Operations and Algebraic Thinking

More Division

Dividing larger numbers with a two-digit divisor is most often done using a tool such as an algorithm or a calculator. Before students can use these tools, they need to observe how a number is divided visually. Otherwise, the process is too abstract for students to understand due to the size of the numbers involved.

Try It! *Perform the Try It! activity on the next page.*

Talk About It

Discuss the Try It! activity.

■ **Ask:** *How many Centimeter Cubes and index cards would you need if you wanted to divide 78 by 15? How do you know?*

■ Have groups compare their answers. **Ask:** *Did you end up with a remainder? How can you tell? Is it possible to have a remainder when you divide by a two-digit number?*

■ Direct students to look at the division sentence they wrote. **Ask:** *Which number did you show using cubes? Which number did you show using index cards?*

Solve It

With students, reread the problem. Have students draw a picture showing how the cherries in the bowl were divided up, then write the corresponding division sentence under the picture.

More Ideas

For other ways to teach about dividing by a two-digit number—

■ Have students use Two-Color Counters as units for the dividend in a division problem with a two-digit divisor. Students should begin with all counters flipped to the same color side. As they begin to divide the units into groups, they can flip the counters over to help keep track of which counters still need to be grouped.

■ Have students practice writing word problems involving division. Then invite students to partner up and solve each other's division problems using Base Ten Blocks.

Formative Assessment

Have students try the following problem.

The Science Club earned 42 Fun Fair tickets for planting flowers around the school. There are 14 students in the club. How many tickets will each student get?

A. 3　　**B.** 4　　**C.** 5　　**D.** 6

Try It! 25 minutes | Groups of 4

Here is a problem about dividing by a two-digit number.

There are 13 students in the dance club that meets after school. The end of the school year is tomorrow, so Juan brought in a large bowl of cherries to share with the other students in the club. The bowl has 52 cherries in it. How many cherries will each student get?
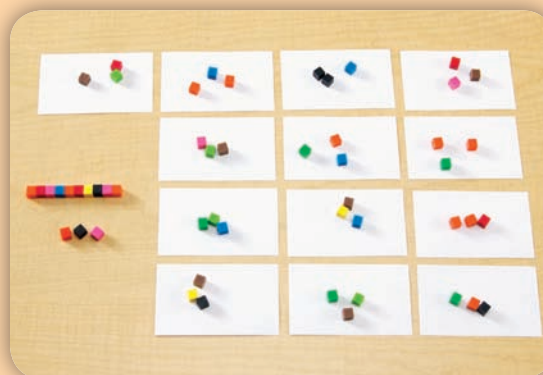
Introduce the problem. Then have students do the activity to solve the problem. Distribute Centimeter Cubes and index cards to groups of students.
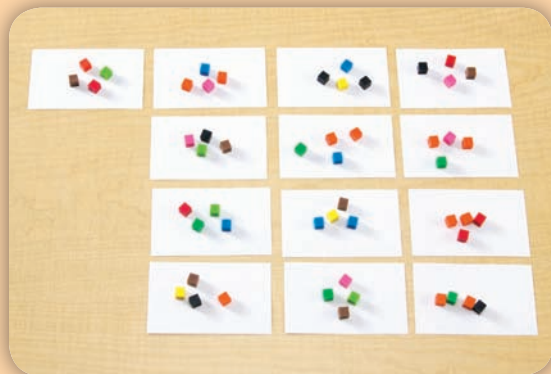
Materials
- Centimeter Cubes (60 per group)
- index cards (13 per group)

1. Say: *You need to divide 52 by 13.* Have students count out 52 cubes. Tell students that it may be easier to count out the cubes by placing them in groups of 10.

2. Direct students to place their 13 index cards on the desk or table so that all are visible and there is space between them. Have students divide the 52 cubes evenly, placing them on the 13 index cards until all the cubes are gone.

⚠ Look Out!

