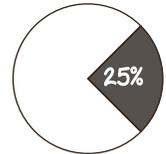# Guided Math: Unit 2, Lesson 5

Essential Question
How can students use an area model to simplify a two-digit by two-digit multiplication problem?

Lesson Objective
Students will use the box method multiplication to simplify a problem.

Whole-Group Lesson
Have students use the Box Method Multiplication blackline master. Using 23 × 19, demonstrate placing the numbers in their correct locations. Spend time talking about and comparing the relationship between an area model and the box method. Have students record how to use the boxes to solve the problem. You can refer to the separation of the tens and ones as expanded notation. A common mistake students make is using the wrong numbers to solve for certain boxes. Drawing arrows may help. Discuss how each box gets added just as in area models. Continue practicing and make sure students are multiplying the correct numbers. Use the standard algorithm to check. One way to help speed up the box method is to start with the zeros. Each box gets the number of zeros it needs for the answer. For example, the 10s × 10s box starts with two zeros and the two 10s × 1s boxes always start with one zero. The 1s × 1s box doesn't get a zero. Put a slash through the zeros. Then all the student has to solve is a one-digit by one-digit multiplication fact to solve for each box.
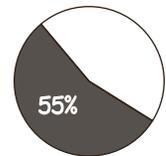
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Lesson Discussion Questions
What happens when you multiply a number with a zero in it? How does place value affect a math problem?

Materials
- Box Method Multiplication blackline master
- Box Method Cards, Sets 1–6
- Whiteboards
- Dry-erase markers and erasers

Small-Group Lesson
Work again to ensure students can follow the correct order for a box method problem. Use the Box Method Cards. Continue to use pre-made fill-in-the-blank boxes in a clear sleeve to save paper. Some students may benefit from a multiplication chart in order to keep from becoming frustrated with their facts.

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Remediate
Keep the numbers in a range that works for your students. Allow students to use a multiplication chart.

On Level
Model, monitor, and assist as needed.

Enrich
Allow students to try the box method with three- and four-digit numbers. See if they can make the box correctly independently.

Box Method Multiplication

EXAMPLE ONE

$23 \times 19 =$ _____

1. Multiply each place value with the other place values.

2. Then add each column.

3. Finally, add the two sums to find the product.

	20	3
10		
9		

EXAMPLE TWO

$54 \times 38 =$ _____

1. Multiply each place value with the other place values.

2. Then add each column.

3. Finally, add the two sums to find the product.

	50	4
30		
8		