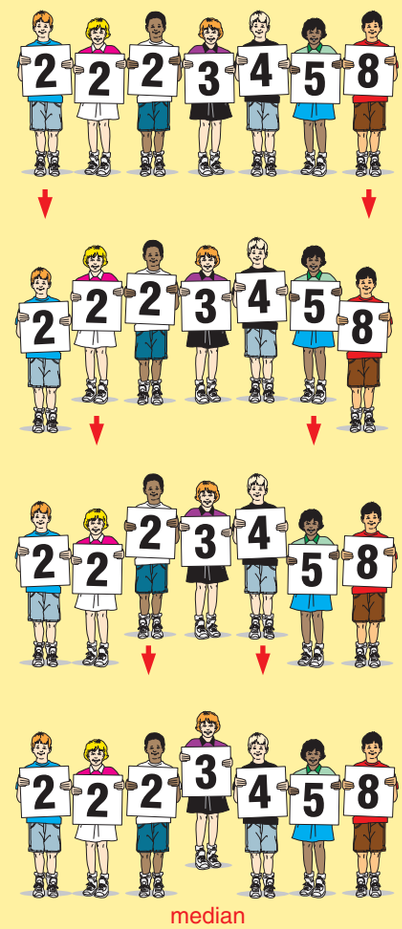
Step 1. Ask children with the greatest and least numbers of pockets to come to the front of the room and stand on opposite sides. They should face the class holding their Math Message slips so their total numbers of pockets can be easily seen.

Step 2. Ask the remaining children to come to the front, one by one, and to place themselves in order between the children already in line. Remind them to hold up their Math Message slips as they join the line. Children with the same number of pockets should stand next to one another, but their order doesn't matter.

Step 3. When all children are in line, check that they are in the correct order. While the children are lined up, emphasize which child has the *minimum* or *least* number of pockets and which child has the *maximum* or *greatest* number of pockets. This discussion will help English language learners build meanings for these concepts.

Step 4. Ask the two children on the ends of the line to take two big steps forward. Then ask the two children on the ends of the remaining line to step forward.

Step 5. Continue asking pairs of children on the ends to step forward until only one or two children are left. If one child is left, then the middle number of pockets is that child's number. If two children are left, the middle number of pockets is halfway between their numbers. Explain that the child (or pair of children) left represents the middle number of pockets today.



Children find the median number of pockets.

Discuss some of the following questions:

- Is the middle number a good prediction for the new child?
- Would you be surprised if the new child had more or fewer pockets than the middle number?
- Would it help if we knew whether the child was a boy or a girl?
- How do you think the greatest and fewest number of pockets would change if our school had uniforms? How do you think the middle number might change?

Student Page

Date Time

LESSON 3·5 **Pockets Data Table**

Count the pockets of children in your class. Sample answers:

Pockets	Children	
	Tallies	Number
0		0
1		0
2	//	2
3	//	2
4	///	3
5	////	4
6	///	3
7	////	4
8	//	2
9	/	1
10		0
11		0
12		0
13 or more		0

Math Journal 1, p. 66

Links to the Future

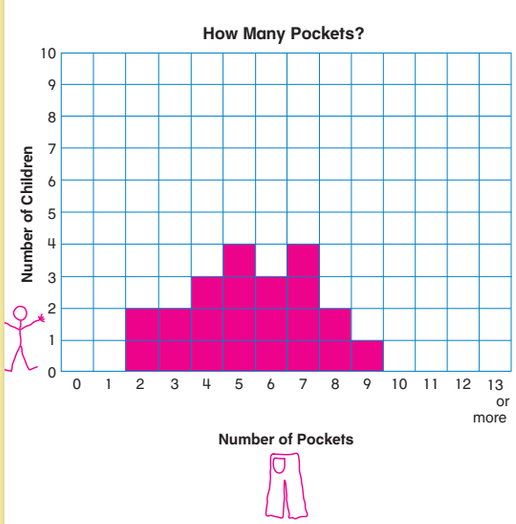
The activities in this lesson include an early exposure to finding the median of a data set. This concept will be revisited throughout second grade. The most common number in a data set is called the mode. There may be more than one mode in a data set. Finding the mode will be discussed informally throughout second grade and in Unit 12.

