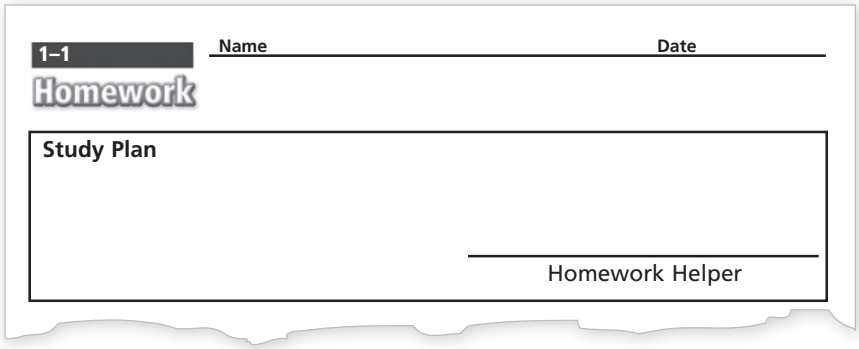
Dear Family,

In this unit and the next, your child will be practicing basic multiplications and divisions. *Math Expressions* incorporates studying, practicing, and testing of the basic multiplications and divisions in class. Your child is also expected to practice at home.

Homework Helper Your child will have math homework almost every day. He or she needs a Homework Helper. The helper may be anyone — you, an older brother or sister (or other family member), a neighbor, or a friend. Please decide who the main Homework Helper will be and ask your child to tell the teacher tomorrow. Make a specific time for homework and provide your child with a quiet place to work.

Study Plans Each day your child will fill out a study plan, indicating which basic multiplications and divisions he or she will study that evening. When your child has finished studying (practicing), his or her Homework Helper should sign the study plan.


1–1 Homework

Name _____ Date _____

Study Plan

_____
Homework Helper

Practice Charts Each time a new number is introduced, students' homework will include a practice chart. To practice, students can cover the products with a pencil or a strip of heavy paper. They will say the multiplications, sliding the pencil or paper down the column to see each product after saying it. Students can also start with the last problem in a column and slide up. It is important that your child studies count-bys and multiplications at least 5 minutes every night. Your child can also use these charts to practice division on the mixed up column by covering the first factor.

	In Order	Mixed Up
5s	1 × 5 = 5	9 × 5 = 45
	2 × 5 = 10	5 × 5 = 25
	3 × 5 = 15	2 × 5 = 10
	4 × 5 = 20	7 × 5 = 35
	5 × 5 = 25	4 × 5 = 20
	6 × 5 = 30	6 × 5 = 30
	7 × 5 = 35	10 × 5 = 50
	8 × 5 = 40	8 × 5 = 40
	9 × 5 = 45	1 × 5 = 5
	10 × 5 = 50	3 × 5 = 15

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Family Letter

To help students understand the concept of multiplication, the *Math Expressions* program presents three ways to think about multiplication.

- **Repeated groups:** Multiplication can be used to find the total in repeated groups of the same size. In early lessons, students circle the group size in repeated-groups equations to help keep track of which factor is the group size and which is the number of groups.

4 groups of bananas

$4 \times (3) = 3 + 3 + 3 + 3 = 12$

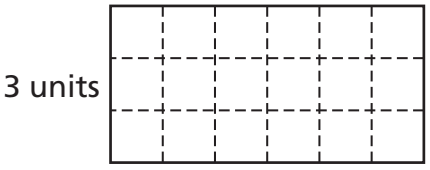
- **Arrays:** Multiplication can be used to find the total number of items in an *array*—an arrangement of objects into rows and columns.

5 columns

2 rows 2-by-5 array

2 rows of pennies $= 2 \times 5 = 10$

- **Area:** Multiplication can be used to find the area of a rectangle.



Area: 3 units × 6 units = 18 square units

Please call if you have any questions or comments.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.9, Measurement and Data, 3.MD.5a, 3.MD.5b, 3.MD.7a, 3.MD.7b, 3.MD.7c, 3.MD.7d, and all Mathematical Practices.

