Chapter 7

Division Facts to 5

| Lesson	Topic	Lesson Objectives	Chapter Materials
53	**Division: Repeated Subtraction of Equal Sets**	• Identify the number of equal sets (2, 3, 4, 5) within a total set of objects when given the number in each set • Solve division problems using repeated subtraction	**Teacher's Visual Packet:** • Place Value Pocket Chart Kit • Number Line **Student Manipulatives Packet:** • Multiplication/Division Mat • Place Value Pocket Chart Kit • Number Cards: 0–9 **Instructional Aids (Teacher's Toolkit CD):** • Cumulative Review Answer Sheet (page IA5) for each student • Multiplication/Division Mat transparency (page IA26) • Small Array Grids transparency (page IA29) • Division transparency (page IA31) • Count By 2s, 3s, 4s, & 5s transparency (page IA32) • Count By 2s, 3s, 4s, & 5s (page IA32) for each student **Other Teaching Aids:** • A red overhead marker • A calculator for each student • Unifix Cubes • Multiplication flashcards **Math 3 Tests and Answer Key** **Optional (Teacher's Toolkit CD):** • ReTeaching pages 43–47 • Enrichment pages 38–40 • Extended Activities
54	**Divide by 2; Related Facts**	• Complete a division fact with 2 as the divisor • Identify the dividend, the divisor, and the quotient in a division equation • Count by 2s to solve a division fact with 2 • Write related division and multiplication facts	
55	**Divide by 5; Related Facts**	• Complete a division fact with 5 as the divisor • Count by 5s to solve a division fact with 5 • Write related missing factor equations to find quotients • Write a division equation to solve a word problem	
56	**Divide by 3; Related Facts**	• Complete a division fact with 3 as the divisor • Count by 3s to solve a division fact with 3 • Write related missing factor equations to find quotients • Develop an understanding of multiplication/division fact families • Recognize the division frame • Write a division or multiplication equation for a word problem	
57	**Divide by 4; Related Facts**	• Complete a division fact with 4 as the divisor • Count by 4s to solve a division fact with 4 • Write related missing factor equations to find quotients • Develop an understanding of multiplication/division fact families • Write a division fact as an equation and with a division frame • Write a division or multiplication equation for a word problem	
58	**Divide by 1**	• Complete a division fact with 1 as the divisor • Demonstrate an understanding of division with 1 • Write related division and multiplication facts • Demonstrate an understanding of multiplication/division fact families • Demonstrate an understanding of division with 0 • Write a division fact as an equation and with a division frame • Solve a word problem	
59	**Number in Each Set; Division with 0**	• Identify the number in each set when given the number of sets (2, 3, 4, 5) within a total set of objects • Solve a division word problem • Complete a division fact with 0 as the dividend • Write related division and multiplication facts	
60	**Chapter 7 Review**	Review	
61	**Chapter 7 Test Cumulative Review**	• Complete a missing addend equation • Count by 10s from a 2-digit number • Interpret a bar graph • Identify the value of a digit • Estimate by rounding to the nearest hundred and the nearest one thousand • Identify the standard form of a number written in expanded form	

A Little Extra Help

The following activity provides "a little extra help" for the student experiencing difficulty with the concepts taught in Chapter 7.

Relate division to multiplication—Explain that it is important to memorize the multiplication facts so that completing division facts is easier. Instruct the student who is having difficulty with division facts to write each division problem as a missing factor problem (e.g., $16 \div 2 = \_\_$ can be written as $\_\_ \times 2 = 16$). Direct the student to draw a picture of groups of 2 dots until 16 dots have been drawn. Ask how many groups of 2 dots there are. *8* Tell the student to complete the missing factor equation: $8 \times 2 = 16$. Explain that if $8 \times 2 = 16$, then $16 \div 2 = 8$. Direct the student to complete the division equation: $16 \div 2 = 8$. Point to the appropriate numbers in the 2 equations as you explain that the product in a multiplication equation becomes the dividend in the division equation and that one factor becomes the divisor and the other factor becomes the quotient.

$16 \div 2 = \underline{2}$

$\underline{8} \times 2 = 16$

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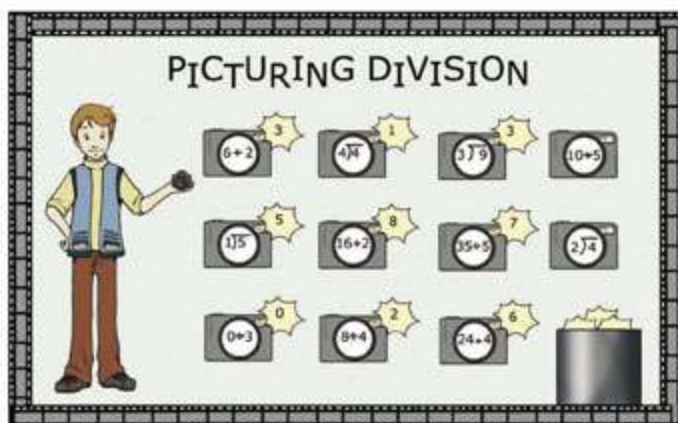
Bulletin Board Preparation and Use

1. Prepare the pictures of the simple black camera, using aluminum foil to make the flash window.

2. Prepare and laminate white lenses for the cameras. Write a division fact on each of the lenses and attach them to the cameras.

