

Name \_\_\_\_\_

# Understand Place Value

Dear Family,

Your child is learning about place value—the idea that the value of a digit depends on its place in a number—for whole numbers to hundred millions and decimals to thousandths.

He or she is learning that a digit in any place has 10 times the value it would have in the place to its right and  $\frac{1}{10}$  the value it would have in the place to its left. For example, in the number 105,558, the value of the 5 in the hundreds place is  $\frac{1}{10}$  the value of the 5 in the thousands place and 10 times the value of the 5 in the tens place. Your child will also learn to use whole-number exponents to write powers of 10.

You can expect to see work that provides practice in place value with whole numbers and decimals. Here is an activity you can do with your child.

## Place the Digit

**Materials** Number cards for 0–9, paper and pencil

**Step 1** Mix and place the cards face down. Your child picks the top card while you name a place from ones to millions.

**Step 2** Have your child write a number that includes the digit on the card in the place you named. Alternate roles and repeat until all the cards have been used. Increase the difficulty of the game by including the digit on the card in two or more places in a single number.

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## Observe Your Child

For the new numbers that are written, ask your child to name the place value of each digit.

Name \_\_\_\_\_

# Add and Subtract Decimals to Hundredths

Dear Family,

In this topic, your student will develop proficiency with adding and subtracting decimals. These skills will enable your student to solve mathematical and real-world problems efficiently. These skills will also help your student estimate sums and differences in order to determine the reasonableness of solutions.

Complete the following activity together to help your student practice estimating and calculating sums and differences of decimals to hundredths.

## Rolling Decimals

**Materials:** 1 number cube (labeled 1–6)

**Step 1** Roll a number cube five times. Use the digits rolled to write two decimal numbers, such as 2.3 and 42.5.

**Step 2** Write an addition sentence and a subtraction sentence using the two decimal numbers. For example,  $2.3 + 42.5$  and  $42.5 - 2.3$ . Subtract the lesser decimal from the greater decimal.

**Step 3** Estimate the answer to each problem. For example, you might round 42.5 to 43 and 2.3 to 2, and then perform the operations. Use a calculator or paper and pencil to find the actual answer for each problem. Compare the actual answers with your estimates.

**Step 4** Take turns creating numbers and estimating the sum and difference of the numbers. Then, play this game together: Choose an estimation goal, such as 100 or 25.5. Write an addition sentence or a subtraction sentence with two decimal numbers that will result in a number as close to the estimate as possible.

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## Observe Your Child

For each estimated sum and difference, ask your child to compare the estimate to the actual answer and explain why the estimate makes sense.

Name \_\_\_\_\_

# Fluently Multiply Multi-Digit Whole Numbers

Dear Family,

Your student is learning to fluently multiply multi-digit whole numbers using the standard algorithm. He or she will learn to explain patterns in the number of zeros of the product when multiplying a number by powers of 10. Your student will also apply his or her understanding of place value to estimate products.

This topic also uses money as a real-world context to connect mathematics to problems arising in everyday life.

Here are two activities you can complete with your student to help him or her review multiplication and learn about estimating products.

## Reviewing Basic Facts

**Step 1** Review basic multiplication facts.

**Step 2** Display 
$$\begin{array}{r} 142 \\ \times 63 \\ \hline \end{array}$$

Have your student explain how to multiply a three-digit number by a two-digit number.

## About How Much?

**Materials:** 1 number cube (labeled 1-6)

**Step 1** Have your student create one 3-digit number and one 2-digit number by rolling the number cube five times.

**Step 2** Have your student write a multiplication problem using the numbers from Step 1.

**Step 3** Have your student estimate the product using rounding or compatible numbers. For example,  $136 \times 32$  is close to  $140 \times 30$ , and  $140 \times 30 = 4,200$ . Take turns creating new problems by using the number cube to create more 2- and 3-digit numbers.

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## Observe Your Child

Have your student explain how they know each estimate is reasonable.

Name \_\_\_\_\_

# Use Models and Strategies to Multiply Decimals

Dear Family,

Your student is learning to multiply whole numbers and decimals to hundredths. He or she will learn to represent the mathematical reasoning involved in multiplication situations using objects and models. Your student will also learn how to use patterns to place the decimal point when a decimal is multiplied by a power of 10. He or she will apply his or her understanding of place value to estimate decimal products.