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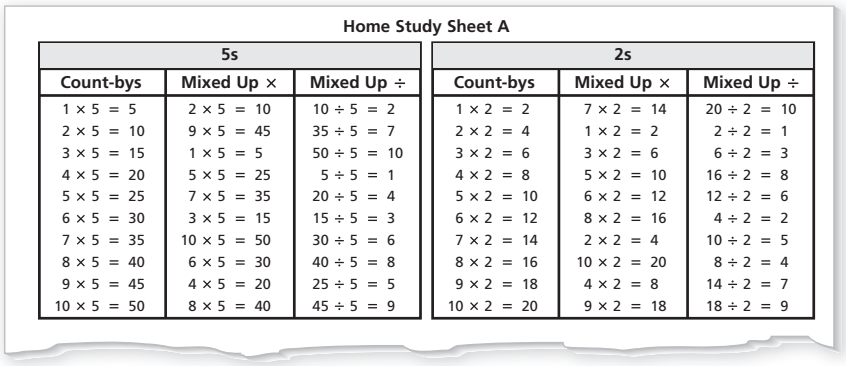
Family Letter

Dear Family,

In addition to practice charts for the basic multiplications and divisions for each of the numbers 1 through 10, your child will bring home a variety of other practice materials over the next several weeks.

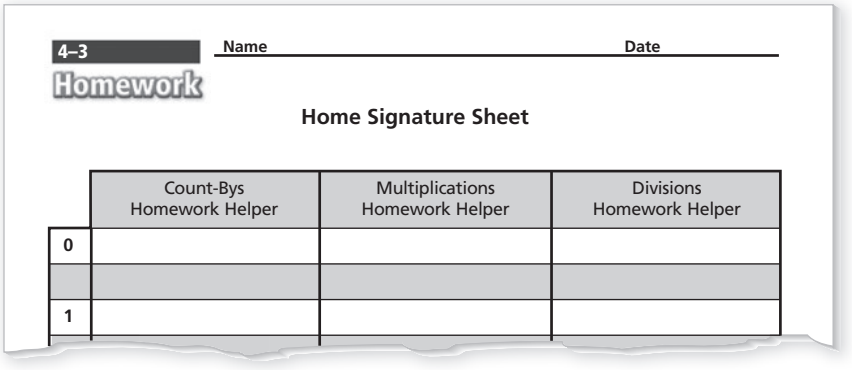
- **Home Study Sheets:** A Home Study Sheet includes 3 or 4 practice charts on one page. Your child can use the Home Study Sheets to practice all the count-bys, multiplications, and divisions for a number or to practice just the ones he or she doesn't know for that number. The Homework Helper can then use the sheet to test (or retest) your child. The Homework Helper should check with your child to see which basic multiplications or divisions he or she is ready to be tested on. The helper should mark any missed problems lightly with a pencil.

  If your child gets all the answers in a column correct, the helper should sign that column on the Home Signature Sheet. When signatures are on all the columns of the Home Signature Sheet, your child should bring the sheet to school.



Home Study Sheet A

5s			2s		
Count-bys	Mixed Up ×	Mixed Up ÷	Count-bys	Mixed Up ×	Mixed Up ÷
1 × 5 = 5	2 × 5 = 10	10 ÷ 5 = 2	1 × 2 = 2	7 × 2 = 14	20 ÷ 2 = 10
2 × 5 = 10	9 × 5 = 45	35 ÷ 5 = 7	2 × 2 = 4	1 × 2 = 2	2 ÷ 2 = 1
3 × 5 = 15	1 × 5 = 5	50 ÷ 5 = 10	3 × 2 = 6	3 × 2 = 6	6 ÷ 2 = 3
4 × 5 = 20	5 × 5 = 25	5 ÷ 5 = 1	4 × 2 = 8	5 × 2 = 10	16 ÷ 2 = 8
5 × 5 = 25	7 × 5 = 35	20 ÷ 5 = 4	5 × 2 = 10	6 × 2 = 12	12 ÷ 2 = 6
6 × 5 = 30	3 × 5 = 15	15 ÷ 5 = 3	6 × 2 = 12	8 × 2 = 16	4 ÷ 2 = 2
7 × 5 = 35	10 × 5 = 50	30 ÷ 5 = 6	7 × 2 = 14	2 × 2 = 4	10 ÷ 2 = 5
8 × 5 = 40	6 × 5 = 30	40 ÷ 5 = 8	8 × 2 = 16	10 × 2 = 20	8 ÷ 2 = 4
9 × 5 = 45	4 × 5 = 20	25 ÷ 5 = 5	9 × 2 = 18	4 × 2 = 8	14 ÷ 2 = 7
10 × 5 = 50	8 × 5 = 40	45 ÷ 5 = 9	10 × 2 = 20	9 × 2 = 18	18 ÷ 2 = 9



