# LETTER HOME

Place Value and Large Numbers

Dear Family Member:

Have you ever said: *"I've got a million things to do,"* or *"I've told you a million times. . . "*? Through the activities in this unit, students will learn about what a million really is as they explore patterns in our place value system. Students will complete hands-on activities to help them "see" 1,000,000.

The class will use round numbers to answer questions that do not require an exact answer. Much of the math we do in life requires making good estimates quickly, rather than computing exactly. As with most skills, students need lots of practice to get better with estimation.

You can help your child at home in the following ways:
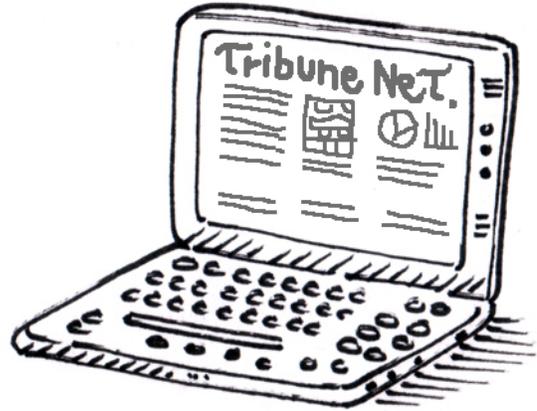
Large Numbers on Display. Ask your child about the Newswire display in the classroom. Help your child find articles in the newspaper or on the internet that include large numbers. Practice reading these numbers with your child. He or she can take these numbers to school to add to the Newswire.

Doubling Problem. Ask your child to describe the problem that involves grains of wheat in Lesson 3. This is a classic problem and offers students the opportunity to analyze relationships in a pattern. Find related or similar stories at the library.

Mystery Jars in the World. In class, students will estimate the quantity of items in Mystery Jars using a reference number of items. Provide similar opportunities for your child with authentic contexts. If you travel, estimate the number of miles you will travel or the amount of time your trip will take. If you attend a ball game or concert, estimate the number of people attending.

Play Draw, Place, Read. One player is the caller and draws seven cards from a set of Digit Cards 0–9. After each draw, players place the digit on a Place Value Chart. Once placed, a digit cannot be moved. The player that makes and reads the largest number wins that round. Directions are in the *Student Activity Book*.

Largest Number

Millions Period			Thousands Period			Ones Period		
		8	9	5	3	2	0	1

Math Facts and Mental Math

This unit concludes the systematic review and assessment of the multiplication facts and begins the review and assessment of the division facts.

Multiplication Facts. Students review all the multiplication facts to maintain and increase fluency and to learn to apply multiplication 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 and focus on only those facts your child needs to learn. 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. If there are many multiplication facts that they still need to learn, divide them into smaller groups of facts. Choose groups of facts that lend themselves to the use of the same strategy and focus on one group at a time.

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. You can also help your child extend and deepen their understanding by asking them to choose a multiplication fact that was difficult to learn and describe the strategies they used for learning the fact.

Division Facts. Students review the division facts for 5s and 10s 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:

Skip counting. To solve $40 \div 5$, skip count: 5, 10, 15, 20, 25, 30, 35, 40 and count the skips. It took 8 skips to land on 40. $40 \div 5 = 8$.
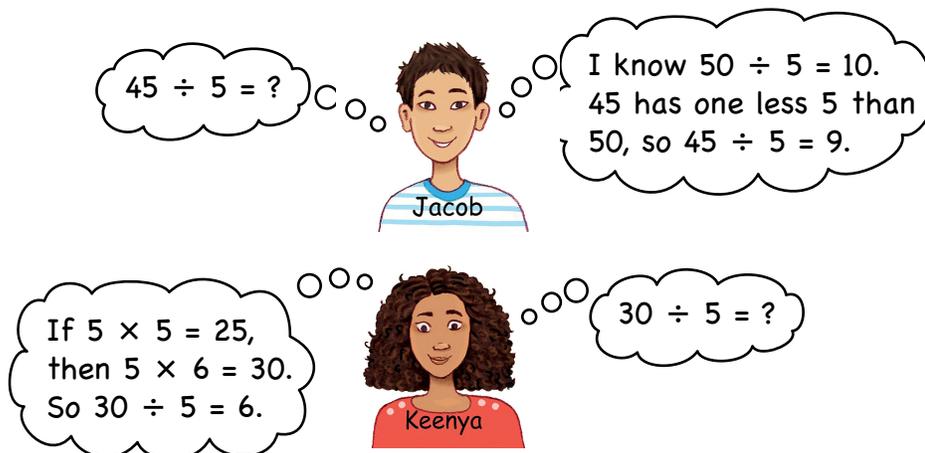
Reasoning from known facts. To solve $40 \div 5$: $20 \div 5$ is 4, so $40 \div 5$ is double 4. $40 \div 5 = 8$.