This topic also uses money as a real-world context to connect mathematics to problems arising in everyday life.

Here is an activity you can complete with your student to help him or her learn about estimating products.

## About How Much?

**Materials:** grocery items with prices marked

**Step 1** Display several different grocery items with prices marked.

**Step 2** Have your student choose one of the items and the number of that item that he or she wishes to buy.

**Step 3** Have your student estimate about how much his or her purchase will cost. He or she may round to whole numbers or use compatible numbers to help estimate. For example,  $4 \times \$2.89$  is close to  $4 \times 3$ , and  $4 \times 3 = 12$ . The total cost will be about \$12. Similarly, to estimate  $16 \times \$3.18$ , you can use  $15 \times 3$ , and  $15 \times 3 = 45$ . The total cost will be about \$45.

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## Observe Your Child

Have your student explain how knowing a basic multiplication fact like  $3 \times 4 = 12$  can help them to multiply  $0.3 \times 0.4$ .

Name \_\_\_\_\_

# Use Models and Strategies to Divide Whole Numbers

Dear Family,

In this topic, your student continues to develop his or her understanding of division by using number sense and models to divide whole numbers up to 4-digits by 2-digit divisors.

Your student will use strategies such as rounding and compatible numbers to estimate quotients. Then he or she will use patterns and relationships in different methods to calculate the actual quotients.

Here are two activities that you can do with your student to help him or her review division and practice estimating when dividing with greater numbers and two-digit divisors.

## Reviewing Basic Facts

Review basic division facts. Have your student name a related multiplication fact for each division fact. For example, if the flash card shows  $42 \div 7 = 6$ , a related multiplication fact is  $6 \times 7 = 42$ .

## Break It Up

**Step 1** Choose a 3-digit number, such as 526.

**Step 2** Work with your student to create a story that involves dividing the chosen whole number into a number of equal groups that is greater than 10.

**Step 3** Have your student find the number in each group and tell if there is a remainder.

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## Observe Your Child

Have your student explain how knowing a basic division fact like  $12 \div 4 = 3$  can help them find the quotient  $1,200 \div 40$ .

Name \_\_\_\_\_

# Use Models and Strategies to Divide Decimals

Dear Family,

In this topic, your student is learning to divide decimals by decimals and by whole numbers. He or she will be asked to divide decimals to the hundredths place in a variety of ways, including using models and strategies based on place value and number sense. Your student will also develop proficiency in estimating when dividing decimals.

Try this activity with your student to help him or her practice dividing a decimal number by a whole number.

## Share the Money

**Materials:** real or play dollar bills, dimes, and pennies

**Step 1** Pose this problem: Three sisters want to share \$3.48 equally. How can they divide the amount equally? Display 3 dollar bills, 4 dimes, and 8 pennies.

**Step 2** Have your student suggest some ideas for sharing the money equally. If needed, remind your student that a dime can be traded for 10 pennies.

**Step 3** Work together to find the answer. Then have your student model the solution: Each sister gets 1 dollar bill, 1 dime, and 6 pennies. Have your student record the amount. (\$1.16)

**Step 4** Repeat with the amount of \$2.94. (Each sister gets 9 dimes and 8 pennies; \$0.98.) Continue with other amounts of money that can be shared equally.

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## Observe Your Child

Ask your student to determine if the quotient of  $3.6 \div 0.6$  is greater than or less than 3.6. Ask your student how he or she used number sense to decide.

Name \_\_\_\_\_

# Use Equivalent Fractions to Add and Subtract Fractions

Dear Family,

In this topic, your student is learning how to add and subtract fractions with unlike denominators. He or she will learn how to replace given fractions with equivalent fractions with like denominators. To add  $\frac{1}{2}$  and  $\frac{1}{3}$ , for example, first rename  $\frac{1}{2}$  as  $\frac{3}{6}$  and  $\frac{1}{3}$  as  $\frac{2}{6}$ , and then add the numerators 3 and 2. The sum of  $\frac{1}{2}$  and  $\frac{1}{3}$  is  $\frac{5}{6}$ . Your student will also learn how to estimate sums and differences of fractions.

You can help your student practice renaming fractions as equivalent fractions by playing a game together in which the players add fractions with unlike denominators.

## Fraction Add-Up

**Materials** paper and pencil, index cards

**Step 1** Make a set of fraction cards with one fraction shown on each card. Use fractions with numerators of 1 through 5 and denominators of 2 through 6.