4–3 Homework

Name _____ Date _____

Home Signature Sheet

	Count-Bys Homework Helper	Multiplications Homework Helper	Divisions Homework Helper
0			
1			

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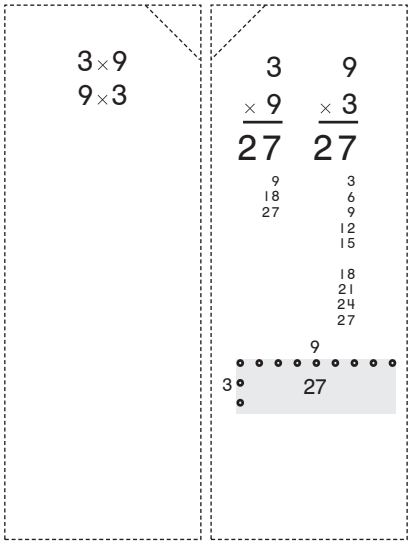
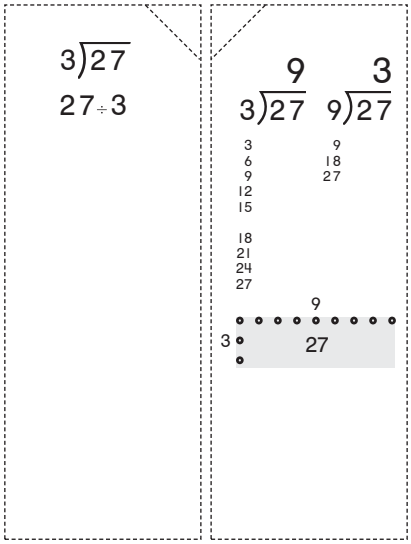
- **Home Check Sheets:** A Home Check Sheet includes columns of 20 multiplications and divisions in mixed order. These sheets can be used to test your student's fluency with basic facts.
- **Strategy Cards:** Students use Strategy Cards in class as flashcards, to play games, and to develop multiplication and division strategies.

Sample Multiplication Card



Sample Division Card



- **Games:** Near the end of this unit, students are introduced to games that provide multiplication and division practice.

Encourage your child to show you these materials and explain how they are used. Make sure your child spends time practicing multiplications and divisions every evening.

Please call if you have any questions or comments.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.9, Measurement and Data, 3.MD.5a, 3.MD.5b, 3.MD.7a, 3.MD.7b, 3.MD.7c, 3.MD.7d, and all Mathematical Practices.

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Dear Family,

In this unit, students learn multiplications and divisions for 6s, 7s, and 8s, while continuing to practice the rest of the basic multiplications and divisions covered in Unit 1.

Although students practice all the 6s, 7s, and 8s multiplications, they really have only six new multiplications to learn: 6×6, 6×7, 6×8, 7×7, 7×8, and 8×8. The lessons for these multiplications focus on strategies for finding the products using multiplications they know.

This unit also focuses on word problems. Students are presented with a variety of one-step and two-step word problems.

Here is an example of a two-step problem:

A roller coaster has 7 cars. Each car has 4 seats. If there were 3 empty seats, how many people were on the roller coaster?

Students use the language and context of each problem to determine which operation or operations—multiplication, division, addition, or subtraction—they must use to solve it. Students use a variety of methods to solve two-step word problems.

Please continue to help your child get faster on multiplications and divisions. Use all of the practice materials that your child has brought home. Your support is crucial to your child's learning.

