

Unit 5

Family Letter

Reveal
MATH[®]

Dear Family,

In this unit, Multiply Multi-Digit Whole Numbers, your child will learn how to estimate products, multiply whole numbers by powers of 10, and find the products of multi-digit numbers.

STEM Career Kid for this Unit

Hi, I'm Owen.

I want to be an entomologist. I will use math in my job when I study populations of insects. I will show students how I will multiply multi-digit numbers in this unit.



What math terms will your child use?

Term	Student Understanding
base	The factor that is repeated in a power
exponent	the number of times the base is used as a factor in a power; For example, in the expression 10^3 , the exponent is 3.
power of 10	a number such as 10, 100, or 1,000 that results from using only 10 as a factor; For example, 1,000 is a power of 10 because $10 \times 10 \times 10 = 1,000$.
standard algorithm	a particular math process used to solve a problem which provides a correct solution every time



What can your child do at home?

Throughout this unit, help your child practice multiplying multi-digit numbers. Provide experience with multiplying 1-digit numbers by up to 4-digit numbers, as well as 2-digit numbers by up to 4-digit numbers. The more your child practices multiplying, the easier the procedure will become.

What Will Students Learn in This Unit?

Multiplying by Powers of 10

Your child will find a pattern when multiplying by powers of 10. When 10 is multiplied by itself a number of times, the product is called a power of 10. When multiplying a number by a power of 10, the product becomes 10 times greater for each power of 10.

$$15 \times 10^1 = 15 \times 10 = 150$$

$$15 \times 10^2 = 15 \times 100 = 1,500$$

$$15 \times 10^3 = 15 \times 1,000 = 15,000$$

Using Area Models and Partial Products

Your child will use area models to represent multiplication of multi-digit factors. The place value of each digit is used to find the area of the smaller rectangles, which are the partial products. Then these partial products are added to find the total product.

Example:

A clothing store is 57 feet long and 43 feet wide. What is the area of the clothing store?

		57	
		50	+ 7
43	40	2,000	280
	+ 3	150	21

Add the partial products.

$$2,000 + 280 + 150 + 21 = 2,451$$

The area of the clothing store is 2,451 square feet.

Using Partial Products and the Algorithm

Your child will learn the algorithm for multiplying by using the place values of each digit to find the partial products.

$$\begin{array}{r} 143 \\ \times 26 \\ \hline 20 \times 100 = 2,000 \\ 20 \times 40 = 800 \\ 20 \times 3 = 60 \\ 6 \times 100 = 600 \\ 6 \times 40 = 240 \\ 6 \times 3 = + 18 \\ \hline 3,718 \end{array}$$

← Add the partial products.