Dear Family,

Your child is learning math in an innovative program called *Math Expressions*. In Unit 1, your child will use place value drawings and charts to understand that the value of each place is 10 times greater than the value of the place to its right. This understanding is essential when comparing, rounding, or adding multidigit numbers. *Math Expressions* encourages children to think about "making new groups" to help them understand place values.

We call the method below "New Groups Above". The numbers that represent the new groups are written above the problem.

1. Add the ones:

5 + 7 = 12 ones
12 = 2 ones + 10 ones,
and 10 ones = 1 new ten.

```
   1
  5, 1 7 5
+ 3, 9 6 7
---------
        2
```

2. Add the tens:

1 + 7 + 6 = 14 tens
14 = 4 tens + 10 tens,
and 10 tens = 1 new hundred.

```
   1 1
  5, 1 7 5
+ 3, 9 6 7
---------
      4 2
```

3. Add the hundreds:

1 + 1 + 9 = 11 hundreds
11 = 1 hundred + 10 hundreds,
and 10 hundreds = 1 new thousand.

```
   1 1 1
  5, 1 7 5
+ 3, 9 6 7
---------
    1 4 2
```

4. Add the thousands:

1 + 5 + 3 = 9 thousands

```
   1 1 1
  5, 1 7 5
+ 3, 9 6 7
---------
  9, 1 4 2
```

We call the following method "New Groups Below." The steps are the same, but the new groups are written below the addends.

It is easier to see the totals for each column (12 and 14) and adding is easier because you add the two numbers you see and then add the 1.

1.

```
  5, 1 7 5
+ 3, 9 6 7
---------
      1
        2
```

2.

```
  5, 1 7 5
+ 3, 9 6 7
---------
    1 1
      4 2
```

3.

```
  5, 1 7 5
+ 3, 9 6 7
---------
  1 1 1
    1 4 2
```

4.

```
  5, 1 7 5
+ 3, 9 6 7
---------
  1 1 1
  9, 1 4 2
```

It is important that your child maintains his or her home practice with basic multiplication and division.

Sincerely,
Your child's teacher

COMMON CORE

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

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Dear Family,

Your child is now learning about subtraction. A common subtraction mistake is subtracting in the wrong direction. Children may think that they always subtract the smaller digit from the larger digit, but this is not true. To help children avoid this mistake, the *Math Expressions* program encourages children to "fix" numbers first and then subtract.

$$\begin{array}{r} 1{,}634 \\ -\ 158 \\ \hline 1{,}524 \end{array}$$

When one or more digits in the top number are smaller than the corresponding digits in the bottom number, fix the numbers by "ungrouping." For example, 1,634 − 158 is shown below:

1. We cannot subtract 8 ones from 4 ones. We get more ones by ungrouping 1 ten to make 10 ones.

We now have 14 ones and only 2 tens.

$$\begin{array}{r} 1,6\overset{2}{\cancel{3}}\overset{14}{\cancel{4}} \\ -\ 1\,5\,8 \\ \hline \end{array}$$

2. We cannot subtract 5 tens from 2 tens. We get more tens by ungrouping 1 hundred to make 10 tens.

We now have 12 tens and only 5 hundreds.

$$\begin{array}{r} 1,\overset{5}{\cancel{6}}\overset{12}{\cancel{3}}\overset{14}{\cancel{4}} \\ -\ 1\,5\,8 \\ \hline \end{array}$$

3. Now we can subtract:
$1 - 0 = 1$ thousand
$5 - 1 = 4$ hundreds
$12 - 5 = 7$ tens
$14 - 8 = 6$ ones

$$\begin{array}{r} 1,\overset{5}{\cancel{6}}\overset{12}{\cancel{3}}\overset{14}{\cancel{4}} \\ -\ 1\,5\,8 \\ \hline 1{,}4\,7\,6 \end{array}$$

In the method above, the numbers are ungrouped from right to left, but students can also ungroup from left to right. Children can choose whichever way works best for them.

Your child should also continue to practice multiplication and division skills at home.

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

Sincerely,
Your child's teacher

COMMON CORE

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

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Dear Family,

In this unit, your child will be learning about the common multiplication method that most adults know. However, they will also explore ways to draw multiplication. *Math Expressions* uses area of rectangles to show multiplication.

	30	+ 7
20	$20 \times 30 = 600$	$20 \times 7 = 140$
+ 4	$4 \times 30 = 120$	$4 \times 7 = 28$

Area Method:

$20 \times 30 = 600$
$20 \times 7 = 140$
$4 \times 30 = 120$
$4 \times 7 = 28$
Total = 888

Shortcut Method:

$\begin{array}{r} \overset{1}{2} \\ 37 \\ \times\ 24 \\ \hline 148 \\ 74 \\ \hline 888 \end{array}$

Area drawings help all students see multiplication. They also help students remember what numbers they need to multiply and what numbers make up the total.