Watch for students who confuse two-digit dividends and divisors. Help students stress key words. For example, remind students that they want to divide 52 *by* 13, so they should separate 52 cubes into 13 groups.

3. Tell students to count the cubes on each index card. **Ask:** *How can you show what you just did as a division sentence?* Help students write the division sentence 52 ÷ 13 = 4.

Use Centimeter Cubes and index cards to model the division problem. Divide the cubes equally among the index cards. Write the quotient.
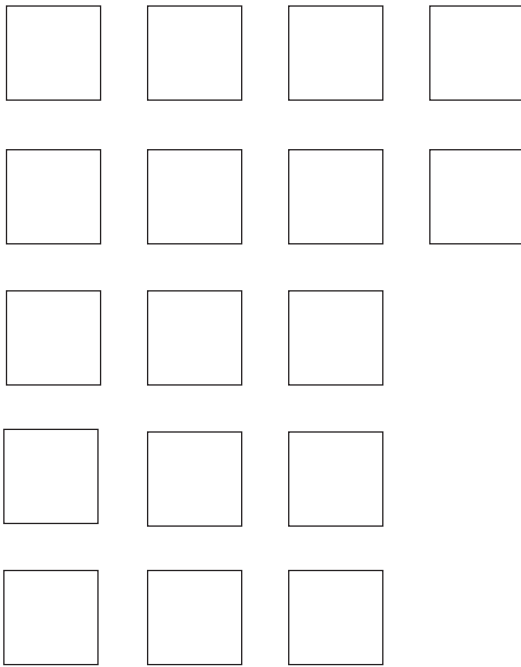
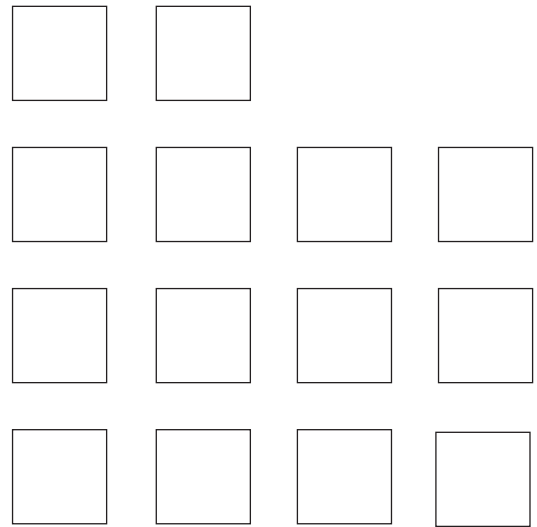(Check students' work.)

1.
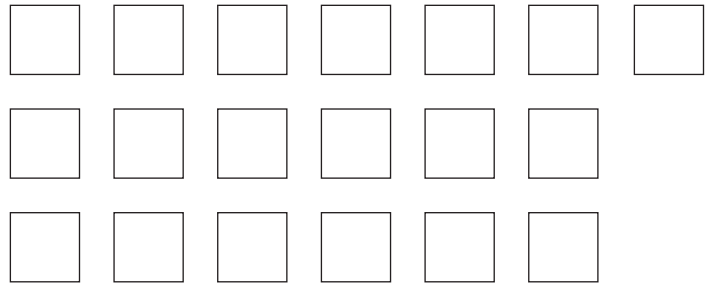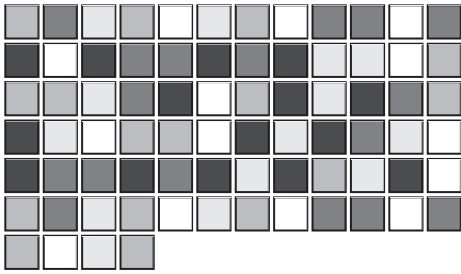
$76 \div 19 = \underline{4}$

Using Centimeter Cubes and index cards, model each division. Sketch the cubes on the cards shown below. Write the division sentence.

2. 51 cubes

$51 \div 17 = \underline{3}$

3. 84 cubes

$84 \div 14 = \underline{6}$

Find each quotient.