**Step 2** Player 1 turns over two cards and finds the sum of the two fractions shown. Then Player 2 turns over two cards and finds the sum of those two fractions. The player whose fractions have the greater sum wins.

## Another Way to Play

- Both players turn over three cards and find the sum of their fractions.
- Each player records their sum.
- After 5 rounds, add each player's sums for each of the rounds.
- The player with the greater sum wins.

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## Observe Your Child

Turn over two cards and find an estimate of the sum of the fractions. Ask your student to explain how he or she used number sense to estimate.

Name \_\_\_\_\_

# Apply Understanding of Multiplication to Multiply Fractions

Dear Family,

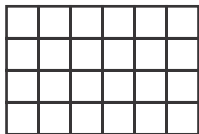
In math class, your student will be learning how to multiply fractions and mixed numbers. Your student may have assumed that multiplying numbers always makes them larger, and dividing always makes a number smaller. He or she may be surprised at first that multiplying a number by a fraction less than 1 gives a product that is less than the original number, not more. Your student will also need to understand that  $\frac{1}{3}$  of a number means  $\frac{1}{3}$  times that number and is a way of expressing multiplication.

Here is an activity you can use to acquaint your student with the concept of finding a fraction of a fraction.

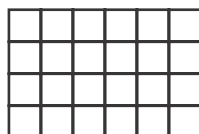
## Taking a Part Apart

Each of the figures below represents the number 1 divided into fractional parts. Ask your child to shade a part of each figure on the left to represent the fraction above it. In the figure on the right, ask your child to shade only a part of the area he or she shaded before, so as to represent the fraction of a fraction above it.

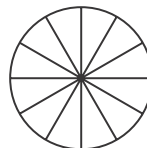
1. one-sixth



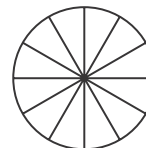
one-fourth of one-sixth



2. one-half



one-third of one-half



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## Observe Your Child

Ask your child to use the figures to describe how the shading changed from the left to right figure. Have him or her write a new fraction for the figure on the right.



Name \_\_\_\_\_

# Apply Understanding of Division to Divide Fractions

Dear Family,

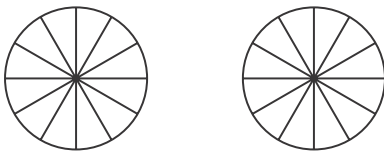
In this topic, your student will be learning how to interpret a fraction as division of the numerator by the denominator and show quotients as fractions and mixed numbers. He or she will solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions. A fraction with a numerator of 1 is a unit fraction.

Here is an activity you can use to acquaint your student with the concept of fractions as division.

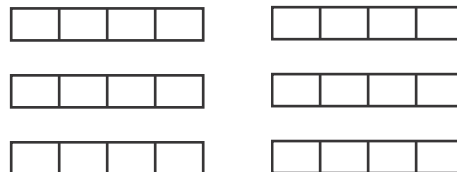
## Taking a Part Apart

In the division problems below, your student will use a visual model to find each quotient in the form of a fraction or mixed number. One way to find the quotient is to show the problem using rectangles or circles to represent the whole. To represent  $2 \div 12$  for example, show 2 wholes, or circles, divided into twelfths. One of the twelfths in each whole are then shaded. Together, the shaded sections are equal to the quotient,  $\frac{2}{12}$  or  $\frac{1}{6}$ . After your student writes the quotient for  $2 \div 12$ , ask him or her to shade the other model and write the quotient for the remaining problem. Have your student shade one of the fourths in each of the wholes.

1.  $2 \div 12 =$  \_\_\_\_\_



2.  $6 \div 4 =$  \_\_\_\_\_



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## Observe Your Child

Write another division problem using whole numbers between 1 and 9. Have your child write the division problem as a fraction and then model the quotient using a diagram.

Name \_\_\_\_\_

# Represent and Interpret Data

Dear Family,

Your child is learning to analyze and create line plots to display a set of data measurements in fractions of a unit. He or she will solve real-world problems using measurement data displayed in a line plot.

Complete the following activity with your child to reinforce his or her ability to record data and create a line plot representing the data.