3. Prepare and laminate yellow flashes. Write the answers to the division facts on the flashes.

4. Prepare a pocket to hold the flashes.

5. A strip of film may be used as the border.

The student will choose a flash and then attach the flash to a camera with a division fact that has that answer. Vary the activity by changing the division facts or use the bulletin board to review the multiplication facts taught in Chapter 6.

Cave Creatures

It was a beautiful morning at Carlsbad Caverns National Park, but the weatherman had warned of a stormy afternoon. Hal had been to New Mexico before, and he knew how fast the desert rainstorms could appear. "I think I'll go take the New Cave tour," he told Horatio. "That will be much more exciting than staying in the tent listening to the rain later."

He packed his camera equipment and picked up his flashlight. "I'm sorry to do this to you, little buddy," he told Horatio, "but you'll have to stay here today. They don't allow pets on the cave tours. When I get back, I'll give you an extra big helping of chunky peanut butter. Okay?"

By the time Hal got to the place where the tour began, storm clouds were forming. Twenty-one other adventurers were there, waiting to experience the thrill of exploring an undeveloped cave. The tour guide, a short, wiry man named Doug, glanced up at the clouds. "It's a good thing we're going down below," he said. "Watch your step. We've got some formations that you can trip over down there, and in some places it's a bit slippery." To Hal he offered a friendly suggestion: "Young man, you might want to leave your photo equipment with the ranger. It gets pretty tight down there."

"Okay," Hal agreed. "I'll leave my tripod and big camera, but could I just take my digital camera along? I'm a photographer for a magazine, and I'd sure like to get some pictures of an undeveloped cave."

"By all means," Doug said with a smile.

They walked down into the dark unknown. A cool, damp breeze blew across them, giving Hal goose bumps.

As Hal's eyes adjusted to the dim light, he saw a room lined with amazing rock formations. Some of the stalactites (stuh LAK tytes) looked as if they were dripping icicles of rock, and others seemed so delicate that the slightest touch might break them.

Hal took a picture, and the flash from his camera lit up the cave like a lightning bolt. Off to his right, something scurried away. Hal shone his flashlight in that direction. Eight beady little eyes stared at him from a crevice near the cave floor. Pack rats! Two by two, the eyes disappeared into the crevice as Hal snapped pictures of the furry creatures. After all four pack rats were gone, Hal took one more picture of the rock wall. In the light of his flash, he saw something else move. He looked more closely at the cave floor. "What's this?" he asked Doug. "It looks like a centipede, but it's colorless."

Doug stooped over the crawling thing and chuckled. "You were almost right; it's a millipede. Colorless millipedes are permanent residents here in these caves. They never see the light of day. But I'm surprised to see one this close to the cave entrance. They usually stay deep inside."

As the tour went on, some passageways were so small that Hal and the others had to crawl through them. Narrow passageways led to gigantic rooms with huge columns of stalactites and stalagmites (stuh LAG mytes) that had grown together.

Further down into the cave, Doug stopped everyone. "Okay," he instructed, "turn off your flashlights." When the lights were off, everyone gasped. The cave was so dark that Hal couldn't even see his hand in front of his face. "I just wanted to show you how dark a cave really is," Doug said.

When they finally returned to the cave entrance, Hal stopped to let his eyes get accustomed to the daylight again. He thanked Doug for the tour, picked up his photo equipment, and headed back to his campsite. "That sure was an interesting tour," he thought. "I wish Horatio could have come along—he would have enjoyed seeing those pack rats and millipedes. But if he'd jumped off of my shoulder and onto someone else's shoulder in the dark, he could have really startled somebody! It was definitely best to leave him home."

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Objectives
- Identify the number of equal sets (2, 3, 4, or 5) within a total set of objects when given the number in each set
- Solve division problems using repeated subtraction

Teacher Materials
- Multiplication/Division Mat transparency, page IA26 (CD)
- 30 Unifix Cubes
- Multiplication flashcards: 3×3, 3×1, 1×3, 4×3, 3×4, 6×3, 3×6, and previously memorized facts

Student Materials
- Number Cards: 0–9
- Multiplication/Division Mat
- 30 Unifix Cubes

Notes
When dividing Unifix Cubes into sets, the cubes should not be joined together. They should be placed in the sets as individual cubes to show that ones are being divided. If you do not have Unifix Cubes, the students may use the purple back of the Ones from the Place Value Kit.

There are two types of division: measurement and partition (or partitive). **Measurement division** problems give the total number of objects and the number in each of the equal sets, and the number of equal sets must be determined by removing equal sets from the total in a repeated subtraction sequence. (e.g. "How many tables will be needed for 24 people if 4 people sit at each table?" Twenty-four people need to be separated into sets of 4 to determine how many tables are needed.) **Partition division** problems give the total number of objects and the number of equal sets, and the number in each set must be determined. (e.g., "How many people will be seated at each table if there are 6 tables for 24 people?" Twenty-four people need to be separated into 6 sets to determine how many people will sit at each table.)

Preview the ReTeaching pages 43–47 and the Enrichment pages 38–40 located on the Teacher's Toolkit CD.

Practice and Review

Multiplication facts: 3×3 1×3 4×3 6×3
3×1 3×4 3×6

Introduce the Lesson

Direct attention to the picture on Worktext page 118. Read aloud the theme story on page 119 of the Chapter 7 Overview.