Student Page

Date Time

LESSON 3·5 **Graphing Pockets Data**

Draw a bar graph of the pockets data. Sample answers:



Math Journal 1, p. 67

Tallying the Pockets Data

WHOLE-CLASS ACTIVITY

(*Math Journal 1,* p. 66; *Math Masters,* p. 72)

Ask each child to tell how many pockets they have. Tally these numbers on an overhead transparency of *Math Masters,* page 72. Have children tally them on journal page 66.

Count the tallies and have children complete the Number column. Then spend a few minutes talking about the table. Ask such questions as:

- How many children have 5 pockets? (Repeat for other numbers.)
- What is the most common number of pockets?
- What does this number mean? (Point to a number in the Number column.)

Adjusting the Activity

Using calculators, have children do one of the following:

▷ Determine the total number of pockets in the whole class.

▷ Find how many children have more than 3 pockets.

AUDITORY ◆ KINESTHETIC ◆ TACTILE ◆ VISUAL

Making a Bar Graph of the Pockets Data

INDEPENDENT ACTIVITY

(*Math Journal 1,* p. 67; *Math Masters,* p. 73)

After you have discussed the table, have children use journal page 67 to make a **bar graph** of the data. Use the Class Data Pad or an overhead transparency of *Math Masters,* page 73 to demonstrate.

Adjusting the Activity

ELL

Label the sample bar graph with the words *maximum, minimum,* and *middle number* to help children make connections between the mathematical language and concepts.

AUDITORY ◆ KINESTHETIC ◆ TACTILE ◆ VISUAL

Display the graph for the entire lesson so it can be referred to easily later in the lesson. Because some children may confuse the numbers for pockets with the numbers for children, consider having them draw a stick figure under the Children label and draw pants with pockets under the Pockets label. (*See margin.*)

When children are finished, ask such questions as:

- Which bar is the tallest? What does that bar mean? What does the shortest bar tell you?
- Why are the bars taller near the middle of the graph and shorter near the ends?

- What number is the most common number in our data?
- The **range** of a set of data is the largest number minus the smallest number. What would our range for this set of data be?

To support English language learners, discuss the mathematical meaning of the word *range*.

2 Ongoing Learning & Practice

Practicing Complements of 100 by Playing *Dollar Rummy*

PARTNER ACTIVITY

(*Math Journal 1,* p. 65; *Math Masters,* pp. 454 and 455)

Explain the rules of *Dollar Rummy* on journal page 65. Using game cards cut from *Math Masters,* page 454, have children find as many different combinations of $1.00 as they can. For another version, use cards cut from *Math Masters,* page 455.

Prior to demonstrating the game, ask children which card would have a better chance of being picked:

- A 10¢ card or a 30¢ card? 10¢ card
- A 40¢ card or a 90¢ card? They have the same chance.
- A 50¢ card or a 10¢ card? 50¢ card

Play several demonstration rounds of the game before children begin to play with partners.

Math Boxes 3•5

INDEPENDENT ACTIVITY

(*Math Journal 1,* p. 68)

Mixed Practice Math Boxes in this lesson are paired with Math Boxes in Lesson 3-7. The skills in Problems 5 and 6 preview Unit 4 content.

Ongoing Assessment: Recognizing Student Achievement

Math Boxes Problem 1 ★

Use **Math Boxes, Problem 1** to assess children's ability to show equivalent names for 20. Children are making adequate progress if they are able to find three names for 20. This may include +0 and +1. Some children may be able to find more than three names.

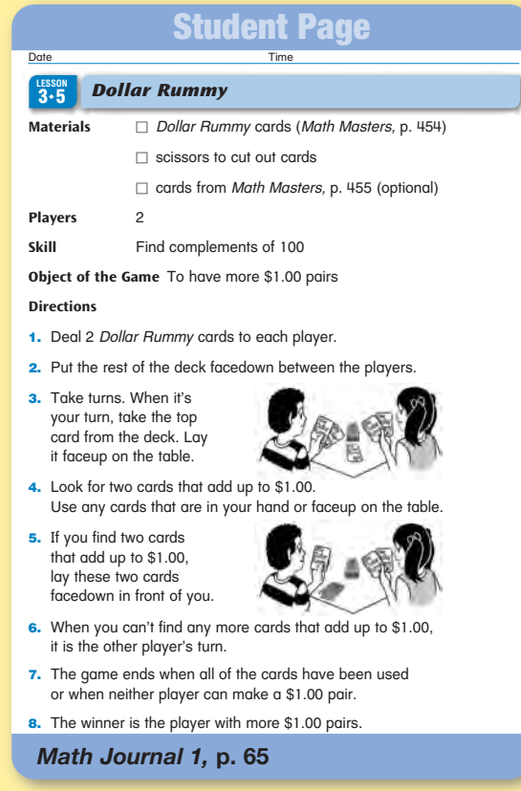
[Number and Numeration Goal 5]

Home Link 3•5

INDEPENDENT ACTIVITY

(*Math Masters,* p. 74)

Home Connection Children count pockets of five people at home and make a bar graph using their data.



