Set A5 ★ Activity 4

Single-Digit Multiplication with Pictures & Numbers

Overview
Students use the area model to picture and solve 1-digit by 2-digit multiplication problems. In this activity, the focus is on transitioning to using numbers only, connecting them to the area model as needed to support students’ work.

Skills & Concepts
- multiply two-digit by one-digit numbers
- estimate products to approximate solutions and determine reasonableness of answers
- solve single- and multi-step word problems involving multi-digit multiplication and verify the solutions

You’ll need
- Multiplication Story Problems (page A5.32, run one copy on a transparency)
- Single-Digit Multiplication (pages A5.33 and A5.34, run a class set)
- overhead pens
- a piece of paper to mask portions of the overhead

Instructions for Single-Digit Multiplication with Pictures & Numbers
1. Place the top section of Multiplication Story Problems on display at the overhead. Keep the other two problems covered for now. Read the problem with the class. Work with students’ input to record a matching multiplication expression in vertical form. Ask them to pair-share estimates. Then call on volunteers to share their estimates with the class and explain their reasoning.

![Multiplication Story Problems](image)

Students  It’s going to be more than 160 square feet because 10 \times 8 is 80, and 80 + 80 is 160. I said maybe about 180 because 8 \times 25 is 200. 8 \times 20 is 160, so this will be more.

2. Demonstrate how to make a very quick sketch to show 8 \times 23 either on the whiteboard or the overhead. First sketch the dimensions, then the total array, and then add a line to show how the array can be divided into two partial products by place value (a step-by-step example is shown on the next page).
Activity 4  Single-Digit Multiplication with Pictures & Numbers (cont.)

3. After you've sketched the array, give students each a copy of the Single-Digit Multiplication worksheet. Ask them to record $8 \times 23$ as the first problem at the top of the sheet and make a quick sketch similar to yours. Then ask everyone to find the total product by filling in and adding together the two partial products. Have them compare their results with a neighbor as they finish, and then reconvene the class.

4. Ask students to share their partial products while you record them in numerical form beside the array. Focus students' attention on the magnitude of the final answer by starting with the numbers in the tens place, as shown below.

5. Repeat Steps 1–4 with the other two problems at the overhead. Ask students to use your method of recording and computing for Problems 2 and 3. (A filled in copy of the overhead is shown below for your reference.) Then give students the second page of Single-Digit Multiplication (or have them turn their sheets over if you ran the pages back-to-back), and work the rest of the problems independently. Give help as needed, or meet with a small group to provide extra support.
Activity 4  Single-Digit Multiplication with Pictures & Numbers (cont.)

Single-Digit Multiplication

Use sketches and numbers to solve each of these story problems with your class.

1

2

3

INDEPENDENT WORKSHEET

Use Set A5 Independent Worksheet 3 to provide students with more practice finding and adding partial products to multiply double-digit by single-digit numbers.
Multiplication Story Problems

1  The kids in Mr. Gill's class are going to paint a mural in the hallway by the office. The wall is 8 feet high and 23 feet long. How many square feet is the wall they're going to paint?

2  The fourth graders are doing a show for their families. They set up 6 rows of chairs. They put 26 chairs in each row. How many chairs did they use altogether?

3  There is a big party at the park. There are 7 tables with balloons for the kids. Each table has 34 balloons. How many balloons in all?
Single-Digit Multiplication

Use sketches and numbers to solve each of these story problems with your class.