Stalactites are formations that hang from the ceiling and look like stone icicles. *Stalagmites* are formations that form on the cavern floor and point upward. Just as stalactites and stalagmites grow over time, sin can also grow over time. If we continually commit a sin such as lying, it can become a habit that is difficult to stop. In the Bible, God tells us that He hates sin. But God loves the sinner and sent Jesus to pay the penalty for our sins. A Christian's sin has been forgiven, and he should live a life that is pleasing to God. [BATs: 1c Separation from the world, 2a Obedience, 4b Purity; Bible Promise: E. Christ as Sacrifice]

Teach for Understanding

Identify the number of equal sets within a total set of objects when given the number in each set
1. Distribute the Multiplication/Division Mats and the Unifix Cubes. Demonstrate each step on the Multiplication/Division Mat transparency.
2. Remind the students that in multiplication you multiply the number of sets by the number in each set to find the total number of objects. Explain that sometimes you already know the total number of objects and the number in each set. Then you can find out how many sets there are.
- ► What is the total number of cubes that you have? *30*
3. Direct the students to place the cubes into equal sets of 5 cubes on their mats.
- ► How many cubes did you put in each set? *5*
- ► How many equal sets of 5 did you make? *6*
4. Explain that when we separate a total number of objects into equal groups or sets, it is called *dividing* and that the process is called *division*. Write the terms for display.
5. Write $30 \div 5 = 6$ for display.
   (**Note:** Leave extra space between the numbers and function signs for labeling the equation as shown below.) Explain that this division equation shows how you separated or divided the cubes.
   Point to the division sign.
- ► What do you think this sign is called? *Elicit that it is called a division sign.*
   Explain that the division sign is read *divided by.*
6. Label the equation as students answer each of these questions.

$$30 \div 5 = 6$$
$$\text{total} \quad \text{in each set} \quad \text{sets}$$

- ► What was the total number of cubes that you started with? *30*
- ► How many cubes are in each set? *5*
- ► How many sets of 5 are there? *6*
   Lead in reading the equation: 30 *divided by 5 equals 6.*
7. Follow the same procedure with these sets of cubes.
   24 cubes into equal sets of 4 *6 sets; 24 ÷ 4 = 6*
   10 cubes into equal sets of 2 *5 sets; 10 ÷ 2 = 5*
   21 cubes into equal sets of 3 *7 sets; 21 ÷ 3 = 7*
- ► What 2 things did we know each time we divided? *the total number of objects and the number in each set*

Solve division problems using repeated subtraction

A game has 12 marbles. Each player receives 3 marbles. How many people can play the game?

- ► What is the question asking you to find? *how many players or people can play the game*
- ► What is the total number of marbles, or how many marbles are there in all? *12*
- ► How many marbles does each player get, or how many marbles are in each set? *3*
1. Direct the students to place 12 cubes in equal sets of 3 on their mats as you do the same on the transparency.
- ► How many sets of 3 are in 12? *4*
- ► How many people can play the game? *4*
   Explain that the number of people who can play the game is the number of sets; each player or set gets 3 marbles.
- ► What division equation can we write? *12 ÷ 3 = 4 marbles*

Division: Repeated Subtraction of Equal Sets

Name _____

Division is separating a group into equal sets.

How many sets?

| 8 total | divided by | 4 in each set | 2 sets |

8 ÷ 4 = 2

Stalactites & stalagmites are in Carlsbad Caverns.

Circle the number in each set. *Accept any reasonable circling of sets.* Write the number of sets. Write the division equation.

1. | 6 total | 2 in each set | **3** sets |

6 ÷ 2 = **3** sets

2. | 10 total | 5 in each set | **2** sets |

10 ÷ 5 = **2** sets

3. | 9 total | 3 in each set | **3** sets |

9 ÷ 3 = **3** sets

4. | 12 total | 4 in each set | **3** sets |

12 ÷ 4 = **3** sets

5. | 6 total | 3 in each set | **2** sets |

6 ÷ 3 = **2** sets

6. | 12 total | 6 in each set | **2** sets |

12 ÷ 6 = **2** sets

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Circle the number in each set. *Accept any reasonable circling of sets.* Fill in the boxes. Write the division equation.

1. | 12 total | 4 in each set | **3** sets |

12 ÷ 4 = **3** sets

2. | 9 total | 3 in each set | **3** sets |

9 ÷ 3 = **3** sets

3. | 10 total | 2 in each set | **5** sets |

10 ÷ 2 = **5** sets

4. | 8 total | 2 in each set | **4** sets |

8 ÷ 2 = **4** sets

5. | 18 total | 6 in each set | **3** sets |

18 ÷ 6 = **3** sets

6. | 16 total | 4 in each set | **4** sets |

16 ÷ 4 = **4** sets

Review: Multiplication Facts

Multiply.

7. 6 ×2 = **12**   **8.** 3 ×5 = **15**   **9.** 7 ×2 = **14**   **10.** 4 ×5 = **20**   **11.** 1 ×2 = **2**   **12.** 2 ×5 = **10**   **13.** 2 ×2 = **4**

14. $5 \times 5 = $ **25**   **15.** $2 \times 4 = $ **8**   **16.** $5 \times 7 = $ **35**

17. $2 \times 9 = $ **18**   **18.** $5 \times 8 = $ **40**   **19.** $5 \times 9 = $ **45**

Park (Workbook) Chapter 7 Lesson 51

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2. Explain that division is the same as repeated subtraction. Write the subtraction facts vertically as you guide the steps in repeated subtraction. Demonstrate each step.
► How many marbles are there in all? *12* Write 12.
► How many marbles are in each set? *3*

3. Direct the students to remove or subtract one set of 3 cubes from their mats as you do the same. Write − 3.
► What is 12 − 3? *9* Write 9 as the difference.
► What is the new total? *9*
Write 9 as the top number in the next subtraction problem. Draw an arrow from the difference to the new total.