Student Page

Date Time

LESSON 3•5 **Dollar Rummy**

Materials ☐ *Dollar Rummy* cards (*Math Masters,* p. 454)
☐ scissors to cut out cards
☐ cards from *Math Masters,* p. 455 (optional)

Players 2

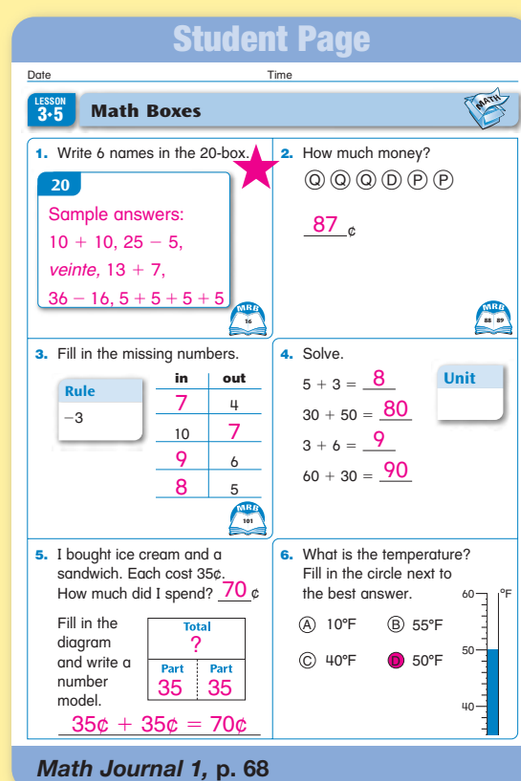
Skill Find complements of 100

Object of the Game To have more $1.00 pairs

Directions

1. Deal 2 *Dollar Rummy* cards to each player.
2. Put the rest of the deck facedown between the players.
3. Take turns. When it's your turn, take the top card from the deck. Lay it faceup on the table.
4. Look for two cards that add up to $1.00. Use any cards that are in your hand or faceup on the table.
5. If you find two cards that add up to $1.00, lay these two cards facedown in front of you.
6. When you can't find any more cards that add up to $1.00, it is the other player's turn.
7. The game ends when all of the cards have been used or when neither player can make a $1.00 pair.
8. The winner is the player with more $1.00 pairs.

Math Journal 1, p. 65



Student Page

Date Time

LESSON 3•5 **Math Boxes**

1. Write 6 names in the 20-box. ★
   20: Sample answers: 10 + 10, 25 − 5, *veinte,* 13 + 7, 36 − 16, 5 + 5 + 5 + 5
2. How much money? Q Q Q D P P
   87 ¢
3. Fill in the missing numbers.
   Rule: −3

in	out
7	4
10	7
9	6
8	5

4. Solve.
   5 + 3 = 8
   30 + 50 = 80
   3 + 6 = 9
   60 + 30 = 90
   Unit
5. I bought ice cream and a sandwich. Each cost 35¢. How much did I spend? 70 ¢
   Fill in the diagram and write a number model.
   Total: ?; Part 35; Part 35
   35¢ + 35¢ = 70¢
6. What is the temperature? Fill in the circle next to the best answer.
   Ⓐ 10°F Ⓑ 55°F Ⓒ 40°F Ⓓ 50°F
   60 50 40 °F

Math Journal 1, p. 68

Home Link Master

Name Date Time

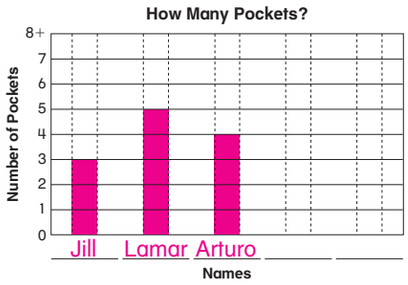
HOME LINK 3·5 **Pockets Bar Graph**

Family Note Help your child fill in the table below. Then display the data by making a **bar graph.** *Please return this Home Link to school tomorrow.*

1. Pick five people. Count the number of pockets that each person's clothing has. Complete the table.
2. Draw a bar graph for your data. First, write the name of each person on a line at the bottom of the graph. Then color the bar above each name to show how many pockets that person has.

