Block It to Multiply

Purpose

Students will use a standard algorithm to multiply numbers up to 100 by numbers up to 10, using relevant properties of the number system.

Materials

For the teacher: overhead projector, overhead base-ten blocks, transparency of Black Line Master (BLM) *Three-Column Trading Board*
For each student: copy of BLM *Checking Up on Multiplication*
For each pair of students: 1 piece of 12 × 18 manila drawing paper, bag containing set of base-ten blocks (at least 50 ones cubes, 20 tens sticks and 4 hundreds squares), copy of BLM *Three-Column Trading Board*, paper, pencils

Activity

A. Introduction

1. Tell the students that for being an extra well-behaved class you would like to give each of them four pieces of candy. You need to make sure you have enough to go around. Ask: "How could I figure that out?"
2. Write the problem on the overhead (e.g., 26 × 4 =). Remind students that multiplication is a shortcut for the problem 26 + 26 + 26 + 26 = .
3. On the transparency make four rows of two 10s sticks and six ones cubes on the three-column trading board.
4. Combine the four groups at the bottom of the chart so that you have 24 ones cubes and eight tens sticks.
5. Ask: "Can we regroup any ones for tens?" [Yes, 20 of the 24 ones for 2 tens.] Do the regrouping and put the two tens with the eight in the tens column leaving four ones.
6. Ask: "Can we regroup any tens for hundreds?" [Yes, 10 of the 10 tens for one hundred.] Do the regrouping and put the hundreds square in the hundreds column of the trading board.
7. Say: "The number we have is one hundred, 0 tens and four ones, or 104. I need 104 pieces of candy to give each of the 26 students in this class four pieces each. Write "26 × 4 = 104."

(continued)

EXTENDING THE ACTIVITY

Have students write word problems involving 2-digit times 1-digit numbers. Have students either solve the problems themselves or exchange problems with another student.

MEETING INDIVIDUAL NEEDS

Give students who have no difficulty with the activity larger numbers to multiply (e.g., 245 × 6 or 3,596 × 7).

Standards Links
4.2.2, 4.2.4

Activity (continued)

B. Partner Activity

1. Hand out base-ten blocks and copies of the BLM *Three-Column Trading Board*.
2. Have students work three or four more multiplication problems by placing their base-ten blocks in the correct column, combining and trading to figure out the correct answer. (e.g., 32 × 5, 43 × 4, 27 × 3, and 55 × 5).
3. Tell students to write the problem and answer correctly.

C. Teacher-Directed Activity

1. Tell students there is a short cut for what they just did.
2. Write the following problem on the overhead:
$$\begin{array}{r} 37 \\ \times\ \ 3 \\ \hline \end{array}$$
3. Say: "When we multiply, we begin with the number in the ones column. What is 3 × 7?" [21.] "Are there any tens in 21 that we can regroup to the tens column?" [Yes, two tens.] Write the one in the ones column and write the 2 in the tens column over the 3. Say: "We now have 2 more tens to add to the total of 3 × 3 in the tens column. What is 3 × 3?" [9.] "Plus the two we regrouped would be?" [11.] "Can we regroup to the hundreds column?" [Yes, one hundred.]
4. Tell students that this is the short cut mathematicians use to solve multiplication problems with larger numbers.
5. Work three or four more problems like this and have students volunteer to give answers.
6. Give students three or four problems to work with their partner. Have them work the problem first using the standard algorithm and then check their answer by using base–ten blocks on their trading board. Check problems together as a class.

