

# LETTER HOME

## Multiplication, Division, and Volume

Dear Family Member:

In this unit, students will return to the study of multiplication and division. Students solve problems involving multiplying two-digit by one-digit numbers, for example,  $73 \times 5$ . They also extend their division skills.

In the previous multiplication units, students developed their understanding of *what* multiplication is and *when* it can be used to solve a problem. Here, our focus is on *how* to multiply. There are three important types of computing: mental, calculator, and paper and pencil. This unit introduces a paper-and-pencil method.

The all-partials method for multiplying taught here is different from the traditional method. For example, many people solve a problem like  $37 \times 4$  as shown by the compact method. In the all-partials method, every product is written down:

compact method

$$\begin{array}{r} \phantom{0}^2 \\ 37 \\ \times 4 \\ \hline 148 \end{array}$$

all-partials method

$$\begin{array}{r} 37 \longrightarrow \text{Think "30 + 7"} \quad \text{Step 1} \\ \times 4 \\ \hline 120 \longleftarrow \text{Multiply } 4 \times 30 \quad \text{Step 2} \\ + 28 \longleftarrow \text{Multiply } 4 \times 7 \quad \text{Step 3} \\ \hline 148 \longleftarrow \text{Add } 120 + 28 \quad \text{Step 4} \end{array}$$

By showing each step, students further develop their understanding of the multiplication process.

Students apply their knowledge of the four operations as they learn to measure volume using a graduated cylinder.

Help your child at home:

**Solve Problems.** Talk about problems that come up in everyday life. For example, “If gas costs \$3.50 per gallon, how much does 5 gallons cost?” or “If eggs cost 99¢ cents a dozen, about how much do 3 dozen cost?” Encourage your child to develop mental methods such as  $99¢ \times 3$  is the same as  $100¢ \times 3 - 3¢$  or \$2.97.

**Volume Hunt.** Ask your child to help you find containers that hold cups, pints, quarts, or gallons.

**Write Multiplication Stories for Larger Numbers.** Ask your child to write a multiplication story and draw a picture for that story. Have them use mental math strategies to solve it.

## Math Facts and Mental Math

This unit concludes the systematic review and assessment of the multiplication facts in Grade 3.

**Multiplication Facts.** Students review the last six multiplication facts ( $4 \times 6$ ,  $4 \times 7$ ,  $4 \times 8$ ,  $6 \times 7$ ,  $6 \times 8$ ,  $7 \times 8$ ) to increase fluency and to learn to apply multiplication strategies to larger numbers. Students are also assessed on their fluency with all the multiplication facts.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For Facts I Need to Learn, work on strategies for figuring them out.

Good strategies include:

Doubling. To solve  $4 \times 6$ , think  $2 \times 6 + 2 \times 6 = 12 + 12$ , so  $4 \times 6 = 24$ .

Skip Counting. To solve  $5 \times 4$ , count: 5, 10, 15, 20.

Reasoning From Known Facts. To solve  $6 \times 7$ , I used  $6 \times 6$ .  $6 \times 6 = 36$  and  $6 \times 7$  is 6 more.  $36 + 7 = 42$ , and  $6 \times 7 = 42$ .

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to multiply 10s and 100s:  $40 \times 8 = 3200$ ,  $700 \times 8 = 5600$ ,  $6 \times 700 = 4200$ .

Thank you for taking the time to talk with your child about what he or she is doing in math.

Sincerely,