Name	Number of Pockets
Jill	3
Lamar	5
Arturo	4

Sample answers



Math Masters, p. 74

Rolls of the Die	
1	𝍸 //
2	///
3	𝍸 ///
4	𝍸 𝍸
5	///
6	𝍸 /

This child needs two rolls of 2 and two rolls of 5.

3 Differentiation Options

READINESS

Recording Tally Marks

PARTNER ACTIVITY

5–15 Min

To provide experience with recording tally marks, have children do a Dice-Roll and Tally activity. Each partner sets up a table with the numbers 1 through 6 in the first column and blank spaces in the second column. Partners take turns rolling a die and putting a tally mark next to the appropriate number on their half-sheets of paper. (*See margin*). Partners continue until one child has at least five tally marks next to each number. After children finish the activity, have them discuss whether or not they have an equal chance of getting any number from 1 through 6.

ENRICHMENT

Comparing Data

SMALL-GROUP ACTIVITY

5–15 Min

To apply children's understanding of bar graphs, have them collect data and compare data sets. Have children discuss, in small groups, whether they think all sets of people would have the same number of pockets. For example, if they surveyed the teachers in the school, would teachers have the same number of pockets as the children? Have each small group select a set of people to collect information about, such as teenagers, parents, men, and so on. Have children predict whether their selected set will have the same number, more, or fewer pockets than their class.

The next day, have the children in each small group combine their survey results into a bar graph that they can compare to their class graph. Discuss questions like the following: *Does one group have more pockets? Which data value should be used to answer that question? The middle value? The total? The maximum? Why might one group have more pockets?*

ELL SUPPORT

Building a Math Word Bank

(*Differentiation Handbook*)

SMALL-GROUP ACTIVITY

5–15 Min

To provide language support for data concepts, have children use the Word Bank template found in the *Differentiation Handbook.* Ask children to write the term *middle number,* draw a picture representing the term, and write other related words. See the *Differentiation Handbook* for more information.

back to lesson

Date Time

LESSON 3•5

Dollar Rummy

Materials
- ☐ *Dollar Rummy* cards (*Math Masters,* p. 454)
- ☐ scissors to cut out cards
- ☐ cards from *Math Masters,* p. 455 (optional)

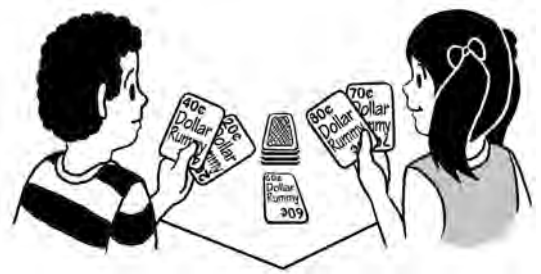
Players 2

Skill Find complements of 100

Object of the Game To have more $1.00 pairs

Directions

1. Deal 2 *Dollar Rummy* cards to each player.
2. Put the rest of the deck facedown between the players.
3. Take turns. When it's your turn, take the top card from the deck. Lay it faceup on the table.



4. Look for two cards that add up to $1.00. Use any cards that are in your hand or faceup on the table.
5. If you find two cards that add up to $1.00, lay these two cards facedown in front of you.

6. When you can't find any more cards that add up to $1.00, it is the other player's turn.
7. The game ends when all of the cards have been used or when neither player can make a $1.00 pair.
8. The winner is the player with more $1.00 pairs.

back to lesson

Date Time

LESSON 3•5

Pockets Data Table

Count the pockets of children in your class.

Pockets	Children	
	Tallies	Number
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13 or more		

