InsightMath

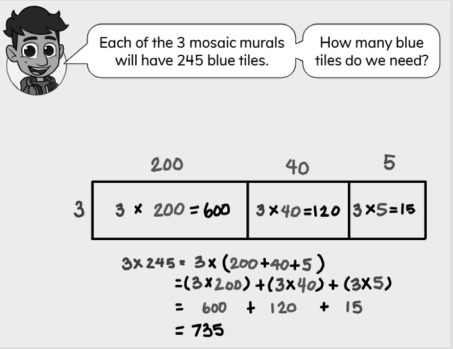
# Building Multiplication Strategies

Family Guide | Grade 4 | Unit 4

**Your student is exploring how using known facts and place value properties flexibly is helpful to perform multidigit multiplication strategically and efficiently.**

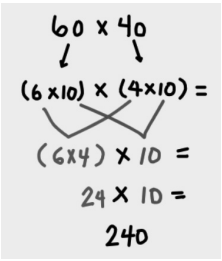
## Key Math Ideas

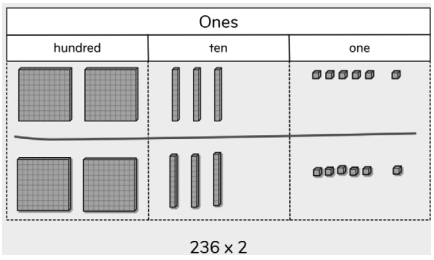
In this unit, students continue building on what they learned about multiplication in earlier units and grades. They build on their understanding of multiplying one-digit numbers and develop more efficient ways to multiply large numbers using place value understanding and number properties. Students will learn to break numbers apart strategically, giving them different approaches to solve multidigit multiplication problems. They will become flexible problem solvers who can choose the best method for solving a problem, whether breaking the number into place value parts, adjusting numbers to make them easier to work with, or using other strategies based on number relationships.




### → In the first half of the unit, your student will learn to

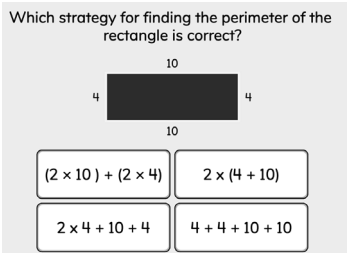
- write one-digit multiples of a power of 10 in different ways based on place value, such as 80,000 = 8,000 tens = 800 hundreds = 80 thousands = 8 ten thousands;
- explain how parentheses are used to show thinking about how numbers are grouped together, as shown in the example to the right showing how 60 × 40 can be represented;
- multiply a one-digit number by a multiple of a power of 10, such as 8 × 9,000;
- multiply two 2-digit multiples of ten, such as 60 × 40;
- use place value blocks to multiply a one-digit number by a multidigit number, such as 236 × 2 (as shown in the example to the right);
- use an area model to multiply a one-digit number by a multidigit number, such as 3 × 1,674;

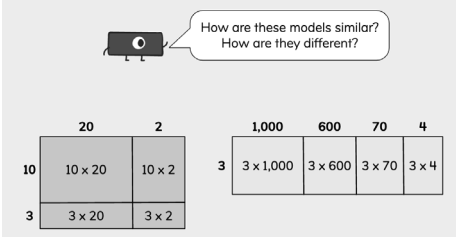



### → In the second half of the unit, your student will learn to

- multiply two 2-digit numbers, such as 62 × 7; using a variety of strategies such as open area models;
- find perimeter in different ways and use them to discover formulas for perimeter;
- solve multistep word problems that involve multiplication and other operations.




Showing multiplication in open area models.

## Helpful Hint

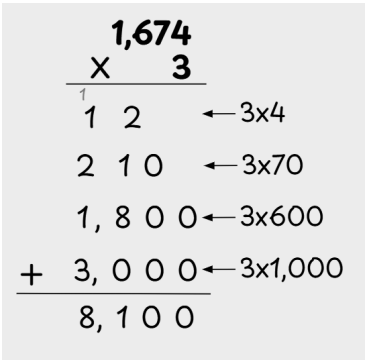
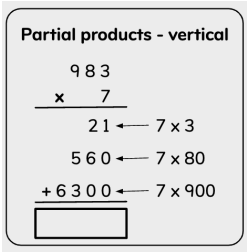
There are many different ways to model and solve multiplication problems. Encourage your student to share what they notice about the numbers in the problem before solving to help them choose an efficient multiplication strategy.

# Tips for Supporting Your Student at Home

## Questions to Ask Your Student

**→ In the first half of the unit:**

- What do you estimate the product will be? Why?
- What multiplication facts do you know that can help you solve this problem?
- How can you decompose the large number to help you multiply?
- Why is it helpful to decompose a number into place value parts when multiplying large numbers?
- What strategy did you use to solve the problem? What did you do [first; next]?
- How does your area model represent the problem?
- How does your work show the steps you went through to solve?

| If... | Try... |
|---|---|
| your student does not properly align digits when adding partial products vertically . . .  | drawing vertical lines between the digits to help show alignment, or providing your student with grid paper. Remind them that digits with the same place value should be vertically aligned (for example, all digits in the ones place are lined up).  |





## Student Strengths Spotlight

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| **I take time to understand the problem and look for entry points.** | Students spend time to break down the problem and try to look for the known quantities in the problem. |
| **I make a plan to solve a problem and adapt my plan if I need to.** | Before solving problems, students take time to make a plan and then are able to change the plan if needed. |
| **I ask my classmates to clarify their reasoning.** | If the student is not able to follow the explanation given by their classmates, they ask for further clarification. |

## Try This Together!

- **How Close Can You Get?** Give your student a number and then ask them to use a calculator to try to get as close to that number as possible by multiplying two numbers. Start with a two-digit number (such as 87) and work up to larger numbers (such as 1,284). Ask, "What two numbers will you try first? Why?" After they have multiplied two numbers ask, "What two numbers will you try next? Why?"
- **Dice Game.** Have your student use dice to find their own numbers to practice multiplication. They can roll the dice once, twice, or three times to make one-, two-, and three-digit numbers (ensure they are multiplying one-digit numbers by two or three-digit numbers or multiplying two 2-digit numbers). Have them record that number and then roll the dice again to find and record another multi-digit factor. After they record the numbers, have your student multiply the two numbers using a strategy of their choice. Ask them to use place value to help explain the strategy they used.
- **Fluency with Single Digit Multiplication.** Look for opportunities for your student to continue practicing their single-digit multiplication facts as this is the foundation for being able to efficiently multiply larger numbers. For example, while at the grocery store, ask your student what the price would be to buy multiple of an item. For example, "This bag of oranges costs about $6. How much will 7 bags of oranges costs? How do you know?"