Please call if you have any questions or comments.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.8, 3.OA.9; Number and Operations in Base Ten, 3.NBT.3; Measurement and Data, 3.MD.5a, 3.MD.5b, 3.MD.7a, 3.MD.7b and all Mathematical Practices

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Dear Family,

In this unit, students explore ways to measure things using the customary and metric systems of measurement.

The units of measure we will be working with include:

U.S. Customary System	Metric System
Length	**Length**
1 foot (ft) = 12 inches (in.)	1 meter (m) = 10 decimeters (dm)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 mile (mi) = 5,280 feet (ft)	1 decimeter (dm) = 10 centimeters (cm)
Capacity	**Capacity**
1 cup (c) = 8 fluid ounces (oz)	1 liter (L) = 1,000 milliliters (mL)
1 pint (pt) = 2 cups (c)	
1 quart (qt) = 2 pints (pt)	
1 gallon (gal) = 4 quarts (qt)	
Weight	**Mass**
1 pound (lb) = 16 ounces (oz)	1 kilogram (kg) = 1,000 grams (g)

Students will solve problems that involve liquid volumes or masses given in the same unit by adding, subtracting, multiplying, or dividing and by using a drawing to represent the problem.

Students will also generate measurement data with halves and fourths of an inch such as hand spans and lengths of standing broad jumps and graph their data in a line plot.

You can help your child become familiar with these units of measure by working with measurements together. For example, you might estimate and measure the length of something in inches. You might use a measuring cup to explore how the cup can be used to fill pints, quarts, or gallons of liquid.

Thank you for helping your child learn important math skills. Please call if you have any questions or comments.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, CC.3.OA.3; Number and Operations in Base Ten, CC.3.NBT.2; Measurement and Data, CC.3.MD.1, CC.3.MD.2, CC.3.MD.3, CC.3.MD.4; and for all Mathematical Practices.

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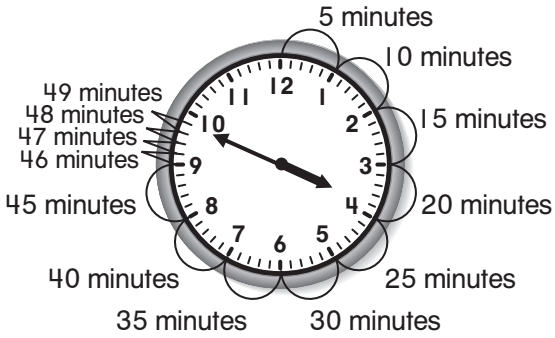
Family Letter

Dear Family,

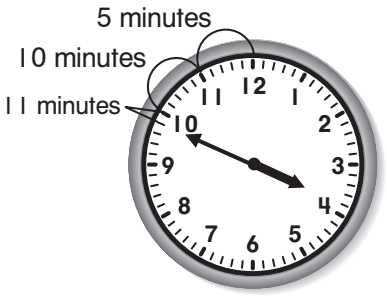
In math class, your child is beginning lessons about time. This topic is directly connected to home and community and involves skills your child will use often in everyday situations.

Students are reading time to the hour, half-hour, quarter-hour, five minutes, and minute, as well as describing the time before the hour and after the hour.

For example, you can read 3:49 both as after and before the hour.



Forty-nine minutes after three



Eleven minutes before four

Students will be using clocks to solve problems about elapsed time.

Help your child read time and find elapsed time. Ask your child to estimate how long it takes to do activities such as eating a meal, traveling to the store, or doing homework. Have your child look at the clock when starting an activity and then again at the end of the activity. Ask how long the activity took.

Your child will also learn to add and subtract time on a number line.

If you have any questions or comments, please call or write to me.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, CC.3.OA.3; Number and Operations in Base Ten, CC.3.NBT.2; Measurement and Data, CC.3.MD.1, CC.3.MD.2, CC.3.MD.3, CC.3.MD.4; and for all Mathematical Practices.