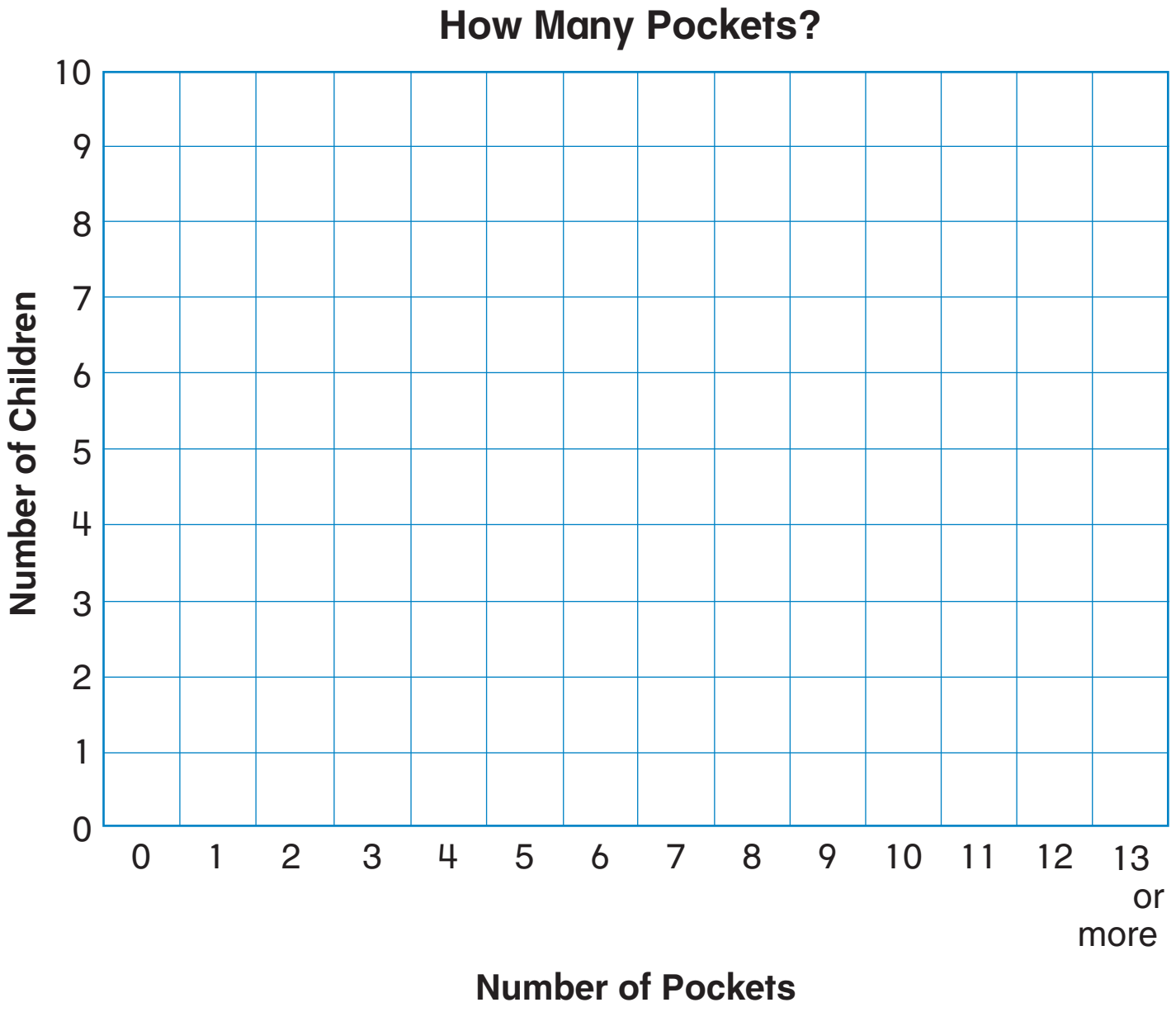
back to lesson

Date Time

LESSON 3•5

Graphing Pockets Data

Draw a bar graph of the pockets data.



Date Time

LESSON 3•5

Math Boxes

1. Write 6 names in the 20-box.

20

MRB 16

2. How much money?

Q Q Q D P P

_____¢

MRB 88 89

3. Fill in the missing numbers.

Rule

−3

in	out
	4
10	
	6
	5

MRB 101

4. Solve.

5 + 3 = _____

30 + 50 = _____

3 + 6 = _____

60 + 30 = _____

Unit

5. I bought ice cream and a sandwich. Each cost 35¢. How much did I spend? _____¢

Fill in the diagram and write a number model.

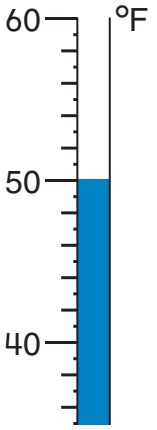
Total	
Part	Part

_____

6. What is the temperature? Fill in the circle next to the best answer.

Ⓐ 10°F Ⓑ 55°F

Ⓒ 40°F Ⓓ 50°F



Name Date Time

HOME LINK 3•4

"What's My Rule?" with Blocks

Family Note Your child will complete the tables on this page by drawing tens and ones for 2-digit numbers. More than one picture can be drawn for a number. For example, to show 26, your child might draw 2 tens and 6 ones, 1 ten and 16 ones, or 26 ones. The symbol | stands for 10, and the symbol ▪ stands for 1.