4. Direct the students to remove or subtract another set of 3. Write − 3.
► What is 9 − 3? *6* Write 6 as the difference.
► What is the new total? *6*
Write 6 as the total of the next problem and draw an arrow from the difference to the new total.

5. Direct the students to remove another set of 3. Write − 3.
► What is 6 − 3? *3* Write 3 as the difference.
► What is the new total? *3*
Write 3 as the total and draw an arrow.

6. Direct the students to remove another set of 3. Write − 3.
► What is 3 − 3? *0* Write 0 as the difference.
► Now what is the new total? *0*
► Can we subtract another set of 3? *no*

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  12      9       6       3
 − 3 ↗  − 3 ↗  − 3 ↗  − 3
   9      6       3       0
```

7. Point out that you began with a total of 12 marbles and repeatedly subtracted 3 until there were 0 left. Explain that now you need to know how many sets of 3 were subtracted or how many times you subtracted 3. Lead in counting the number of subtraction problems.
► How many times did we subtract 3 to get 0? *4*
► What does 12 ÷ 3 equal? *4*

8. Repeat the activity using these problems.

Naomi has 15 buttons. She is making flowers on a birthday card. If she puts 5 buttons on each flower, how many flowers can she make? *15 ÷ 5 = 3 flowers*

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  15      10      5
 − 5 ↗  − 5 ↗  − 5
  10      5       0
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Worktext pages 119–20

Read the directions and guide the completion of the pages.

Extended Activities

The activities that correlate with Chapter 7 are located on the Teacher's Toolkit CD.

Objectives

- Complete a division fact with 2 as the divisor
- Identify the dividend, the divisor, and the quotient in a division equation
- Count by 2s to solve a division fact with 2 as the divisor
- Write related division and multiplication facts

Teacher Materials

- Multiplication/Division Mat transparency (from Lesson 53)
- Division transparency, page IA31 (CD)
- Count By 2s, 3s, 4s, & 5s transparency, page IA32 (CD)
- Multiplication flashcards: 7×3, 3×7, 8×3, 3×8, 9×3, 3×9, 10×3, 3×10, and previously memorized facts
- Overhead marker: red

Student Materials

- Place Value Pocket Chart Kit
- Number Cards: 0–9
- Multiplication/Division Mat
- Count By 2s, 3s, 4s, & 5s, page IA32 (CD)
- 18 Unifix Cubes

Note

You may want each student to keep the Count By 2s, 3s, 4s, & 5s worksheet in his notebook for use in future lessons. Allow the student to use the worksheet or his Multiplication/Division Mat and Unifix cubes while completing the Worktext pages and the Math Reviews pages for this chapter and the Chapter 7 Test.

Practice and Review

Numbers in standard form

Call out 3-, 4-, 5-, and 6-digit numbers. Direct the students to "write" each number in their Place Value Pocket Charts. Include numbers with zeros such as 10,493.

Multiplication facts: 7×3 8×3 9×3 10×3
3×7 3×8 3×9 3×10

▶ Teach for Understanding ◀

Identify the dividend, the divisor, and the quotient

1. Cover the problem at the bottom of the Division transparency. Direct attention to the picture of the canteens at the top left of the transparency.
 ➤ What is the total number of canteens? *6*
 Point to the sets of canteens on the right.
 ➤ How many canteens have been placed in each set? *2*
 ➤ How many equal sets are there? *3*
 ➤ What do we call the process of dividing a group into equal sets? *division*

2. Point to the word *Dividend* on the transparency. Explain that the dividend is always the first number in a division equation. It is the number with the greatest value and tells the total or how many there are in all.
 ➤ What number is the dividend in this equation? *6*

3. Point to the division sign. Remind the students that the division sign is used when we want to separate a total number of objects into equal sets to find out the number of sets.
 ➤ How do we read the division sign? *divided by*

4. Direct attention to the 2 in the division equation.
 ➤ What does this number represent? *how many are in each set*
 Point to the word *Divisor* on the transparency. Explain that in this equation the divisor is 2. It is the number that we divide by.
 ➤ What does the divisor in this equation tell us? *There are 2 in each set.*

5. Direct attention to the 3 in the division equation.
 ➤ What does the last number in this division equation represent? *how many sets*
 Point to the word *Quotient*. Explain that the answer in a division equation is called the quotient.
 ➤ What does the quotient in this equation tell us? *There are 3 sets.*

Count by 2s to complete a division fact with 2 as the divisor

1. Distribute the Multiplication/Division Mats and the Unifix Cubes. Demonstrate each step on the Multiplication/Division Mat transparency.

2. Write $8 \div 2 = \_\_$ for display.
