

# Bar Graphs

## Math Focus Points

- ◆ Representing a set of data sorted into categories
- ◆ Representing data using a bar graph
- ◆ Reading and interpreting information represented on a bar graph
- ◆ Developing fluency with subtraction facts related to near doubles combinations

## Vocabulary

bar graph

Today's Plan		Materials
<p><b>1</b> <small>ACTIVITY</small>  <b>Guess My Rule with People: Multiple Categories</b></p>	  	<ul style="list-style-type: none"> <li>• 12" × 18" paper; stick-on dots, self-stick notes, cubes, and other materials for making representations</li> </ul>
<p><b>2</b> <small>ACTIVITY</small>  <b>Making a Bar Graph with Guess My Rule Data</b></p>	  	<ul style="list-style-type: none"> <li>• <b>C36 or C37, Bar Graph</b> Make copies. (1 per student)</li> <li>• Materials from Activity 1</li> </ul>
<p><b>3</b> <small>ACTIVITY</small>  <b>Introducing Subtraction Cards Related to Near Doubles Combinations</b></p>	 	<ul style="list-style-type: none"> <li>• <b>C38–C39, Subtraction Cards, Set 5</b> Make copies and cut apart. (1 set per student)</li> <li>• <b>C40, Practicing with Subtraction Cards</b> Make copies. (as needed)</li> <li>• Envelopes labeled "Subtraction Facts I Know" and "Subtraction Facts I Am Still Working On"</li> </ul>
<p><b>4</b> <small>SESSION FOLLOW-UP</small>  <b>Daily Practice and Homework</b></p>		<ul style="list-style-type: none"> <li>• <i>Student Activity Book</i>, pp. 5–6</li> <li>• <b>M45, Circle for Guess My Rule</b> Make copies. (1 per student)</li> <li>• <b>M46, Venn Diagram for Guess My Rule</b> Make copies. (1 per student)</li> </ul>

## Classroom Routines

**Quick Images: Strips and Singles** Using *Stickers: Strips and Singles* (T38–T39), display 25 with 2 strips and 5 singles. Follow the basic *Quick Images* activity. Have pairs discuss how they determined the amount of squares. Repeat with the numbers 36 and 47. As a class, find 25, 36, and 47 on the number line and 100 chart and discuss what is the same and what is different about them.

**Math Note**

**1 Sorting Groups** When students played *Guess My Rule with People* in Session 1.1, they dealt with just two groups—those who fit the rule and those who did not. In some cases, the students in the latter category could not be described in any other way. For example, with the rule “wearing a watch,” students either are or are not wearing a watch. The group without watches cannot be categorized further. In contrast, the students in the group “not wearing shirts with stripes” could further be described in other categories relating to shirts (shirts with writing, one-color shirts, shirts with designs, and so on).

**Differentiation**

**2 English Language Learners** Some students may need additional support in understanding the various categories (e.g., plain, checks, stripes). You might label simple drawings of the different kinds of shirts to which students can refer.

**ACTIVITY**

## Guess My Rule with People: Multiple Categories



25 MIN



CLASS



PAIRS

Students play *Guess My Rule* to sort people into two categories. They look more closely at one category and see whether they can further sort people into more specific groups. **1**

Briefly play a round of *Guess My Rule with People*. Choose a rule, such as “wearing a striped shirt/not wearing a striped shirt” or “wearing white shoes/not wearing white shoes,” that will create a “does not fit the rule” group that students can further separate into more specific categories. Make sure that all students are sorted into those who fit the rule and those who do not. Record the results. **2**

Today, we found out that [4 people are wearing striped shirts and 18 are not]. This gives us some information about the type of shirt worn by [4] students in our class. But we still don't know much about the shirts worn by students in the other group—just that they are not striped. What are some other categories we could use to further describe their shirts?

List students' ideas. After you decide on the categories, record how many students fit in each one.