Please return this Home Link to school tomorrow.

1. Draw simple pictures of base-10 blocks to complete the table.

Rule
Add 12

In	Out	Out in a Different Way
▪▪▪	| ▪▪▪▪▪	▪▪▪▪▪ ▪
|	|| ▪▪	
|| ▪▪▪▪		
|| ▪▪▪▪▪▪ ▪		

2. Write the rule. Then complete the table.

Rule

In	Out	Out in a Different Way
||||| ▪▪▪	|||||| ▪▪▪▪▪ ▪▪▪▪	||||| ▪▪▪▪▪ ▪▪▪▪
| ▪▪▪▪▪ ▪▪	|| ▪▪▪▪▪ ▪▪▪▪▪	| ▪▪▪▪▪ ▪▪▪▪▪
|||| ▪		
▪▪▪▪▪		

LESSON 3•5

Counting Pockets

back to lesson

Name _____

Math Message: Counting Pockets

1. How many pockets are in the clothes you are wearing now?

2. Count the pockets on your shirt, on your pants or skirt, and on anything else that you are wearing.

3. Complete the diagram.

Total		
Shirt	Pants or Skirt	Other

4. Write your total number of pockets very large on the back of this sheet.

Name _____

Math Message: Counting Pockets

1. How many pockets are in the clothes you are wearing now?

2. Count the pockets on your shirt, on your pants or skirt, and on anything else that you are wearing.

3. Complete the diagram.

Total		
Shirt	Pants or Skirt	Other

4. Write your total number of pockets very large on the back of this sheet.

Name Date Time

LESSON 3•5

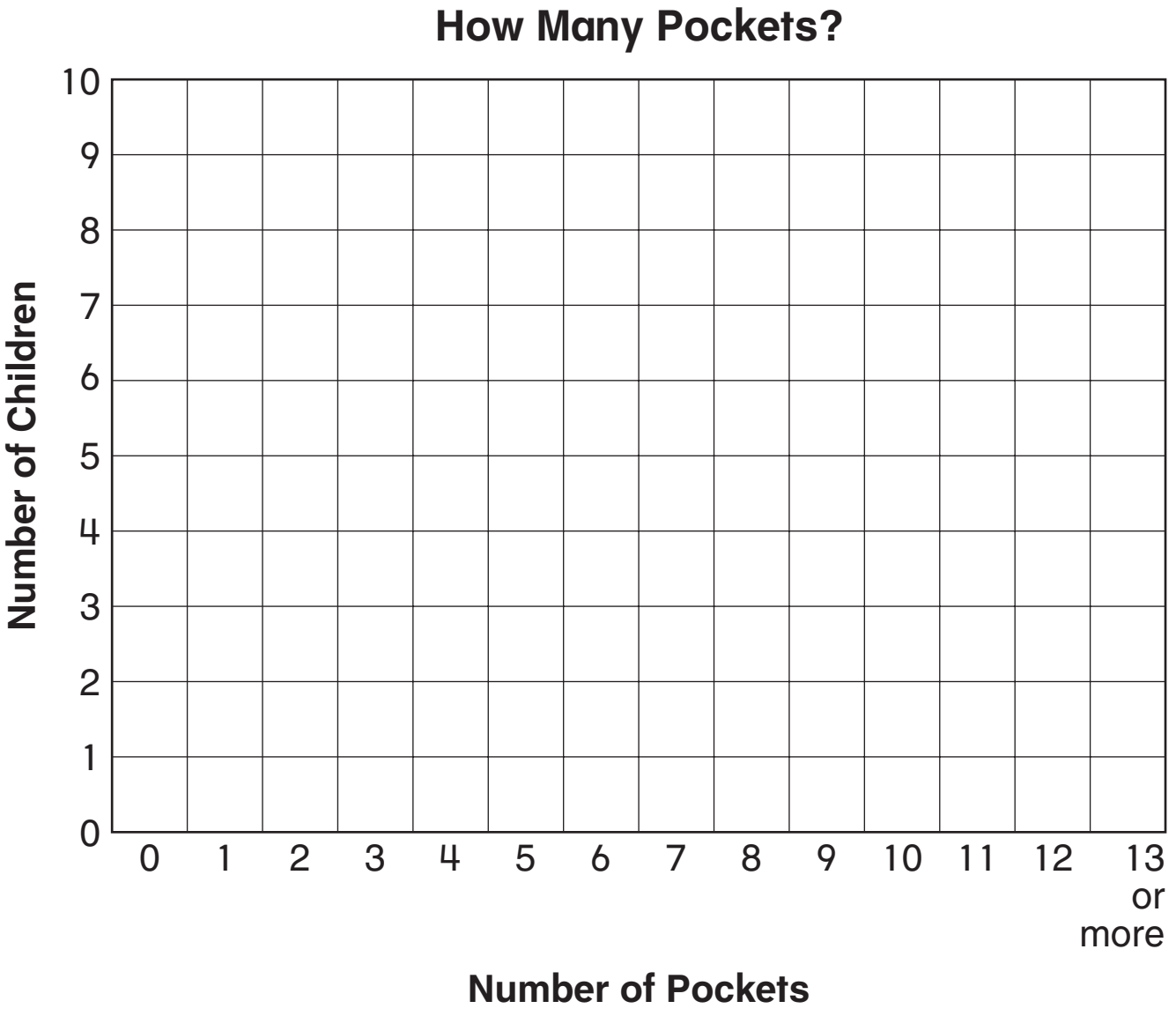
Pockets Data Table

Pockets	Children	
	Tallies	Number
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13 or more		

Name Date Time

LESSON 3•5

Graphing Pockets Data



back to lesson

Name Date Time

HOME LINK 3•5

Pockets Bar Graph

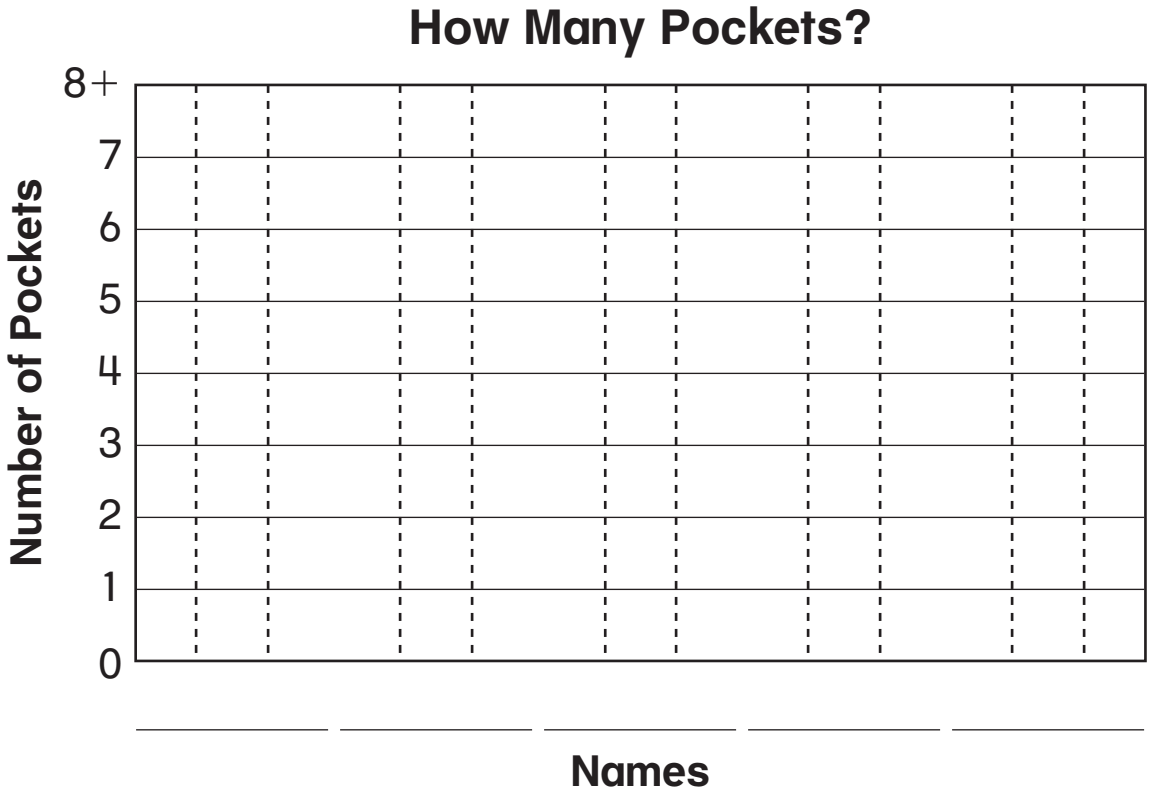
Family Note Help your child fill in the table below. Then display the data by making a **bar graph.** *Please return this Home Link to school tomorrow.*