Turn-around facts. $80 \div 10 = 8$ because I know $10 \times 8 = 80$.

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:
$600 \div 10 = 60$; $350 \div 5 = 70$; $10{,}000 \div 5000 = 2$

> 45 ÷ 5 = ?

Jacob: I know 50 ÷ 5 = 10. 45 has one less 5 than 50, so 45 ÷ 5 = 9.

Keenya: If 5 × 5 = 25, then 5 × 6 = 30. So 30 ÷ 5 = 6.

> 30 ÷ 5 = ?

Grade 4 Math Facts Overview

The goal of the math facts development in *Math Trailblazers* is for students to learn the basic facts efficiently, gain fluency with their use, and retain that fluency over time. A large body of research supports an approach in which students develop strategies for figuring out the facts rather than relying on rote memorization. This not only leads to more effective learning and better retention, but also to the development of mental math skills. In fact, too much drill before conceptual understanding may interfere with a child's ability to understand concepts at a later date. Therefore, the teaching of the basic facts in *Math Trailblazers* is characterized by the following elements:

Use of Strategies. Students first approach the basic facts as problems to be solved rather than as facts to be memorized. In all grades, students are encouraged to use strategies to find facts, so they become confident that they can find answers to fact problems that they do not immediately recall. In this way, students learn that math is more than memorizing facts and rules which "you either get or you don't."

Distributed Facts Practice. Students study small groups of facts that can be found using similar strategies. In fourth grade, they review division facts (fact families) to maintain or gain fluency starting in Unit 6. See Figure 1.
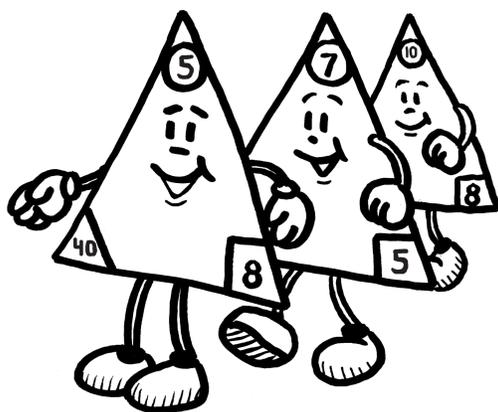
Unit	Division Facts Group
6	5s and 10s
7	2s and 3s
8	9s
9	Square Numbers
10	Last Six Facts
11	Last Six Facts
10	Review all division facts

Figure 1: *Development of division facts in Grade 4*

Practice in Context. Students continue to practice the facts as they use them to solve problems, investigate math concepts, and play math games.

Appropriate Assessment. Students are regularly assessed to see if they can find answers to facts problems quickly and accurately and retain this skill over time. They take a short quiz on each group of facts. Students record their progress on *Facts I Know* charts and determine which facts they need to study.

A Multiyear Approach. In Grades 1 and 2, the curriculum emphasizes the use of strategies that enable students to develop proficient strategies for the addition and subtraction facts by the end of second grade. In Grade 3, students review the subtraction facts and develop proficiency with the multiplication facts. In Grade 4, the addition and subtraction facts are checked, the multiplication facts are reviewed, and students develop fluency with the division facts. In Grade 5, students review the multiplication and division facts.

Facts Will Not Act as Gatekeepers. Use of strategies and calculators allows students to continue to work on interesting problems and experiments while learning the facts. They are not prevented from learning more complex mathematics because they do not have quick recall of the facts.

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

Sincerely,