### Guess My Rule Data: Shirts

Stripes	4
Checks	2
Pictures	2
Writing	5
Pictures and writing	4
Plain	5

Have students work in pairs to make a representation of this set of data. They can use connecting cubes, stick-on dots, self-stick notes, or drawings. If there are some overlapping data, students will have to decide how to show that piece of data fits into more than one category.



Name _____		Date _____	
Packets, Teeth, and Favorite Things			
<b>Subtraction Cards: Set 5 (page 1 of 2)</b>			
$7 - 3$	$7 - 4$	Clue: _____	Clue: _____
$9 - 4$	$9 - 5$	Clue: _____	Clue: _____
$11 - 5$	$11 - 6$	Clue: _____	Clue: _____
$13 - 6$	$13 - 7$	Clue: _____	Clue: _____
Unit 4 Session 1.44 <b>C38</b> © Pearson Education, Inc., or its affiliates. All Rights Reserved.			

▲ Resource Masters, C38–C40

What do you think these numbers are for?

Choose one category of data and demonstrate how to transfer the data from the chart onto the bar graph.

We have labeled this category [striped] shirts, so I'm going to transfer the data about [4] people wearing [striped] shirts onto the bar graph. I'll shade in [4] blocks on the graph.

Distribute a copy of C36 (or C37) to each student. Explain that students should represent the class set of data on the bar graph. They can either use the chart as a reference, or they can use the representations they made in the previous activity. Remind them to include a title on their bar graph.

### ONGOING ASSESSMENT: Observing Students at Work

Students represent *Guess My Rule* data on a bar graph.

- Are students able to label the title and categories?
- Do they accurately transfer the data from the chart, or their own representation, to the bar graph?
- Do they understand that the number on the vertical axis should correspond with the number of pieces of data in each category?

Once students have transferred the data, ask questions about the data. After each question, ask students to look at the representation they made in Activity 1 and check whether or not the data are the same.

Ask about the categories:

How many different [types of shirts] are represented on this graph?

Ask about the number of pieces of data in each category:

How many people had pictures on their shirts? How many people wore plain shirts?

Ask students to compare categories:

Did more people wear striped shirts or shirts with writing?

And to combine categories:

If we added the number of people with striped shirts and the number of people with writing on their shirts, how many people would that be?

Finally, ask students how they could figure out how many people were represented on the bar graph.

How can you figure out the total number of people who are represented on this bar graph? What information on the graph would help you answer this question?

**Students might say:**



“I would count up all of the squares that are colored in. That would give the number of people.”



“Take the number for each group, and add those up. That will equal the number of people that you collected data from.”

### 3 ACTIVITY **Introducing Subtraction Cards Related to Near Doubles Combinations**



The next set of Subtraction Cards: Set 5 is introduced in this unit. Explain to students that this set of fact cards is related to the near doubles combinations that students worked on, and were assessed, in the previous unit. 4

Distribute a set of Subtraction Cards: Set 5 (C38–C39) to each student. Students should initial the back of each card but not write the answer. Each student should review this new set of cards and sort them into two piles, *Subtraction Facts I Know* and *Subtraction Facts I Am Still Working On*. As with previous sets of fact cards, they write an addition clue for those facts they are not yet fluent with, and place their cards in the appropriate envelopes along with Sets 1, 2, 3, and 4. 5 6

### 4 SESSION FOLLOW-UP **Daily Practice and Homework**



**Daily Practice:** For reinforcement of this unit’s content, have students complete *Student Activity Book* page 5.



**Homework:** Using the directions on *Student Activity Book* page 6, students play *Guess My Rule* at home with a family member or friend, using objects they find at home, and record the rules they used. Send home copies of Circle for *Guess My Rule* (M45) and Venn Diagram for *Guess My Rule* (M46) to help students sort their objects.

### Teaching Note

4 **Introducing Subtraction Cards** Session 1.1A in Grade 2 Unit 2 provides a model for introducing and working with sets of subtraction cards. Refer to this session if you feel your students need an introduction to this set of subtraction fact cards.

