# LETTER HOME

Think About Addition and Subtraction

Dear Family Member:

What do twins, feet, gloves, and wings all have in common? These are just some examples of familiar things that come in pairs, or doubles. Over the next two weeks, your child will double numbers to solve a variety of problems.

This unit continues to develop strategies for learning basic math facts and computing larger numbers. We focus on several strategies including doubling, halving, making ten, and reasoning from facts already known.

Doubling is a natural strategy that many children easily develop. Children tend to remember doubles ($5 + 5$, $12 + 12$, and so on) with little difficulty. Your child can use his or her knowledge of $12 + 12$, for example, to solve a problem that is a "near double," such as $12 + 11$. Halving, or finding half of a number, is a strategy closely related to doubling. Doubling and halving numbers also helps prepare your child to learn multiplication and division.

The making-ten strategy builds on your child's experience with partitioning numbers and with using ten frames. To solve a problem such as $8 + 5$, a child learns to recogize that 8 plus 2 more will make ten. Then the problem changes as follows:
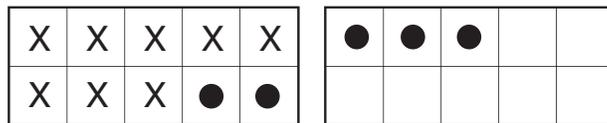
$$8 + 5 = 8 + 2 + 3 = \boxed{8 + 2} + 3 = 10 + 3 = 13$$

Using making-ten to solve a problem

You can provide addition support at home by doing activities such as the following:

- **Move It to Make Ten.** Use the *0–10 Small Ten Frame Cards* to practice using the make-ten strategy to solve addition problems. Show your child two cards and ask what they would move to make ten.

- **Play How Many in the Bag.** Gather up to 20 counters and place them in a bag or container your child cannot see into. Tell them how many counters are in the bag and then grab a handful of counters. Ask your child to count them, and then ask them how many counters are left in the bag.

Math Facts and Mental Math

Students' fluency with addition facts in Group A and the related subtraction facts will be assessed in this unit.

Group A:

You can help your child review these facts using the flash cards the teacher sent home or by making a set of flash cards from index cards or scrap paper. Study the 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.

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 strategies to solve problems like these using mental math: $23 + 2, 12 + 3, 24 - 2$

Grade 1 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 facts 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 first grade, they practice the addition facts with sums to ten, then the related subtraction facts to those facts, then all the addition facts. See Figure 1.

Unit	Subtraction Facts	Focus
12	Group A	Use strategies fluently for facts with sums to ten. Develop mental math strategies and number sense and solve fact families for facts with sums more than ten.
13	Group B	
14	Group C	
15	Group D	
16	Group E	
17	Group F	

Figure 1: *Development of addition facts and the related subtraction facts in Grade 1*

Practice in Context. Students continue to practice all 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. Since Unit 9, students have recorded their progress on *Addition Facts I Know* charts and have determined which facts they need to study.
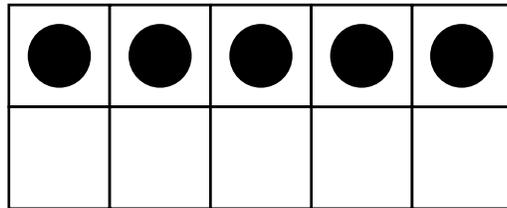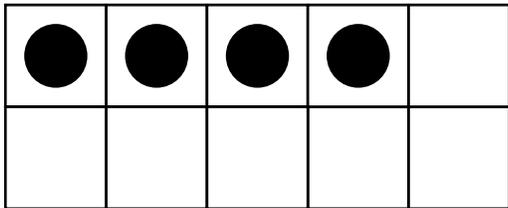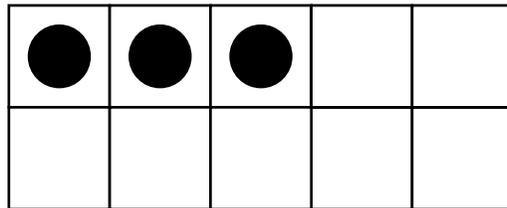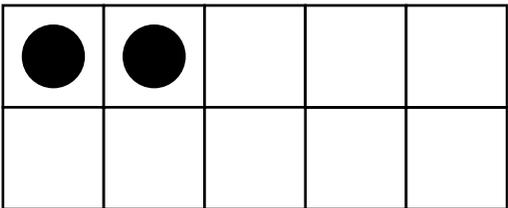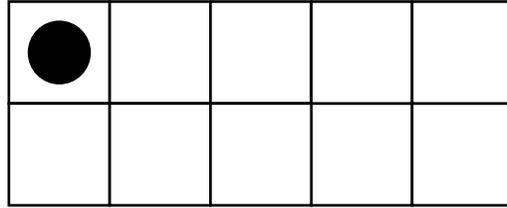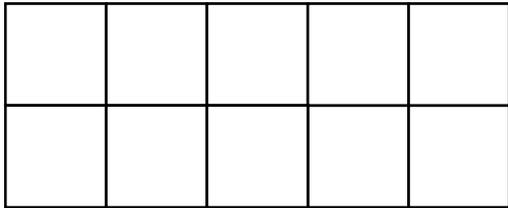
A Multiyear Approach. In Grades 1 and 2, the curriculum emphasizes the use of strategies that enable students to develop proficiency with addition and subtraction facts by the end of second grade. Students focus on gaining proficiency with the facts with sums to ten in Grade 1 and on facts with sums more than 10 in Grade 2. 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 allow students to continue to work on interesting problems and experiments while learning the facts. Lacking quick recall of the facts does not prevent students from learning more complex mathematics.

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

Sincerely,

0–10 Small Ten Frame Cards