Your child will also learn to find products involving single-digit numbers, tens, and hundreds by factoring the tens or hundreds. For example,

$$\begin{aligned} 200 \times 30 &= 2 \times 100 \times 3 \times 10 \\ &= 2 \times 3 \times 100 \times 10 \\ &= 6 \times 1{,}000 = 6{,}000 \end{aligned}$$

By observing the zeros patterns in products like these, your child will learn to do such multiplications mentally.

If your child is still not confident with single-digit multiplication and division, we urge you to set aside a few minutes every night for multiplication and division practice. In a few more weeks, the class will be doing multidigit division, so it is very important that your child be both fast and accurate with basic multiplication and division.

If you need practice materials, please contact me.

Sincerely,
Your child's teacher

COMMON CORE

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

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Dear Family,

Your child is familiar with multiplication from earlier units. Unit 3 of *Math Expressions* extends the concepts used in multiplication to teach your child division. The main goals of this unit are to:

- Learn methods for dividing whole numbers up to four digits.
- Use estimates to check the reasonableness of answers.
- Solve problems involving division and remainders.

Your child will learn and practice techniques such as the Place Value Sections, Expanded Notation, and Digit-by-Digit methods to gain speed and accuracy in division. At first, your child will learn to use patterns and multiplication to divide. Later, your child will learn to use the methods with divisors from 2 to 9. Then your child will learn to divide when there is a zero in the quotient or dividend and to watch out for potential problems involving these situations.

Examples of Division Methods:

Place Value Sections Method

$60 + 6 = 66$

5	330	30
	− 300	30
	30	0

Expanded Notation Method

$$\begin{array}{r} 6 \\ 60 \end{array}\Big]\ 66$$

$$\begin{array}{r} 5\overline{)330} \\ -300 \\ \hline 30 \\ -30 \\ \hline 0 \end{array}$$

Digit-by-Digit Method

$$\begin{array}{r} 66 \\ 5\overline{)330} \\ -\ 30 \\ \hline 30 \\ -\ 30 \\ \hline 0 \end{array}$$

Your child may use whatever method he or she chooses as long as he or she can explain it. Some children like to use different methods.

Your child will also learn to interpret remainders in the context of the problem being solved; for example, when the remainder alone is the answer to a word problem.

Finally, your child will apply this knowledge to solve mixed problems with one or more steps and using all four operations.

If you have questions or problems, please contact me.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Numbers and Operations in Base Ten, 4.NBT.6 and all Mathematical Practices.

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Dear Family,

In Unit 4 of Math Expressions, your child will apply the skills he or she has learned about operations with whole numbers while solving real world problems involving addition, subtraction, multiplication, and division.

Your child will simplify and evaluate expressions. Parentheses will be introduced to show which operation should be done first. The symbols "=" and "≠" will be used to show whether numbers and expressions are equal.

Other topics of study in this unit include situation and solution equations for addition and subtraction, as well as multiplication and division. Your child will use situation equations to represent real world problems and solution equations to solve the problems. This method of representing a problem is particularly helpful when the problems contain greater numbers and students cannot solve mentally.

Your child will also solve multiplication and addition comparison problems and compare these types of problems identifying what is the same or different.

Addition Comparison	**Multiplication Comparison**
Angela is 14 years old. She is 4 years older than Damarcus. How old is Damarcus?	Shawn colored 5 pages in a coloring book. Anja colored 4 times as many pages as Shawn colored. How many pages did Anja color?

Students learn that in the addition problem they are adding 4, while in the multiplication problem, they are multiplying by 4.

Your child will apply this knowledge to solve word problems using all four operations and involving one or more steps.

Finally, your child will find factor pairs for whole numbers and generate and analyze numerical and geometric patterns.

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 4.OA.1, 4.OA.2, 4.OA.3, 4.OA.4, 4.OA.5, Number and Operations in Base Ten 4.NBT.4, 4.NBT.5, 4.NBT.6, Measurement and Data 4.MD.2, and all Mathematical Practices.

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Dear Family,

This unit is about the metric measurement system. During this unit, students will become familiar with metric units of length, capacity, mass, and time, as well as the size of each when compared to each other.

One **meter** is about the distance an adult man can reach, or a little longer than a yard.

One **liter** is about two large glasses of liquid, or a little more than a quart.

One **gram** is about the mass of a paper clip or a single peanut. One **kilogram** is a little more than 2 pounds.

Students will also discover that the metric system is based on multiples of 10. Prefixes in the names of metric measurements tell the size of a measure compared to the size of the base unit.