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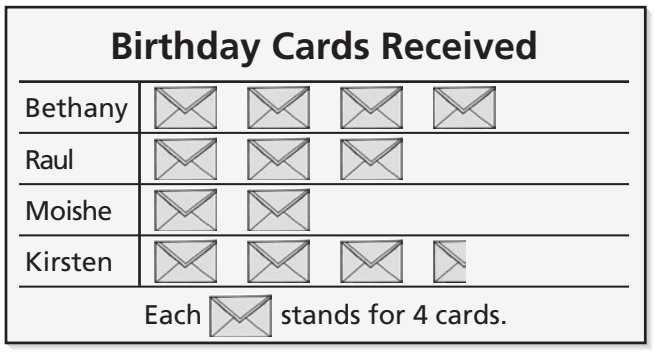
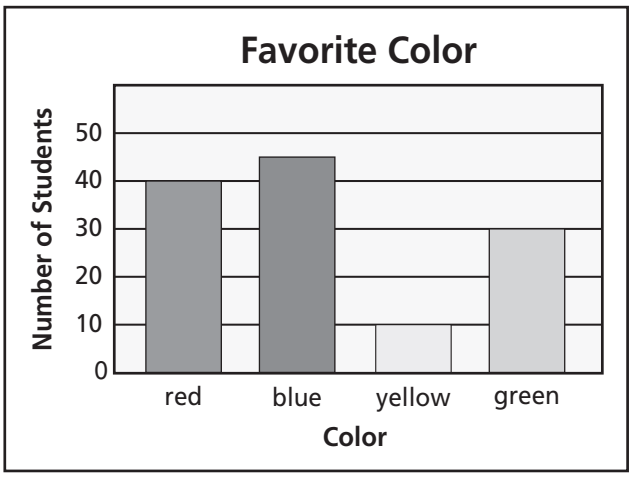
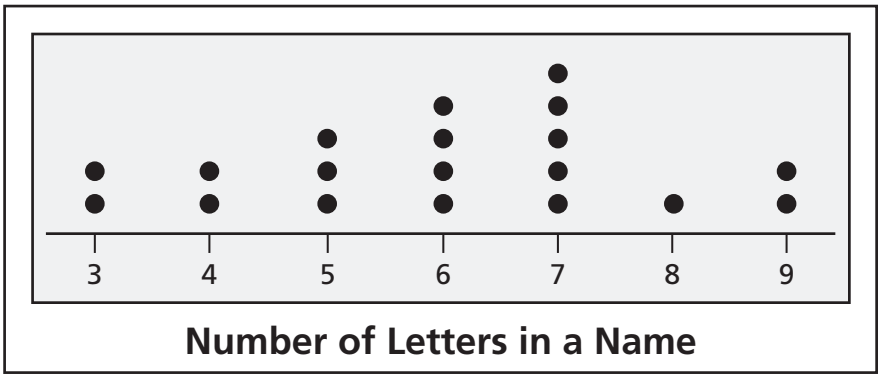
Dear Family,

In the rest of the lessons in this unit, your child will be learning to show information in various ways. Students will learn to read and create pictographs and bar graphs. They will organize and display data in frequency tables and line plots. Students will also learn how to use graphs to solve real world problems.

Examples of pictographs, bar graphs, and line plots are shown below.







Your child is learning how graphs are used in the world around us. You can help your child learn by sharing graphs that appear in newspapers, magazines, or online.

Thank you for helping your child learn how to read, interpret, and create graphs.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, CC.3.OA.3; Number and Operations in Base Ten, CC.3.NBT.2; Measurement and Data, CC.3.MD.1, CC.3.MD.2, CC.3.MD.3, CC.3.MD.4; and for all Mathematical Practices.

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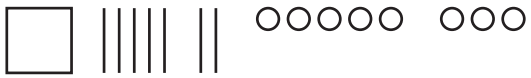
Dear Family,

Your child is currently participating in math activities that help him or her to understand place value, rounding, and addition and subtraction of 3-digit numbers.

