

Chip Delivery

Purpose

Students will use a standard algorithm to divide numbers up to 100 by numbers up to 10 without remainders, using relevant properties of the number system.

Materials

For the teacher: overhead projector, overhead base-ten blocks, overhead markers, overhead transparency of Black Line Master (BLM) *Ourtown's Stores*

For each student: copy of BLM *Checking Up on Division*

For each pair of students: bag of base-ten blocks (9 tens sticks and 50 ones cubes), copy of BLM *Ourtown's Stores*, paper, pencil

Activity

A. Introduction

1. Tell students the following story: Spud Baker drove a potato chip delivery truck. The chips came in boxes of ten bags and individual packages. The stores preferred to have as many boxes of ten as possible and each store had to have the same number of bags of chips delivered.
2. Tell students that they will be using tens sticks and ones cubes to find out how many bags of chips Spud would deliver to each store each day. The sticks will represent the boxes of ten bags and the ones cubes will be the individual packages.
3. Show students the overhead transparency of BLM *Ourtown's Stores*. Tell the students they will be placing their sticks and cubes onto the stores to find out how many chips each will receive.
4. Model the first problem. Spud has 84 bags of chips in his truck on Monday. (Eight boxes of 10 and four individual packages.) He needs to deliver to three of Ourtown's Stores. Use two pieces of paper to block out all but three of the stores on the overhead.
5. Say: "Since the stores prefer boxes of ten when possible, we are going to see if Spud has enough for them each to have a fair share." Show eight tens sticks and four ones cubes. Ask: "How many tens can Spud put into each store?" [Two in each store with two left over.]
6. "What will happen to the two tens left over? Spud can open each box of ten and add the two tens (or 20) to the four individual bags.

(continued)



INCORPORATING **TECHNOLOGY**

Have students visit AAA Math's Web site www.aaamath.com/g41-div-2x1-norem.html#section3 to play an online division game.



MEETING INDIVIDUAL **NEEDS**

Allow students who are having difficulty to continue to work with blocks as they use the algorithm.

Standards Links
4.2.3, 4.3.7

Activity (continued)

7. “Spud now has 24 individual bags of chips. How many can he deliver to each store?” [8.]
8. “Spud was able to deliver two tens and eight ones, or 28, to each store.”
9. Write the number sentence $84 \div 3 = 28$.
10. Explain that we can also write this as:

$$\begin{array}{r} 28 \\ 3 \overline{)84} \end{array}$$

B. Student Activity

1. Hand out copies of the BLM *Ourtown’s Stores* and a bag of base-ten blocks to each pair of students.
2. Have students work with a partner to solve three or four more problems similar to the ones above. They should first divide the tens and then combine leftover tens with ones and divide again.

C. Teaching the Algorithm

1. Work a few problems without using blocks, but talking through the division process.
2. Have students work individually along with you to solve three or four more problems dividing numbers up to 100 by numbers up to 10. Observe the process the students are using to be sure they understand the algorithm.


D. Follow-Up


1. Hand out a copy of the BLM *Checking Up on Division* to each student.
2. Have students complete and check with a partner before having the sheet checked by you.


Questions for Review


Basic Concepts and Processes

During the activity, discuss the following questions with students to gauge their understanding of the indicator:

 How many tens can Spud deliver to each store?