Units of Length

kilometer	hectometer	decameter	meter	decimeter	centimeter	millimeter
km	hm	dam	m	dm	cm	mm
10 × 10 × 10 × larger	10 × 10 × larger	10 × larger	1 m	10 × smaller	10 × 10 × smaller	10 × 10 × 10 × smaller
1 km = 1,000 m	1 hm = 100 m	1 dam = 10 m		10 dm = 1 m	100 cm = 1 m	1,000 mm = 1 m

The most commonly used length units are the **kilometer**, **meter**, **centimeter**, and **millimeter**.

The most commonly used capacity units are the **liter** and **milliliter**.

The most commonly used units of mass are the **gram**, **kilogram**, and **milligram**.

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 Measurement and Data, 4.MD.1, 4.MD.2, 4.MD.3, 4.MD.4 and all Mathematical Practices.

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Dear Family,

Your child has experience with fractions through measurements and in previous grades. Unit 6 of *Math Expressions* builds on this experience. The main goals of this unit are to:

- understand the meaning of fractions.
- compare unit fractions.
- add and subtract fractions and mixed numbers with like denominators.
- multiply a fraction by a whole number.

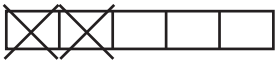
Your child will use fraction bars and fraction strips to gain a visual and conceptual understanding of fractions as parts of a whole. Later, your child will use these models to add and subtract fractions and to convert between improper fractions and mixed numbers.

Examples of Fraction Bar Modeling:

Fraction Comparisons

$\frac{1}{3} < \frac{1}{2}$

Fraction Subtraction



$\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$

In later lessons of this unit, your child will be introduced to the number line model for fractions. Students name fractions corresponding to given lengths on the number line and identify lengths corresponding to given fractions. They also see that there are many equivalent fraction names for any given length.

Your child will apply this knowledge about fractions and fraction operations to solve real world problems.

If you have questions or problems, please contact me.

Sincerely,
Your child's teacher

COMMON CORE

This unit includes the Common Core Standards for Mathematical Content for Numbers and Operations-Fractions, 4.NF.3, 4.NF.3a, 4.NF.3b, 4.NF.3c, 4.NF.3d, 4.NF.4a, 4.NF.4b, 4.NF.4c, and all Mathematical Practices.

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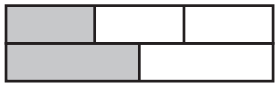
Dear Family,

In Lessons 1 through 7 of Unit 7 of *Math Expressions*, your child will build on previous experience with fractions. Your child will use both physical models and numerical methods to recognize and to find fractions equivalent to a given fraction. Your child will also compare fractions and mixed numbers, including those with like and unlike numerators and denominators.

By using fraction strips students determine how to model and compare fractions, and to find equivalent fractions. Your child will also learn how to use multiplication and division to find equivalent fractions.

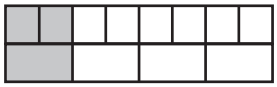
Examples of Fraction Bar Modeling:

Fraction Comparisons



$\frac{1}{3} < \frac{1}{2}$

Equivalent Fractions



$\frac{2}{8} = \frac{1}{4}$

Your child will be introduced to the number-line model for fractions. Students name fractions corresponding to given lengths on the number line and identify lengths corresponding to given fractions. They also see that there are many equivalent fraction names for any given length.

Your child will apply this knowledge of fractions to word problems and in data displays.

If you have questions or problems, please contact me.

Thank you.

Sincerely,
Your child's teacher

COMMON CORE

Lessons 1–7 of this unit include the Common Core Standards for Mathematical Content for Number and Operations—Fractions, 4.NF.1, 4.NF.2, 4.NF.5, 4.MD.4, and all Mathematical Practices.