MRB 44

1. Pick five people. Count the number of pockets that each person's clothing has. Complete the table.

2. Draw a bar graph for your data. First, write the name of each person on a line at the bottom of the graph. Then color the bar above each name to show how many pockets that person has.

Name	Number of Pockets



back to lesson

Name Date Time

Dollar Rummy Cards

10¢ *Dollar Rummy* 10¢	10¢ *Dollar Rummy* 10¢	20¢ *Dollar Rummy* 20¢	30¢ *Dollar Rummy* 30¢
40¢ *Dollar Rummy* 40¢	50¢ *Dollar Rummy* 50¢	50¢ *Dollar Rummy* 50¢	50¢ *Dollar Rummy* 50¢
60¢ *Dollar Rummy* 60¢	70¢ *Dollar Rummy* 70¢	80¢ *Dollar Rummy* 80¢	90¢ *Dollar Rummy* 90¢

back to lesson

Name Date Time

Dollar Rummy Cards (Advanced)

5¢ *Dollar Rummy* 5¢	5¢ *Dollar Rummy* 5¢	5¢ *Dollar Rummy* 5¢	15¢ *Dollar Rummy* 15¢
25¢ *Dollar Rummy* 25¢	25¢ *Dollar Rummy* 25¢	35¢ *Dollar Rummy* 35¢	45¢ *Dollar Rummy* 45¢
55¢ *Dollar Rummy* 55¢	65¢ *Dollar Rummy* 65¢	85¢ *Dollar Rummy* 85¢	95¢ *Dollar Rummy* 95¢

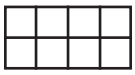
Name-Collection Box

Read It Together

A **name-collection box** is a place to write different names for the same number.

This tag names the box.

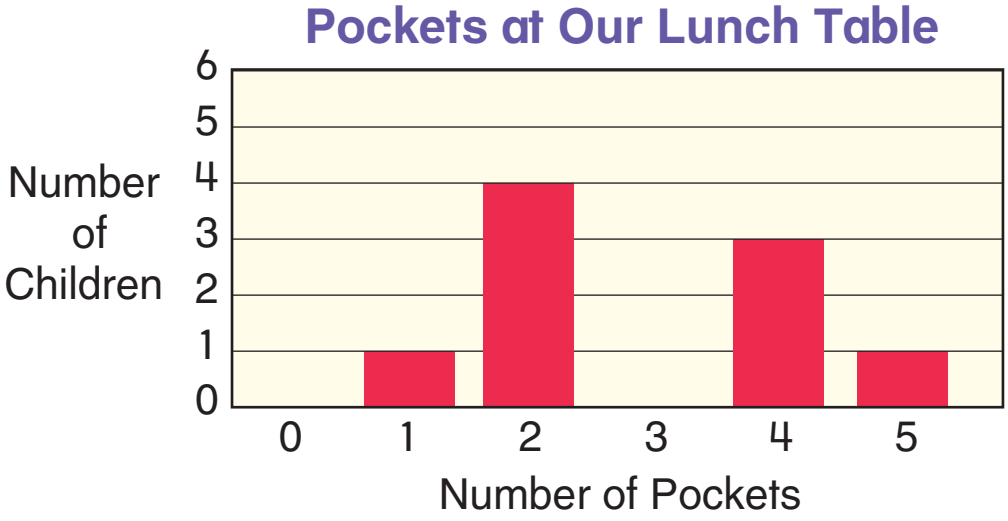
8

$7 + 1$	卌 ///
$16 - 8$	
Ⓝ Ⓟ Ⓟ Ⓟ	eight
ocho	$100 - 92$

$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

This is a name-collection box for 8.

A **bar graph** uses bars to show data.



The bar above 5 shows that 1 child has 5 pockets.

The bar above 4 is taller. This shows that more children have 4 pockets than 5 pockets.

There is no bar above 3. This shows that no children have 3 pockets.

Try It Together

How many children are at the lunch table?