 ➤ How can you picture this equation on your mat? *Place 8 cubes in sets of 2.*
 Direct the students to picture the equation on their mats.
 ➤ How many equal sets of 2 did you make? *4*
 ➤ Since there are 2 cubes in each set, how do you think we can count the cubes? *by 2s*
 Lead in counting by 2s as you point to each set of cubes: 2, 4, 6, 8.
 ➤ How many sets of 2 cubes did we count? *4*
 ➤ What is $8 \div 2$? *4*
 Write 4. Explain that counting by 2s is the same as placing the cubes in sets of 2 or making groups of 2.
 Lead in reading the equation: *8 divided by 2 equals 4.*

3. Write $16 \div 2 = \_\_$ for display.
 ➤ How can you picture this equation on your mat? *Place 16 cubes in sets of 2.*
 Direct the students to picture the equation on their mats.
 ➤ How many sets of 2 are in 16? *8*
 ➤ How can we count these cubes? Why? *By 2s; there are 2 cubes in each set.*
 Lead in counting by 2s as you write each number below the equation: 2, 4, 6, 8, 10, 12, 14, 16.
 Remind the students that each number represents 1 set of 2 cubes. Explain that you can find out how many sets of 2 there are by counting the written numbers.
 Lead in counting the numbers in the written *count by 2s* sequence, pointing to each number as you count: 1, 2, 3, 4, 5, 6, 7, 8.
 ➤ How many times did you count by 2? *8*

written sequence:	2	4	6	8	10	12	14	16
count:	1	2	3	4	5	6	7	8

 ➤ Does the number of times you counted by 2s match the number of sets on your mat? *yes*
 ➤ What is $16 \div 2$? *8*
 Write 8 and lead in reading the equation: *16 divided by 2 equals 8.*

4. Repeat the procedure using $14 \div 2 = 7$.

5. Distribute the Count By 2s, 3s, 4s, & 5s worksheets and display the transparency; cover the 3s, 4s, and 5s rows.
 ➤ How can we count the sets of dots in the top row on your worksheet? Why? *By 2s; there are 2 dots in each set.*

Divide by 2; Related Facts

Name _____

Division is separating a group into equal sets.

How many sets?

8 total	divided by	2 in each set	4 sets

$$8 \div 2 = 4$$

dividend   divisor   quotient

The limestone rock in Carlsbad Caverns contains many fossils of ocean plants and animals.

Label the parts of the equation.

1. $\quad 12 \quad \div \quad 2 \quad = \quad 6$

   dividend   divisor   quotient

Count by 2s. Complete the table.

2.

2	4	6	8	10	12	14	16	18	20

Write each quotient using the count by 2s table above.

3. $10 \div 2 = \underline{5}$ 4. $12 \div 2 = \underline{6}$ 5. $16 \div 2 = \underline{8}$

6. $14 \div 2 = \underline{7}$ 7. $6 \div 2 = \underline{3}$ 8. $18 \div 2 = \underline{9}$

Circle the sets. Write the related facts. *Accept any reasonable circling of sets.*

9. 4 divided into sets of 2   2 sets of 2

   $4 \div 2 = \underline{2}$ sets $2 \times 2 = \underline{4}$

10. 8 divided into sets of 2   4 sets of 2

   $8 \div 2 = \underline{4}$ sets $4 \times 2 = \underline{8}$

Label the parts of the equation. Solve.

1.

$$20 \div 2 = 10 \text{ sets}$$

dividend   divisor   quotient

Jesus divided 70 men into groups of 2. He sent them into the cities as missionaries.
Luke 10:1

Divide. Write the quotient. Use counters if needed.

2. $14 \div 2 = \underline{7}$ 3. $16 \div 2 = \underline{8}$ 4. $8 \div 2 = \underline{4}$ 5. $6 \div 2 = \underline{3}$

6. $2 \div 2 = \underline{1}$ 7. $18 \div 2 = \underline{9}$ 8. $12 \div 2 = \underline{6}$ 9. $10 \div 2 = \underline{5}$

Circle the sets. Write the related facts. *Accept any reasonable circling of sets.*

10. 10 divided into sets of 2   5 sets of 2

   $10 \div 2 = \underline{5}$ sets $5 \times 2 = \underline{10}$

11. 6 divided into sets of 2   3 sets of 2

   $6 \div 2 = \underline{3}$ sets $3 \times 2 = \underline{6}$

Review: Multiplication Facts

Multiply.

12. $3 \times 5 = \underline{15}$ 13. $3 \times 3 = \underline{9}$ 14. $4 \times 5 = \underline{20}$ 15. $2 \times 3 = \underline{6}$

16. $2 \times 5 = \underline{10}$ 17. $4 \times 3 = \underline{12}$ 18. $6 \times 5 = \underline{30}$ 19. $6 \times 3 = \underline{18}$

20. $5 \times 5 = \underline{25}$ 21. $1 \times 3 = \underline{3}$ 22. $8 \times 5 = \underline{40}$ 23. $8 \times 3 = \underline{24}$

24. $1 \times 5 = \underline{5}$ 25. $7 \times 3 = \underline{21}$ 26. $7 \times 5 = \underline{35}$ 27. $9 \times 3 = \underline{27}$

Lead in counting the dots by 2s as you guide the students in writing the corresponding number in each box: 2, 4, 6 . . . 20.

Explain that a *Count By* strategy can be used to solve a division equation. The number in the box becomes the dividend of the equation, and the number that you count by (e.g., 2) is the divisor.

6. Write $10 \div 2 = \underline{\quad}$ for display.

➤ What is the dividend in $10 \div 2$? *10*

   Draw a red box around the 10 written on the transparency.

➤ What is the divisor? *2*

➤ What can you count by to find the quotient or answer? Why? *2s; there are 2 in each set.*