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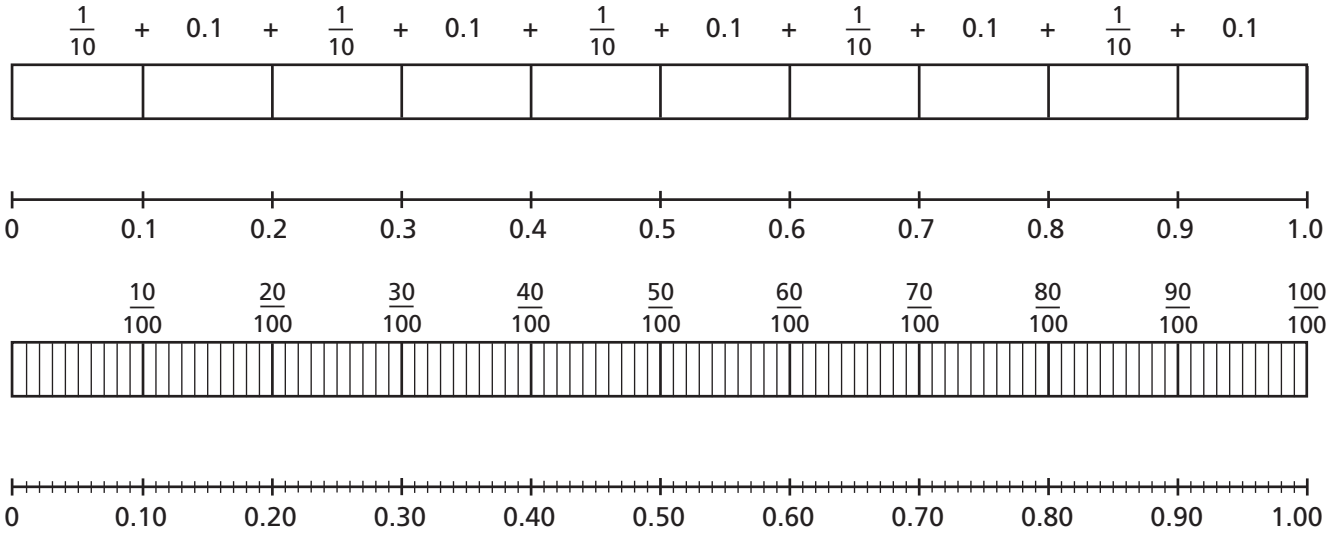
Family Letter

Dear Family,

In this unit, your child will be introduced to decimal numbers. Students will begin by using what they already know about pennies, dimes, and dollars to see connections between fractions and decimals.

Students will explore decimal numbers by using bars divided into tenths and hundredths. They will relate decimals to fractions, which are also used to represent parts of a whole.



Students will read, write, and model decimal numbers. They will also learn to combine whole numbers with decimals. They will work with numbers such as 1.72 and 12.9. Students will also compare decimal numbers with other decimal numbers.

Students will apply their understanding of decimal concepts when they compare decimals.

Comparing Decimals

6.8 ◯ 3.42 6.80 > 3.42

Adding a zero makes the numbers easier to compare.

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 Number and Operations–Fractions, and Measurement and Data, 4.NF.1, 4.NF.2, 4.NF.6, 4.NF.7, 4.MD.2, 4.MD.4, and all Mathematical Practices.

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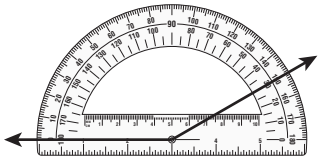
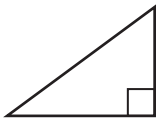
Family Letter

Dear Family,

In the first half of Unit 8, your child will be learning to recognize and describe geometric figures. One type of figure is an angle. Your child will use a protractor to find the measures of angles.

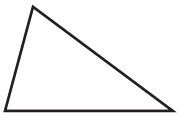


Other figures, such as triangles, may be named based on their angles and sides.



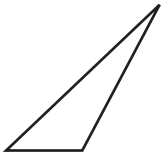
Right triangle

One right angle (90°)



Acute triangle

All angles less than 90°



Obtuse triangle

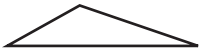
One angle greater than 90°

Equilateral triangle

all three sides of equal length

Isosceles triangle

two sides of equal length



Scalene triangle

three sides of different lengths

Be sure that your child continues to review and practice the basics of multiplication and division. A good understanding of the basics will be very important in later math courses when students learn more difficult concepts in multiplication and division.

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, 4.MD.5, 4.MD.5a, 4.MD.5b, 4.MD.6, 4.MD.7; Geometry, 4.G.1, 4.G.2; and all the Mathematical Practices.

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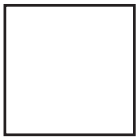
Family Letter

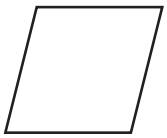
Dear Family,

Your child has been learning about geometry throughout this unit. In this second half of the unit, your child will be learning how to recognize and describe a group of geometric figures called quadrilaterals, which get their name because they have four (*quad-*) sides (*-lateral*). Five different kinds of quadrilaterals are shown here.

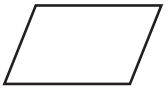


Square
4 equal sides
opposite sides parallel
4 right angles

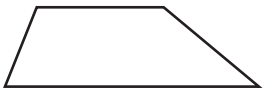
Rectangle
2 pairs of parallel sides
4 right angles



Rhombus
4 equal sides
opposite sides parallel



Parallelogram
2 pairs of parallel sides



Trapezoid
exactly 1 pair of opposite sides parallel

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, 4.OA.5; Geometry, 4.G.1, 4.G.2, 4.G.3; and all the Mathematical Practices.

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