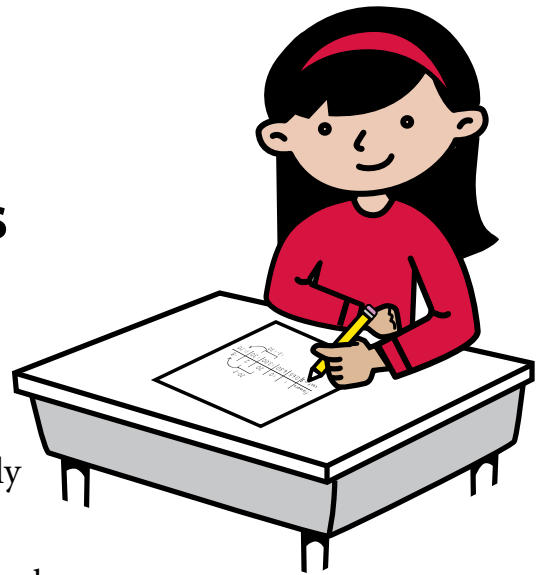


Multiplying & Dividing Whole Numbers & Decimals

In this unit, your student will:

- Use a variety of strategies for multiplying and dividing multidigit whole numbers
- Practice using the standard algorithm to multiply multidigit whole numbers
- Begin multiplying and dividing with decimal numbers



Your student will practice these skills by solving problems such as these:

PROBLEM	COMMENTS												
<p>Mrs. Kerr has a sale on juice. The bottles of juice sell for \$3.25 per bottle. How much do 13 bottles of juice sell for?</p> <table border="1" data-bbox="203 1008 730 1291"> <thead> <tr> <th>bottles</th><th>sale price, in \$</th></tr> </thead> <tbody> <tr> <td>1</td><td>3.25</td></tr> <tr> <td>10</td><td>32.50</td></tr> <tr> <td>2</td><td>6.50</td></tr> <tr> <td>3</td><td>9.75</td></tr> <tr> <td>13</td><td>42.25</td></tr> </tbody> </table> <p> $10 \times 3.25 = 32.50$ $3 \times 3.25 = 9.75$ $32.50 + 9.75 = 42.25$ The 13 bottles of juice cost \$42.25. </p>	bottles	sale price, in \$	1	3.25	10	32.50	2	6.50	3	9.75	13	42.25	<p>When you were a math student, you might have seen a problem like this solved using the standard algorithm, as shown here.</p> <div data-bbox="1266 903 1404 1102"> $\begin{array}{r} 1 \\ 3.25 \\ \times 13 \\ \hline 975 \\ 3250 \\ \hline \\$42.25 \end{array}$ </div> <p>Using a ratio table to keep track of partial products (like $10 \times 3.25 = 32.50$) helps students stay focused on the context of the problem and the value of the numbers in the problem while also building their estimation skills with decimal numbers.</p>
bottles	sale price, in \$												
1	3.25												
10	32.50												
2	6.50												
3	9.75												
13	42.25												
<p>Fill in the blanks to complete the problem.</p> $\begin{array}{r} 27 \\ \times 14 \\ \hline 108 \\ \times 270 \\ \hline 378 \end{array}$ <p>Use the standard algorithm to solve the problem.</p> $\begin{array}{r} 34 \\ \times 28 \\ \hline 272 \\ \times 680 \\ \hline 952 \end{array}$	<p>Students will learn the steps and meaning of the standard algorithm for whole number multiplication and will practice using it.</p> <p>For most multiplication problems in the unit, students can choose whether to use the standard algorithm or another strategy.</p>												

PROBLEM	COMMENTS
<p>Mrs. Perez's class sold flowers as a spring fundraiser. Each flower cost \$0.65. So far the class has collected \$11.70 in all. How many flowers has the class sold?</p> <p>18 flowers were sold for the fundraiser. $\\$0.65 \times 18 = \\11.70. (That also means $\\$11.70 \div \\$0.65 = 18$)</p>	<p>A ratio table can also be drawn horizontally. This ratio table is used to solve a division problem involving whole numbers and decimals. The ratio table allows students to figure out and keep track of multiplication facts they will need to divide.</p> <p>Using multiplication to divide reinforces the inverse relationship between multiplication and division. Because students are encouraged to continue thinking about the context of the problem as they work, the ratio table helps students maintain focus on the magnitude of the numbers in the problem.</p>

For additional support, you can use the Math Vocabulary Cards app at apps.mathlearningcenter.org.

Frequently Asked Questions About Unit 4

Q: This approach to multiplication and division is new to me. Why have kids use so many different strategies when they can use the algorithms instead?

A: An algorithm is a set of steps used to perform a particular calculation. Algorithms are important because when they are used accurately, they are reliable and universally applicable. Difficulties arise when students attempt to use an algorithm for multiplying or dividing without having first become proficient with foundational facts, when they don't understand why the algorithm works, when they forget the steps, or when they can perform the steps but have not estimated to know whether their final answer is reasonable. This unit employs the area model and other strategies to help students build a strong understanding of how different strategies, including algorithms, work. The goal is to help students develop many effective computational strategies, including the standard algorithms.

Q: How can I support my student's learning?

A: To support your student in learning mathematics, you can:

- Visit mathathome.mathlearningcenter.org and work through some or all of the activities in Grade 5: Set 4 together. These activities complement the learning that takes place in the classroom during Unit 4 and provide fun ways to engage children in mathematical thinking. This set also includes digital versions of games that your student has learned at school, such as Parentheses Power and Least Remainder Wins.
- If you use other strategies or algorithms to multiply numbers, discuss these with your student and compare them to the standard U.S. algorithm and the other strategies and models your student uses in school.
- Visit apps.mathlearningcenter.org and invite your student to explore the Partial Product Finder app. This can help you and your student see how partial products can be used to solve multiplication or division problems involving whole numbers.
- Find or create new multiplication and division problems for your student to solve. Look for opportunities to invite your student to use the news or books you read together as mathematical context or to help you budget and shop each month.