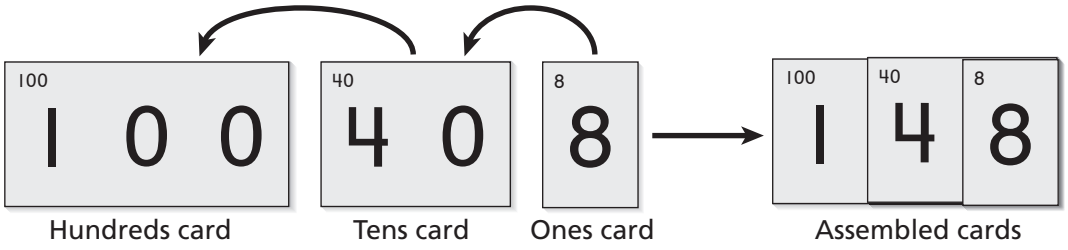
- **Place Value Drawings:** Students learn to represent numbers with drawings that show how many hundreds, tens, and ones are in the numbers. Hundreds are represented by boxes. Tens are represented by vertical line segments, called ten sticks. Ones are represented by small circles. The drawings are also used to help students understand regrouping in addition and subtraction. Here is a place value drawing for the number 178.



1 hundred 7 tens 8 ones

The 7 ten sticks and 8 circles are grouped in 5s so students can see the quantities easily and avoid errors.

- **Secret Code Cards:** Secret Code Cards are a set of cards for hundreds, tens, and ones. Students learn about place value by assembling the cards to show two- and three-digit numbers. Here is how the number 148 would be assembled.



Estimate Sums and Differences: Students learn to estimate sums and differences by rounding numbers. They also use estimates to check that their actual answers are reasonable.

	Rounded to the nearest hundred	Rounded to the nearest ten
493	500	490
129	100	130
+ 369	+ 400	+ 370
991	Estimate: 1,000	Estimate: 990

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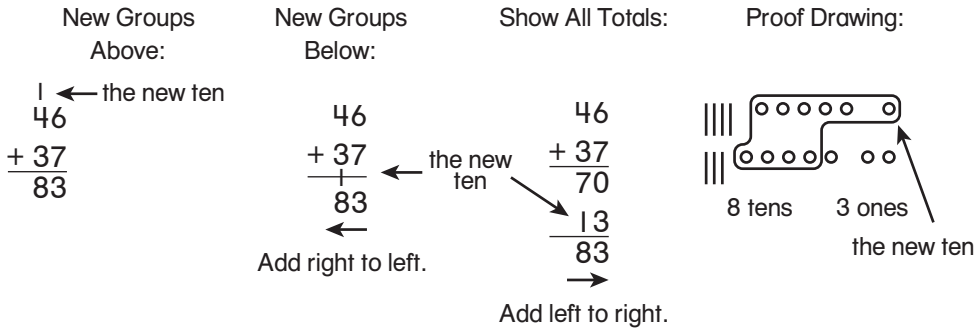
Addition Methods: Students may use the common U.S. method, referred to as the New Groups Above Method, as well as two alternative methods. In the New Groups Below Method, students add from right to left and write the new ten and new hundred on the line. In the Show All Totals method, students add in either direction, write partial sums and then add the partial sums to get the total. Students also use proof drawings to demonstrate grouping 10 ones to make a new ten and grouping 10 tens to make a new hundred.

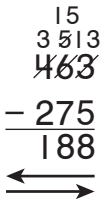
The New Groups Below Method shows the teen number 13 better than does the New Groups Above Method, where the 1 and 3 are separated. Also, addition is easier in New Groups Below, where you add the two numbers you see and just add 1.

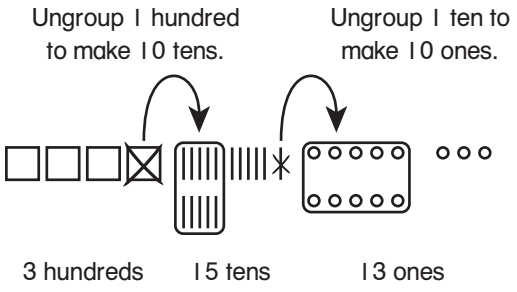


Subtraction Methods: Students may use the common U.S. method in which the subtraction is done right to left, with the ungrouping done before each column is subtracted. They also learn an alternative method in which all the ungrouping is done *before* the subtracting. If they do all the ungrouping first, students can subtract either from left to right or from right to left.

The Ungroup First Method helps students avoid the common error of subtracting a smaller top number from a larger bottom number.

1. Ungroup first
2. Subtract (from left to right or from right to left).





Please call if you have any questions or comments.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, 3.OA.8; Number and Operation in Base Ten, 3.NBT.1 and 3.NBT.2 and all Mathematical Practices.