4. $75 \div 15 = \underline{5}$

5. $72 \div 12 = \underline{6}$

6. $80 \div 16 = \underline{5}$

7. $105 \div 15 = \underline{7}$

8. $162 \div 18 = \underline{9}$

9. $91 \div 13 = \underline{7}$

Challenge!   When you use Centimeters Cubes and index cards to model division, do the cubes or the index cards represent the dividend? What represents the quotient? Explain your answers.

Challenge: (Sample) Because the cubes represent the number of items being divided, it is the dividend. The number of cubes on each index card represents the quotient.
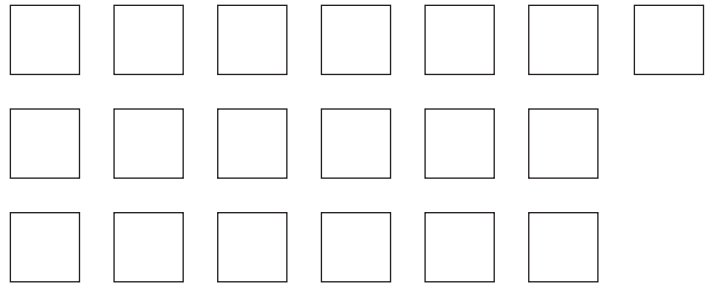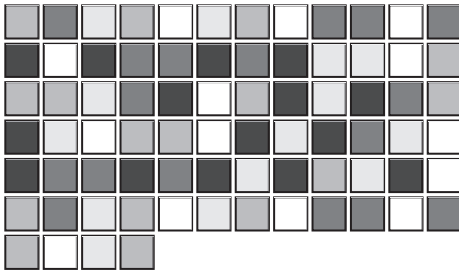
Name _____

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1.

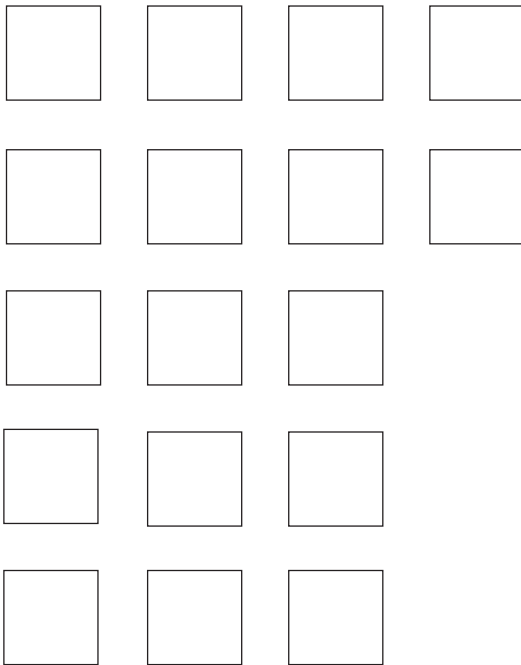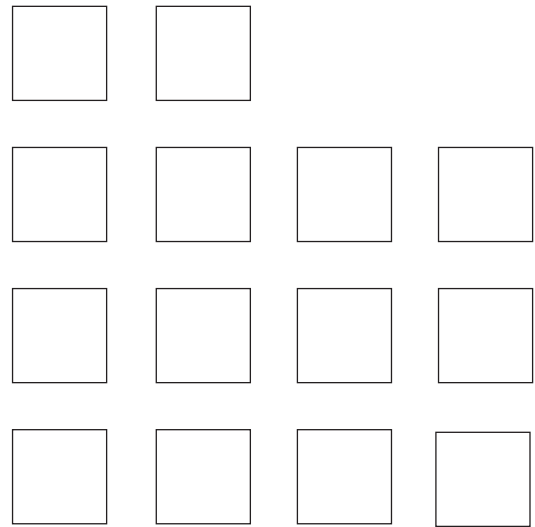76 ÷ 19 = _____

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