

# LETTER HOME

## Patterns in Multiplication

Dear Family Member:

One of our main goals is that your child learns to calculate accurately and flexibly. Your child should not only know *how* to calculate, but also what calculations make sense and when to use them. Students need to realize that there are often many different ways to find the answer to a math problem and that sometimes only an estimate is needed while other situations call for an exact answer.

Estimation is an important part of this unit. Students use patterns to calculate with tens and hundreds to make mental calculations easier. Rounding numbers to the nearest tens, hundreds, or thousands place is one way of selecting a convenient number to use in estimating.

In Unit 4, students multiplied 2-digit numbers by single-digit numbers such as  $37 \times 4$ . In this unit, they extend the methods they learned to larger numbers.

Use of different methods drives home the fact that there is no “one size fits all” in multiplication. A mental math strategy may be appropriate for  $299 \times 4$ ; a paper-and-pencil method may make more sense for  $552 \times 6$ . Some students may be more comfortable using the compact method, while others prefer the all-partials. Using the expanded form may help another student better understand multiplication and consequently make fewer mistakes, no matter which method he uses. Encourage your child to use the method that makes sense to him or her.

You can help your child at home:

**Encourage Estimation.** For example, in the grocery store, ask questions such as: “About how much will two loaves of bread cost?” or “Will \$10 be enough to pay for 3 gallons of milk?”

**Divisibility Rules.** Ask your child to describe the divisibility rules they developed for the 2s, 3s, 5s, and 9s.


**Play Operation Target Game.** In this game, four digits and all the operations are used to make numbers. For example, use the numbers 3, 4, 5, 6. What is the largest number you can make? What is the smallest? Directions are in the *Student Guide* in Lesson 1.

**Play the Multiplication Digits Game.** In this game, students draw numbers from a set of Digit Cards 0–9 and place the digits on a multiplication playing board. The person who makes the largest product is the winner. Directions are in the *Student Activity Book*.

| Expanded Form   | All-Partials  | Compact  |
|---|---|--|
| $\begin{array}{r} 552 = 500 + 50 + 2 \\ \times 6 \quad \quad \quad \times 6 \\ \hline 3000 + 300 + 12 = 3312 \end{array}$ | $\begin{array}{r} 552 \\ \times 6 \\ \hline 12 \\ 300 \\ 3000 \\ \hline 3312 \end{array}$ | $\begin{array}{r} \phantom{0}^3 1 \\ 552 \\ \times 6 \\ \hline 3312 \end{array}$ |

Solving a problem using different paper-and-pencil methods.

$$\begin{aligned} 299 \times 4 &= (300 \times 4) - 4 \\ &= 1200 - 4 \\ &= 1196 \end{aligned}$$



Solving a problem using a mental math strategy.

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## Math Facts and Mental Math

This unit continues the systematic review and assessment of the division facts.

**Division Facts.** Students review the division facts for 2s and 3s to maintain and increase fluency and to learn to apply multiplication and division strategies to larger numbers.

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 the Facts I Need to Learn, work on strategies for figuring them out. Good strategies include:

Start with the multiplication fact. If your child does not know the multiplication fact related to the division fact, start by developing strategies to solve that multiplication fact.

Turn-around facts. To solve  $30 \div 3$ , I know  $3 \times 10 = 30$ . So  $30 \div 3 = 10$ .

Skip counting. To solve  $14 \div 2$ , skip count 2, 4, 6, 8, 10, 12, 14. So  $14 \div 2 = 7$  since it took 7 skips to get to 14.

Reasoning from known facts. To solve  $12 \div 2$ . I know  $6 + 6 = 12$ . So  $12 \div 2 = 6$ .

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:  
 $600 \div 20 = 30$ ,  $120 \div 3 = 40$ ,  $2100 \div 300 = 7$ .

Please contact me if you have any questions or concerns.

Sincerely,