

Grade 4 Module 3

Tips for Families

Key Concepts Overview

Focus TEKS: **4.4B, 4.4C, 4.4D, 4.4E, 4.4F, 4.4H, 4.5A, 4.5C, 4.5D**

The focus of Module 3 is using place value understanding and visual representations to solve multiplication and division problems with multi-digit numbers. Your student will:

- ☐ Use **formulas** to find the area, perimeter, and unknown side length(s) of a rectangle.
- ☐ Multiply a whole number by 10, 100, or 1,000 (e.g., $5 \times 1,000$) and multiply a whole number by multiples of 10, 100, and 1,000 (e.g., $5 \times 5,000$).
- ☐ Use an area model to represent the multiplication of a two-digit multiple of 10 by a two-digit multiple of 10 (e.g., 40×40).
- ☐ Multiply one-digit numbers by numbers with up to four digits by using the standard algorithm, the partial products method, and the area model.
- ☐ Solve multi-step word problems by using a combination of addition, subtraction, and multiplication.
- ☐ Divide up to four-digit numbers by one-digit numbers by using place value disks, arrays, area models, and **long division**.
- ☐ Solve division word problems with **remainders**.
- ☐ Use the **associative property** to rewrite multiplication expressions.
- ☐ Solve two-digit by two-digit multiplication problems by using area models, **partial products**, the **distributive property**, and the standard algorithm.

You can use the checklist above to help monitor your student's progress of the knowledge and skills in this module. Daily sample problems with solutions and thought bubbles are found in the Homework Helper pages in the Succeed Student Edition to help you support your student as they work at home.

Additional Ways to Help at Home

- With your student, identify rectangular shapes (e.g., window, door, top of table, top of dresser, cookie sheet, place mat, rug). Ask him to use a tape measure or a ruler to measure the length and the width of each rectangle to the nearest inch. Then have him find the area and perimeter of each rectangle. Keep in mind that he might need to use a calculator if the numbers are large.
- Create a game to practice multiplication facts with your student. Each of you will need ten index cards or small pieces of paper. Number the cards so each of you has one card for each digit (0–9). Place the cards face down in a pile. One player picks up two cards. The other player has to multiply the numbers shown on the two cards. Switch roles. See how many problems you can complete in one minute.



- Write five multiplication expressions of a one-digit number times a two-, three-, or four-digit number. Before your student solves each expression, prompt her to roll a die or use a random number generator on a smartphone to determine which method to use: 1 means using a standard algorithm, 2 means using partial products, 3 means using an area model, 4 means she can choose the method, 5 means you have to solve, 6 means she can use a calculator.
- Ask your student to draw and label a place value chart. Create a four-digit number on the chart, using cereal or raisins for disks. Ask him to use his “disks” to demonstrate how to divide the number by 2, 3, or 4.

Terms

Associative property of multiplication (*Propiedad asociativa*): the process of grouping factors in different ways does not change the product

$$\begin{aligned} &10 \times 3 \times 5 \\ &= (10 \times 3) \times 5 \\ &= 10 \times (3 \times 5) \end{aligned}$$

Distributive property (*Propiedad distributiva*): the process of distributing the value of a number with a set of given numbers within parentheses

$$\begin{aligned} &4 (300 + 10 + 6) \\ &= (4 \times 300) + (4 \times 10) + (4 \times 6) \end{aligned}$$

Equation (*Ecuación*): a statement that two expressions are equal

$$\begin{array}{ccc} 30 \times 4 = 120 & & 5,000 \div 1,000 = 5 \\ \swarrow \quad \nearrow \quad \uparrow & & \swarrow \quad \nearrow \quad \uparrow \\ \text{factors} \quad \text{product} & & \text{divisor} \quad \text{quotient} \end{array}$$

Long division: the process of dividing by using several recorded steps

$$\begin{array}{r} 22 \\ 3 \overline{) 68} \\ \underline{-6} \\ 08 \\ \underline{-6} \\ 2 \end{array} \quad \leftarrow \text{remainder}$$

Partial product: the resulting products when decomposing one factor in a two-factor multiplication expression and multiplying each part by the other factor

	3	+	10	
3	3×3		3×10	
+	9		30	
	10×3		10×10	
10	30		100	

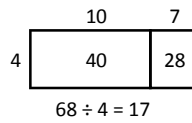
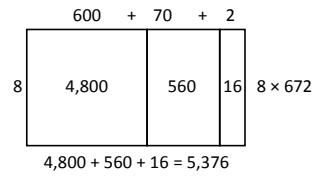
	13
$\times$	13
9	
30	
30	
100	
169	

4 partial products



Models

Area Model



Place Value Chart

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

Strip Diagram