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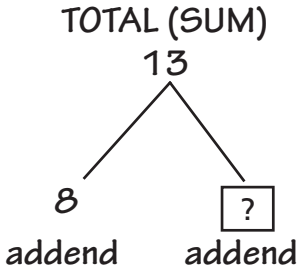
Dear Family,

In this unit, your child will solve addition, subtraction, multiplication, and division problems involving unknown addends and factors.

- If one of the addends is unknown, it can be found by subtracting the known addend from the total or by counting on from the known addend to the total.
- If the total is unknown, it can be found by adding the addends.
- If one of the factors is unknown, it can be found by dividing the product by the other factor.
- If the product is unknown, it can be found by multiplying the factors.

Math Mountains are used to show a total and two addends. Students can use the Math Mountain to write an equation and then solve the equation to find the unknown.



$8 + \boxed{?} = 13$

addend addend total

$5 + 8 = 13$

$13 = 8 + 5$

$13 = 5 + 8$

$13 - 5 = 8$

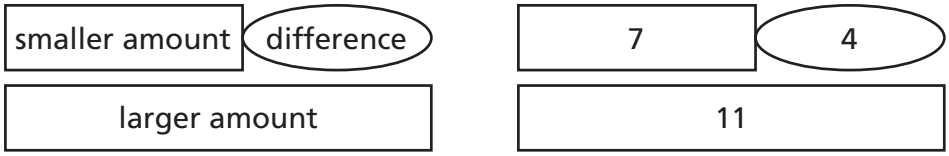
$13 - \boxed{8} = 5$

$8 = 13 - 5$

$5 = 13 - 8$

Equations with numbers alone on the left are also emphasized to help with the understanding of algebra.

Comparison Bars are used to solve problems that involve one amount that is more than or less than another amount. Drawing Comparison Bars can help a student organize the information in the problem in order to find the unknown smaller amount, the unknown larger amount, or the difference.



Please call or write if you have any questions or comments.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Operations and Algebraic Thinking, CC.3.OA.3, CC.3.OA.4, CC.3.OA.8; Numbers and Operations in Base Ten, CC.3.NBT.1, CC.3.NBT.2, CC.3.NBT.3 and for all Mathematical Practices.

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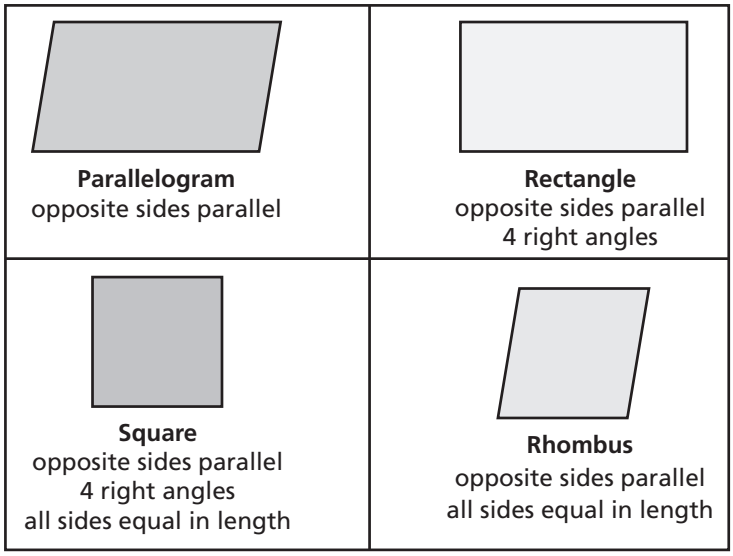
Dear Family,

Your student will be learning about geometry and measurement during this school year. This first part of Unit 6 is about the geometric figures called quadrilaterals. These get their name because they have four (*quad-*) sides (*-lateral*).

Here are some examples of quadrilaterals students will be learning about in this unit.



Students will be able to recognize and describe different quadrilaterals by their sides and angles. Some sides may be of equal length. Some sides may be parallel; they do not meet no matter how far they are extended. Some sides may be perpendicular; where they meet is like the corner of a square.