5 **Subtraction Facts Related to Near Doubles Combinations** Throughout this unit and in subsequent units, students should continue to practice the subtraction facts in their “working on” piles. This practice can be assigned as additional homework, a Math Workshop activity, or something students work on when they have a few minutes after completing another activity. Practicing with Subtraction Cards (C40) allows you to individualize this practice according to student needs at any time during this unit.

6 **Assessing Subtraction Facts** This set of subtraction facts is assessed in Session 2.8 as part of the End-of-Unit Assessment.

The screenshot shows a page from a student activity book. At the top, there are fields for 'Name' and 'Date'. Below that is a blue header with the text 'Frogs, Teeth, and Favorite Things' and 'Daily Practice'. The main title is 'Sticker Station Problems' with a sub-instruction: 'Solve each problem. Show your work. Write an equation.' There is a note: 'NOTE Students use what they know about groups of 10s and 1s to solve story problems.' Below the note is a small icon of a butterfly and the number '27, 28'. The first problem is: '1. Franco went to Sticker Station. He bought 2 strips of 10 and 6 singles of frog stickers. He also bought 5 strips of 10 and 2 singles of butterfly stickers. How many stickers did Franco buy?' There is an illustration of a frog and a butterfly. The second problem is: '2. Sally also went to Sticker Station. She bought 3 strips of 10 and 5 singles of skateboard stickers. She also bought 4 strips of 10 and 3 singles of snowman stickers. How many stickers did Sally buy?' There is an illustration of a snowman and a skateboard. At the bottom left, it says 'Session 1.4' and at the bottom right, it says 'Unit 4 5'.