D. Individual Activity

1. Give each student a copy of the BLM *Checking Up on Multiplication*.
2. Check the problems as students finish.

Questions for Review

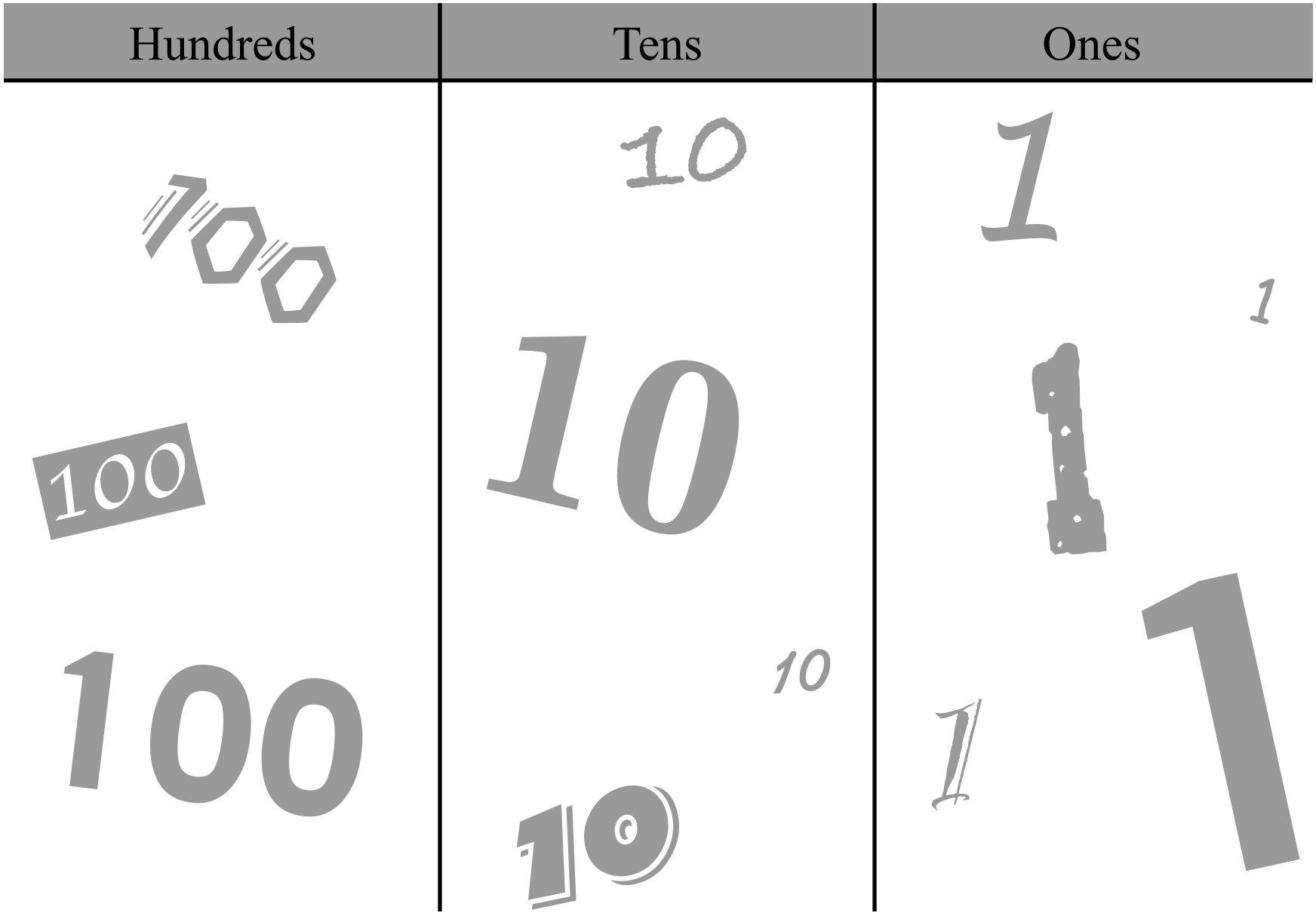
Basic Concepts and Processes

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

📖 Do you need to regroup here [*indicate a problem*] after multiplying?

💡 How do you do that?

Three-Column Trading Board



Three-Column Trading Board

Teacher Directions

Use the BLM *Three-Column Trading Board* to solve problems with base-ten blocks in this activity.

Answer Key

Not applicable.

Name: _____

Checking Up on Multiplication

Solve the following problems:

1.
$$\begin{array}{r} 26 \\ \times\ 5 \\ \hline \end{array}$$

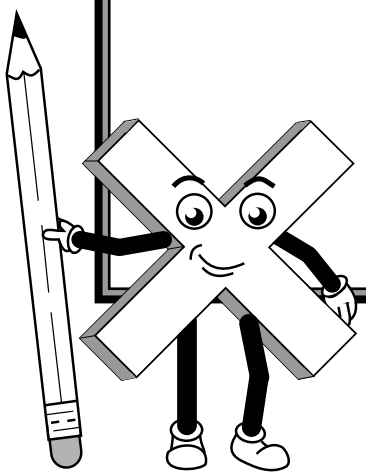
2.
$$\begin{array}{r} 48 \\ \times\ 4 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 35 \\ \times\ 3 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 72 \\ \times\ 6 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 64 \\ \times\ 7 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 83 \\ \times\ 2 \\ \hline \end{array}$$



Checking Up on Multiplication

Teacher Directions

Have students complete the BLM to assess their understanding of this skill.

Answer Key

(1) 130
(2) 192
(3) 105
(4) 432
(5) 448
(6) 166