   Point to the dividend 10 in the 2s row on the transparency and explain that you can count, using the *count by 2s* guide, until you reach 10 to determine how many sets of 2 there are in 10.

   Point to each number (2, 4, 6, 8, 10) and the corresponding set as you lead in counting: 1, 2, 3, 4, 5.

➤ How many times did you count by 2s to reach 10? *5*

➤ How many sets of 2 do you need to make 10? *5*

➤ What is the quotient of $10 \div 2$? *5*

   Write 5 and lead in reading the equation: *10 divided by 2 equals 5.*

7. Repeat the procedure using $6 \div 2 = 3$ and $12 \div 2 = 6$.

Write related division and multiplication facts

1. Explain that just as each subtraction fact has a related addition fact (e.g., $9 - 6 = 3$ and $6 + 3 = 9$), each division fact has a related multiplication fact.

2. Direct the students to place 10 cubes in sets of 2 on their mats. Demonstrate each step.

➤ How many sets of 2 are in 10? *5*

➤ What division equation can you write to show that 10 cubes were equally divided into 5 sets of 2? $10 \div 2 = 5$
   Write the equation for display.

➤ Which number in the equation is the dividend? Why? *10; it's the total number we started with*

➤ Which number is the divisor? Why? *2; it's the number we divide by or the number in each set.*

➤ What is the answer called? *quotient*

3. Direct the students to remove all the cubes from their mats and then to place 5 sets of 2 cubes on their mats.

➤ How many cubes are on your mat? *10*

➤ What multiplication equation can we write for these cubes? Why? $5 \times 2 = 10$; *there are 5 sets of 2 for a total of 10.*
   Write $5 \times 2 = 10$ below $10 \div 2 = 5$.
   Call attention to the number 10 in each equation.

➤ What does the quotient of the division equation become in the multiplication equation? *product*

4. Repeat the procedure using the following:
   4 cubes in sets of 2 $4 \div 2 = 2$; 2 sets of 2 cubes $2 \times 2 = 4$
   18 cubes in sets of 2 $18 \div 2 = 9$; 9 sets of 2 cubes $9 \times 2 = 18$
   2 cubes in sets of 2 $2 \div 2 = 1$; 1 set of 2 cubes $1 \times 2 = 2$

Worktext pages 121–22

Read the directions and guide the completion of the pages.

· · Chapter Review · ·

Objectives

- Identify the number of equal sets (2, 3, 4, or 5) within a total set of objects when given the number in each set
- Demonstrate an understanding of the division process and the division terms *dividend, divisor,* and *quotient*
- Complete a division fact with 1–5 as the divisor
- Write a division fact as an equation and with a division frame
- Count by 2s, 3s, 4s, or 5s to complete a division fact
- Write related missing factor equations to find quotients
- Solve a word problem

Teacher Materials

- Multiplication/Division Mat transparency (from Lesson 53)
- Small Array Grids transparency (from Lesson 55)
- Count By 2s, 3s, 4s, & 5s transparency (from Lesson 54)
- 30 Unifix Cubes

Student Materials

- Multiplication/Division Mat
- Count By 2s, 3s, 4s, & 5s (from Lesson 54)
- 30 Unifix Cubes

Notes

Fact Reviews for each group of facts are provided on the Teacher's Toolkit CD.

This lesson reviews concepts presented in Chapter 7 to prepare students for the Chapter 7 Test. Worktext pages 133–34 and Math Reviews pages 119–20 provide students with an excellent study guide.

Practice and Review

Multiplication facts

Select a Fact Fun activity from Appendix pages A11–A13 to practice previously memorized facts.

✓ Check for Understanding

Identify the number of equal sets within a total set of objects when given the number in each set

1. Display the Division transparency; cover the partition division problem at the bottom. Review the process for measurement division and the division terms.
2. Distribute the Multiplication/Division Mats and the Unifix Cubes. Demonstrate each step on the Multiplication/Division Mat transparency.
➤ What is the total number of cubes that you have? *30*
3. Direct the students to place the cubes into equal sets of 3 cubes on their mats.
➤ How many cubes are in each set? *3*
➤ How many equal sets of 3 did you make? *10*
➤ What do you do when you divide? *Separate a total number of objects into equal groups or sets.*
➤ What division equation can you write for the cubes on your mat? *30 ÷ 3 = 10*
Write the equation for display and lead in reading it: *30 divided by 3 equals 10.*

4. Label the equation as shown in Lesson 53 as the students answer each of these questions.
(**Note:** Leave all the equations in this activity displayed for the entire activity.)
➤ Which number in the equation is the dividend? What does it tell us? *30; the total number that we started with or how many there are in all*
➤ Which number is the divisor? What does it tell us in this equation? *3; how many are in each set*
➤ What is the answer to a division equation called? What does it tell us in this equation? *quotient; how many sets there are*