## Pencil Length Data and Line Plot

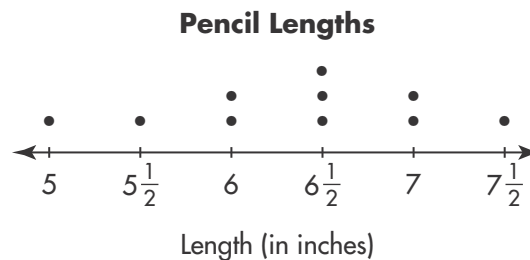
**Materials:** 10 pencils of various lengths, inch ruler

**Step 1** Have your child gather 10 used pencils.

**Step 2** Have your child measure and record the length of each pencil to the nearest  $\frac{1}{2}$  inch.

**Step 3** Work together and use the data collected to complete a frequency table and a line plot such as those below.

Value	Tally	Frequency
5		1
$5\frac{1}{2}$		1
6		2
$6\frac{1}{2}$		3
7		2
$7\frac{1}{2}$		1



## Observe Your Child

Ask your child which pencil length occurs most often. Which pencil length occurs least often? Discuss how to answer these questions by looking at the line plot.

Name \_\_\_\_\_

# Understand Volume Concepts

Dear Family,

In this topic, your child is learning about volume. He or she will learn how to find the volume of a rectangular prism, then use that understanding to formulate a plan to find the volume of a solid figure that is the combination of two or more rectangular prisms. Your child will also use models to develop the formula for volume and to recognize a cube with a side length of one unit as a unit cube having one cubic unit of volume. This will give him or her the skills necessary to solve problems involving volume, the area of the base of a prism multiplied by the height of the prism.

Here is an activity you can do with your child.

## Think Inside the Box

**Materials:** everyday examples of rectangular prisms, such as a tissue box, cereal box, jewelry box, or shoe box

**Step 1** Have your child use estimation to compare the examples of the rectangular prisms, for example, by size, shape, length, width, and height.

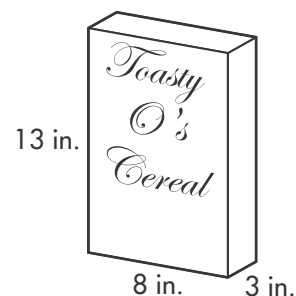
**Step 2** Discuss volume as the number of unit cubes needed to fill a figure.

**Step 3** Have your child use estimation to compare the volumes of the rectangular prisms. Ask questions such as: *Which box seems to have a greater volume than the tissue box? How might you order the boxes from least to greatest volume?*

**Optional** Work together to measure the dimensions of one of the rectangular prisms. Find its volume by using the formula for the volume of a rectangular prism.

Volume = (length  $\times$  width)  $\times$  height

For example, the volume of the cereal box pictured is 312 cubic inches because  $V = (8 \times 3) \times 13 = 312$  cubic inches.



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## Observe Your Child

Before measuring, ask your child to decide what measurement tools would be best for measuring the containers or objects chosen and to explain his or her decision.

Name \_\_\_\_\_

# Convert Measurements

Dear Family,

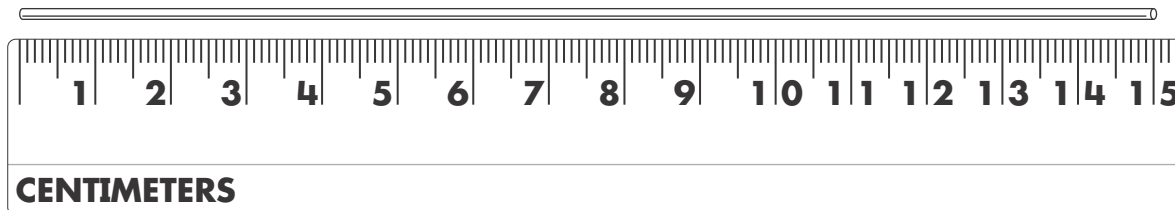
Your student is continuing to develop his or her understanding of customary and metric units of length, capacity, weight, and mass. This topic focuses on converting among different-sized standard measurement units within a given measurement system, as well as converting among units of time. Your student will use this understanding in solving multi-step and real-world problems.

Complete the activity with your student to practice these skills.

## Converting Between Metric Units of Length

**Materials** centimeter ruler

Have your child measure an object, such as a piece of string, to the nearest centimeter. Help him or her convert the length to millimeters (multiply by 10) and meters (divide by 100). Repeat this activity by measuring the length of other objects.