If you have any questions, please call or write to me.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Geometry, 3.G.1 and 3.G.2, and all Mathematical Practices.

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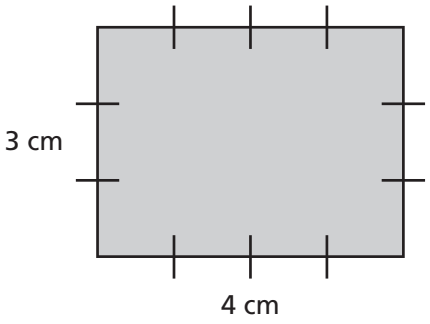
Family Letter

Dear Family,

Your child is currently learning about perimeter and area. Students begin to investigate the area of a rectangle by counting the number of square units inside the figure. Students also find the perimeter of a rectangle by counting linear units around the outside of the figure.

Students develop methods to find the perimeter and area of a rectangle, as shown below.

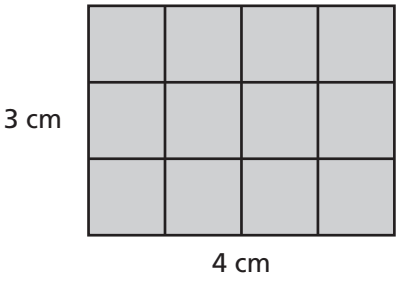


Perimeter = distance around the rectangle

Perimeter = *side length* + *side length* + *side length* + *side length*

$P = 4 \text{ cm} + 3 \text{ cm} + 4 \text{ cm} + 3 \text{ cm}$

$P = 14 \text{ cm}$



Area = square units inside the rectangle

Area = side length × side length

$A = 4 \text{ cm} \times 3 \text{ cm}$

$A = 12 \text{ sq cm}$

Students draw rectangles that have the same perimeter but different areas and rectangles that have the same area but different perimeters. They discover relationships between perimeter and area, such as that for a given area, the longest, skinniest rectangle has the greatest perimeter and the rectangle with sides closest to the same length or the same length has the least perimeter.

Students create shapes with tangrams, explore area relationships among the tangram shapes, and use the shapes as improvised units to measure area.

Throughout the unit students apply what they have learned about perimeter and area to real world problems.

If you have any questions or comments, please call or write to me.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Measurement and Data 3.MD.5, 3.MD.5a, 3.MD.5b, 3.MD.6, 3.MD.7, 3.MD.7a, 3.MD.7b, 3.MD.8, and all Mathematical Practices.

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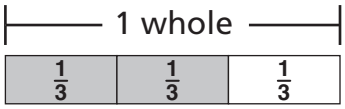
Family Letter

Dear Family,

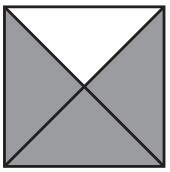
In this unit, your child will be introduced to fractions. Students will build fractions from unit fractions and explore fractions as parts of a whole.

Unit Fraction



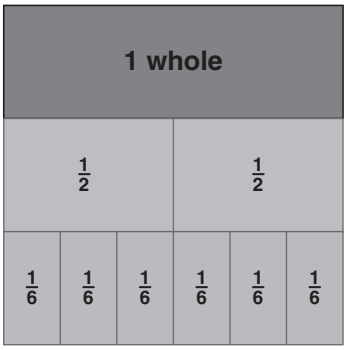
$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$

Fraction of a Whole



$\frac{3}{4}$ ← numerator
denominator

Students will find equivalent fractions, and compare fractions with either the same denominator or the same numerator.



$$\frac{1}{2} = \frac{3}{6}$$

$$\frac{1}{2} > \frac{1}{6}$$

$$\frac{2}{4} < \frac{3}{4}$$

In this unit, your child will also solve real world problems using his or her understanding of fraction concepts.

Please call if you have any questions or comments.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Numbers and Operations–Fractions, CC.3.NF.1, CC.3.NF.2a, CC.3.NF.2b, CC.3.NF.3a, CC.3.NF.3b, CC.3.NF.3c,CC.3.NF.3d; Geometry, CC.3.G.2 and for all Mathematical Practices.

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