➤ What is another way to write this division fact? *using a division frame*
➤ When you use a division frame to write a division problem, where do you write the dividend? *inside the frame* the divisor? *in front of the frame or to the left of it* the quotient? *In the Ones place above the division frame*

5. Choose a student to write for display the division equation using a division frame while the rest of the students write it on paper. Select another student to point out the dividend, the divisor, and the quotient in the problem written for display.

6. Repeat the procedure using these sets of cubes.
12 cubes into equal sets of 4 *3 sets; 12 ÷ 4 = 3*
16 cubes into equal sets of 2 *8 sets; 16 ÷ 2 = 8*
25 cubes into equal sets of 5 *5 sets; 25 ÷ 5 = 5*
➤ What 2 things did we know each time we divided? *the total number of objects and the number in each set*

7. Remind the students that division is repeated subtraction. Direct attention to 25 ÷ 5 = 5. Write subtraction problems as shown in Lesson 53 as the students answer each of these questions.
➤ How many cubes did you start with when dividing 25 by 5? *25*
➤ How many cubes did you put in each set? *5*
➤ What is 25 – 5? *20*
➤ What is the new total? *20*
Continue asking the last 2 questions until you reach 0.
➤ How many times did we subtract 5 to get to 0? *5*
➤ What does 25 ÷ 5 equal? *5*

Count by 2s, 3s, 4s, or 5s to complete a division fact

1. Distribute the Count By 2s, 3s, 4s, & 5s worksheets and display the Count By 2s, 3s, 4s, & 5s transparency.
2. Write 18 ÷ 2 = __ for display.
➤ Which row on your Count By worksheet could you use to solve this division equation? Why? *The 2s row; the divisor is 2.*
➤ Which number is the dividend? *18*
➤ How many times do you need to count by 2s to reach 18? *9*
➤ How many sets of 2 are in 18? *9*
➤ What is 18 ÷ 2? *9*
Complete the equation and lead in reading it: *18 divided by 2 equals 9.*
3. Repeat the procedure using 15 ÷ 3 = *5*, 30 ÷ 5 = *6*, 28 ÷ 4 = *7*, and 5 ÷ 5 = *1*.
4. Remind the students that counting by 2s, 3s, 4s, or 5s is a *Count By* strategy.

Write related missing factor equations to find quotients

1. Write 27 ÷ 3 = __ for display.
➤ Which number is the dividend? What does it tell us? *27; the total number or how many there are in all*
Write *total* below the 27.

Chapter 7 Review — Name _____

Pre-Algebra

Circle the sets. Write the quotient.

1. $15 \div 3 = 5$ — total, in each set, sets
2. $12 \div 3 = 4$ — total, in each set, sets
3. $9 \div 3 = 3$ — total, in each set, sets

Order of factors may vary.

Solve the division equation by completing the related multiplication fact.

4. $20 \div 5 = 4$ $4 \times 5 = 20$
5. $8 \div 4 = 2$ $2 \times 4 = 8$
6. $15 \div 3 = 5$ $5 \times 3 = 15$
7. $32 \div 4 = 8$ $8 \times 4 = 32$
8. $18 \div 3 = 6$ $6 \times 3 = 18$
9. $28 \div 4 = 7$ $7 \times 4 = 28$

Divide. Write the quotient.
If needed, use the count by worksheet or counters.

10. $14 \div 2 = 7$
11. $12 \div 4 = 3$
12. $15 \div 3 = 5$
13. $16 \div 4 = 4$
14. $24 \div 4 = 6$
15. $27 \div 3 = 9$
16. $3\overline{)9} = 3$
17. $1\overline{)8} = 8$
18. $2\overline{)8} = 4$
19. $5\overline{)10} = 2$

one hundred thirty-three 133

Circle the sets. Write the related facts. *Accept any reasonable circling of sets.*

20. 12 divided into sets of 3 / 4 sets of 3 — $12 \div 3 = 4$ $4 \times 3 = 12$
21. 20 divided into sets of 4 / 5 sets of 4 — $20 \div 4 = 5$ $5 \times 4 = 20$
22. 28 divided into sets of 4 / 7 sets of 4 — $28 \div 4 = 7$ $7 \times 4 = 28$
23. 24 divided into sets of 3 / 8 sets of 3 — $24 \div 3 = 8$ $8 \times 3 = 24$

Solve and label.

24. Hal wrote 24 interesting facts about Carlsbad Caverns in his scrapbook. He wrote 4 facts on each page. How many pages of his scrapbook did he use?
$24 \div 4 = 6$ pages

25. A librarian helped Hal find magazine articles about bats. Together they found 18 articles. Hal found 3 of the articles. How many articles did the librarian find?
$18 - 3 = 15$ articles

134 one hundred thirty-four

> Which number is the divisor? **3**
> If we divide 27 into equal sets of 3, what does the divisor 3 tell us? *how many are in each set*
Write *in each set* below the 3.
> What will the quotient tell us in this equation? *the number of sets*
Write *sets* below the answer line.
Remind the students that you can think of the related multiplication fact to solve a division fact.

2. Point to 27.
> What does the dividend become when you write the related multiplication fact? *product*
Write the multiplication equation below the division fact, using answer lines for the factors: ___ × ___ = 27. Write *product* below the 27.
> What does the first factor in a multiplication equation represent? *the number of sets*
> Does $27 \div 3 =$ ___ tell us how many sets there are? How do you know? *No; 3 is the divisor and it tells how many are in each set. There is no quotient to tell the number of sets.*