▲ **Student Activity Book, Unit 4, pp. 5–6**

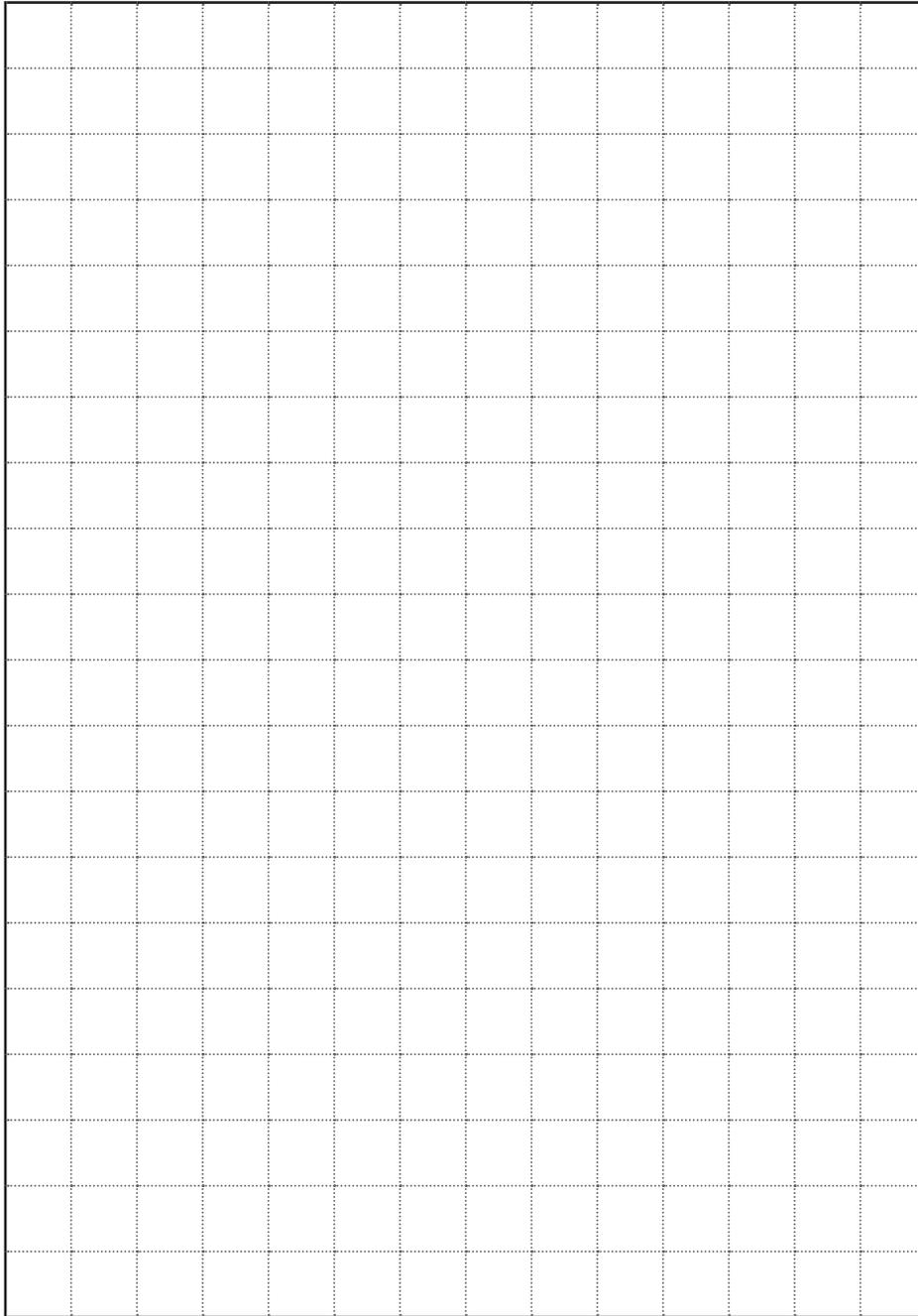
Name \_\_\_\_\_

Date \_\_\_\_\_

**Pockets, Teeth, and Favorite Things**

# Bar Graph (Horizontal)

Title: \_\_\_\_\_



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Name \_\_\_\_\_

Date \_\_\_\_\_

Pockets, Teeth, and Favorite Things

# Subtraction Cards: Set 5 (page 1 of 2)



$$7 - 3$$

Clue: \_\_\_\_\_

$$7 - 4$$

Clue: \_\_\_\_\_

$$9 - 4$$

Clue: \_\_\_\_\_

$$9 - 5$$

Clue: \_\_\_\_\_

$$11 - 5$$

Clue: \_\_\_\_\_

$$11 - 6$$

Clue: \_\_\_\_\_

$$13 - 6$$

Clue: \_\_\_\_\_

$$13 - 7$$

Clue: \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

Pockets, Teeth, and Favorite Things

# Subtraction Cards: Set 5 (page 2 of 2)



$$15 - 7$$

Clue: \_\_\_\_\_

$$15 - 8$$

Clue: \_\_\_\_\_

$$17 - 8$$

Clue: \_\_\_\_\_

$$17 - 9$$

Clue: \_\_\_\_\_

$$19 - 9$$

Clue: \_\_\_\_\_

$$19 - 10$$

Clue: \_\_\_\_\_

# Practicing with Subtraction Cards

Choose 6 Subtraction Card problems from your “working on” pile, and write these on the blank cards below. Practice these subtraction facts.

$\underline{\quad} - \underline{\quad} = \underline{\quad}$ Addition Clue: _____	$\underline{\quad} - \underline{\quad} = \underline{\quad}$ Addition Clue: _____
$\underline{\quad} - \underline{\quad} = \underline{\quad}$ Addition Clue: _____	$\underline{\quad} - \underline{\quad} = \underline{\quad}$ Addition Clue: _____
$\underline{\quad} - \underline{\quad} = \underline{\quad}$ Addition Clue: _____	$\underline{\quad} - \underline{\quad} = \underline{\quad}$ Addition Clue: _____