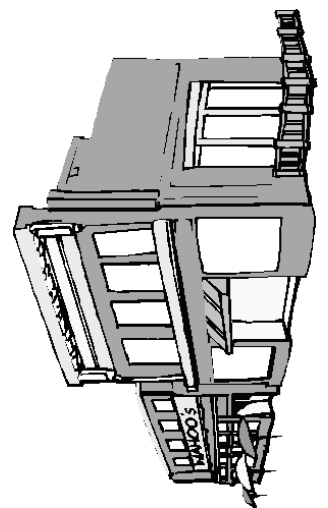
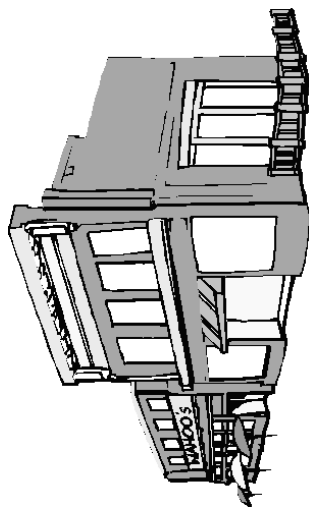
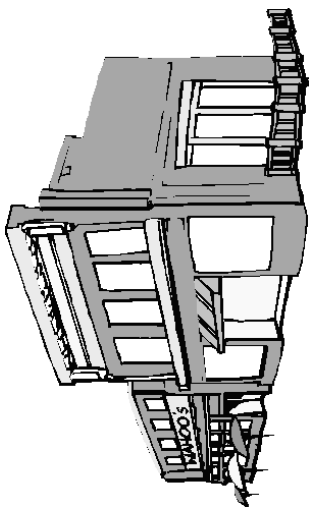
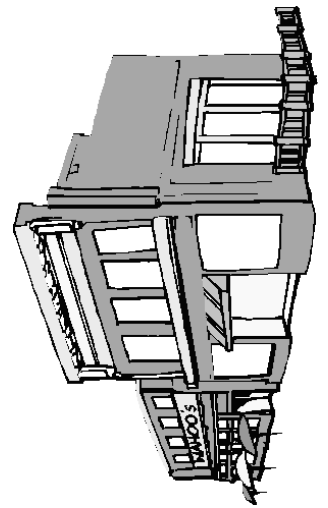
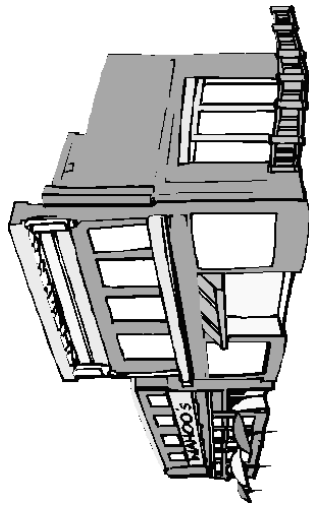
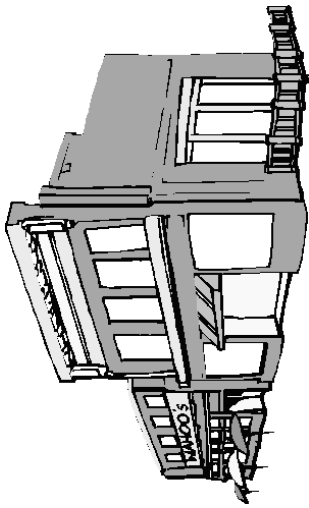
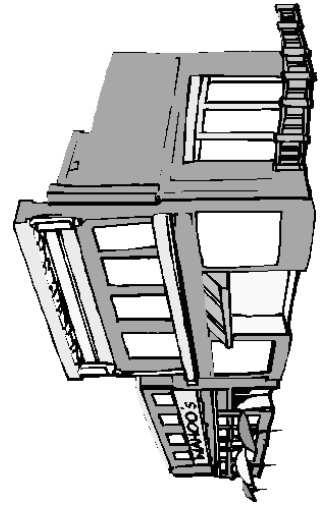
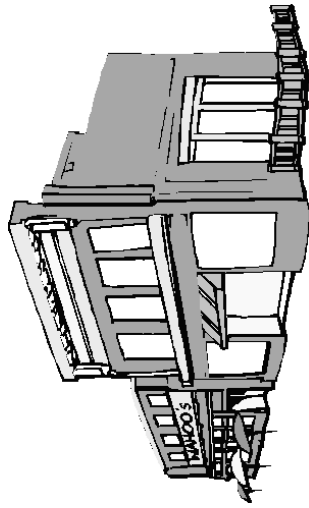
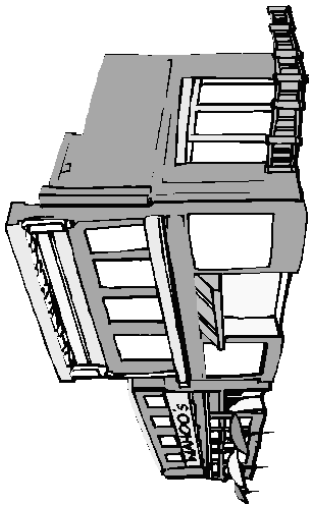
 How do you figure that out?

 How many tens are left over?

 What do you do with those?

 How many ones can Spud deliver to each store?

Ourtown's Stores



Ourtown's Stores

Teacher Directions

Use the BLM to place tens blocks physically on the stores during the “deliveries” in this activity.

Answer Key

Not applicable.

Name: _____

Checking Up on Division

(1)

$$3 \overline{)42}$$

(2)

$$5 \overline{)75}$$

(3)

$$4 \overline{)64}$$

(4)

$$7 \overline{)84}$$

(5)

$$8 \overline{)96}$$

(6)

$$6 \overline{)96}$$



Checking Up on Division

Teacher Directions

Have students work the division problems. After they have finished, pair students and have them check each other's work before handing in the BLMs.

Answer Key

(1) 14

(2) 15

(3) 16

(4) 12

(5) 12

(6) 16