> What does the second factor in a multiplication equation represent? *how many are in each set*
Write 3 as the second factor in the equation.
Display the Small Array Grids transparency. Write 3 on the line above the grid.
Choose a student to draw an array for the equation. *9 rows of 3 squares each*
> What number times 3 equals 27? **9**
Write 9 on the line to the left of the grid and as the first factor in the equation.
> What is the quotient of $27 \div 3$? **9**

Complete the division equation. Lead in reading the multiplication equation and then the division equation: *9 times 3 equals 27* and *27 divided by 3 equals 9*.

3. Repeat the procedure using $15 \div 5 = \underline{3}$ $3 \times 5 = 15$, $10 \div 2 = \underline{5}$ $5 \times 2 = 10$, $6 \div 1 = \underline{6}$ $6 \times 1 = 6$, and $32 \div 4 = \underline{8}$ $8 \times 4 = 32$.

Solve a word problem
Guide the students in using the Problem-Solving Plan to solve these word problems on paper. Direct each student to draw a picture or use his mat and cubes to illustrate the division and the multiplication word problems.

While hiking in Carlsbad Caverns National Park, Hal collected 20 insects. He put 4 insects in each plastic bag. How many bags of insects did Hal have? $20 \div 4 = 5$ bags

Carlsbad Caverns became a national park in 1930. How many years ago did Carlsbad become a national park? *current year – 1930 = XX years*

Before going on one of his hikes, Hal put 3 bottles of water in his backpack. Each bottle contained 8 ounces of water. How many ounces of water did Hal take on his hike? $3 \times 8 = 24$ ounces

Worktext pages 133–34

Read the directions and guide the completion of the pages.

Lesson 60

135

· · Chapter 7 Test · ·
· · Cumulative Review · ·

Skills Reviewed
- Complete a missing addend equation
- Count by 10s from a 2-digit number
- Interpret a bar graph
- Identify the value of a digit
- Estimate by rounding to the nearest hundred and the nearest one thousand
- Identify the standard form of a number written in expanded form

Student Materials
- Cumulative Review Answer Sheet, page IA5 (CD), with a line drawn after number 21

Note
Allow each student to use his Count By 2s, 3s, 4s, & 5s worksheet or his Multiplication/Division Mat and Unifix Cubes for the test.

> Use the Cumulative Review Worktext pages 135-36 and Math Reviews pages 121-22 to review previously taught concepts and to reteach concepts to the student who is having difficulty. Instruct the student to work on a separate sheet of paper, if necessary, and to mark the answers on the Cumulative Review Answer Sheet. Use the Problem-Solving Center Worktext page 137 any time after this chapter.

Use the bar graph to answer the questions.

Water Balloon Throwing Contest

(Bar graph: Ruth, Rachel, Matt, Sarah, Troy)
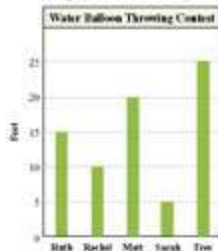
13. Who tossed the water balloon the farthest?
A. Ruth   C. Troy
B. Rachel   D. NH

14. How much farther did Matt's balloon travel than Sarah's?
A. 10 feet   C. 5 feet
B. 15 feet   D. NH

15. Who would be awarded the third place ribbon?
A. Rachel   C. Ruth
B. Matt   D. NH

Mark the correct number in standard form.

16. $200 + 30 + 9$
A. 329
B. 239
C. 139
D. NH

17. $4,000 + 40 + 4$
A. 4,444
B. 4,044
C. 4,404
D. NH

18. $600 + 20 + 3$
A. 236
B. 632
C. 623
D. NH

Round to the nearest one thousand.

19. 4,692
A. 4,000
B. 5,000
C. 4,700
D. NH

20. 3,481
A. 3,000
B. 4,000
C. 3,500
D. NH

21. 9,762
A. 8,000
B. 9,000
C. 9,800
D. NH

Cumulative Review

Name _____

Mark the correct answer on your answer sheet.
Mark NH if the answer is "Not Here."

Solve the missing addend equation.

1. $8 + \square = 12$
A. 3
B. 4
C. 5
D. NH

2. $7 + \square = 15$
A. 6
B. 7
C. 8
D. NH

3. $9 + \square = 17$
A. 8
B. 9
C. 10
D. NH

4. $6 + \square = 11$
A. 6
B. 5
C. 4
D. NH

Count by 10s.

5. 23, 33, 43, ___
A. 43
B. 53
C. 61
D. NH

6. 41, 51, 61, ___
A. 51
B. 60
C. 71
D. NH

Round the number to the nearest hundred.

7. 4,372
A. 4,300
B. 4,400
C. 4,500
D. NH

8. 5,631
A. 5,630
B. 5,600
C. 5,700
D. NH

9. 7,482
A. 7,500
B. 7,400
C. 7,000
D. NH

Mark the value of the underlined digit.

10. 6,7_5_2
A. 7
B. 70
C. 700
D. NH

11. 4,93_6_
A. 60
B. 600
C. 6
D. NH

12. _4_,856
A. 40
B. 400
C. 4
D. NH

Problem-Solving Center

×	2	4
5	10	20
3	6	12

- To figure out ?, think $2 \times \square = 10$. $2 \times 5 = 10$. Write 5 in box number ?.
- To figure out ?, think $\square \times 4 = 12$. $3 \times 4 = 12$. Write 4 in box number ?.
- Because you now know ? and ?, you know that ? is ? because $5 \times 4 = 20$.
- Because you know ? and ?, you know that ? is ? because $2 \times 3 = 6$.

Solve using the process described above.

×	2	3	1	5
4	8	12	4	20
5	10	15	5	25
3	6	9	3	15
2	4	6	2	10

×	1	5	3	4
1	1	5	3	4
5	5	25	15	20
4	4	20	12	16
2	2	10	6	8