The string is about 15 centimeters long.

$$15 \text{ cm} \times 10 = 150 \text{ mm} \text{ and } 15 \text{ cm} \div 100 = 0.15 \text{ m}$$

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## Observe Your Child

Have your child measure your arm span to the nearest inch. Then have your child convert the length from inches to feet by dividing by 12. Discuss why it is important to calculate correctly when converting from one unit to another.

Name \_\_\_\_\_

# Write and Interpret Numerical Expressions

Dear Family,

In this topic, your student is learning how to write simple expressions—combinations of numbers and operations that describe a mathematical problem. For instance, the expression that represents 2 times the sum of 9 and 7 is  $2 \times (9 + 7)$ . He or she will use the order of operations to evaluate expressions containing parentheses, brackets, or braces.

Here is an activity that you can do with your student to help him or her practice writing expressions.

## Weighty Words

**Materials:** pencil, index cards

**Step 1** Write each of the following phrases on an index card: “more than”, “times”, “less than”, and “divided by”.

**Step 2** Write each of the following numbers on an index card: “two”, “nine”, “seventy-two”, and “one hundred twenty”.

**Step 3** Write each of the following phrases on an index card: “your age”, “the number of our house”, “the number of people in our family”, and “the number of days in this month”.

**Step 4** Use one card from each category to make an expression in words, such as “nine more than the number of days in this month”. Challenge your child to write a mathematical expression, such as  $31 + 9$ , that matches the word expression.

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## Observe Your Child

Without evaluating either expression, ask your child to compare the expressions  $15 - 4$  and  $2 \times (15 - 4)$ . Have your child explain his or her answer.

Name \_\_\_\_\_

# Graph Points on the Coordinate Plane

Dear Family,

In this topic, your student will plot points in the first quadrant of the coordinate plane by using ordered pairs of numbers, called coordinates. Your student will learn to interpret coordinate values of points in the plane in the context of a real-world problem.

Try this activity with your student to help him or her further develop an understanding of ordered pairs.

## Make a Neighborhood Map

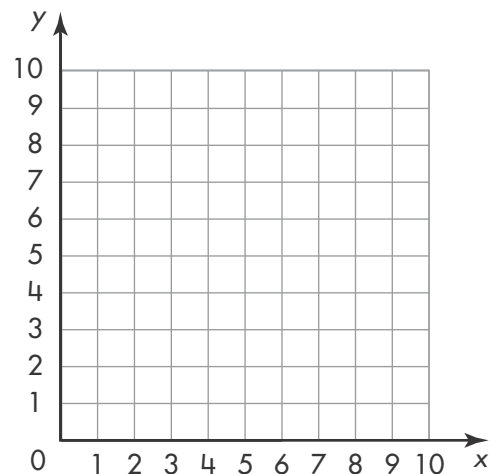
**Materials:** pencil, coordinate grid

**Step 1** Using a coordinate grid, help your child make a simple  $10 \times 10$  map of the neighborhood around your home.

**Step 2** Use estimation to help your child place your home and local landmarks on the grid.

**Step 3** Ask your child to name the  $x$  and  $y$  coordinates of the ordered pair for your home, for example  $(2, 3)$ . The  $x$ -coordinate names the distance from the origin  $(0, 0)$  along the  $x$ -axis and the  $y$ -coordinate names the distance from the origin along the  $y$ -axis.

**Step 4** Pose questions such as: *I am at the bank. What are the coordinates here?* or *I am at the grocery store. How do I walk home?*



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## Observe Your Child

Plot the location of one of the town landmarks on the grid. Then have your child plot the remaining landmarks and name them using ordered pairs.

Name \_\_\_\_\_

# Algebra: Analyze Patterns and Relationships

Dear Family,

Your child is learning to generate two numerical patterns using two given rules. For example, given the rule “add 2” and the starting number 0, and the rule “add 4” and the starting number 0, he or she will be able to generate terms in the resulting sequences. He or she will use tables to identify the relationships between corresponding terms from the two patterns and then graph the ordered pairs generated from the number sequences.

Here is an activity you can do with your child to help him or her learn to generate numerical patterns given rules.

## What’s My Rule?

**Materials:** Sheets of blank paper, pencil

**Step 1** Create the table shown.

**Step 2** Explain that Chris started with \$40 in his savings account. Lila started with \$50 in her savings account. They each put \$15 in their accounts at the end of each week.

**Step 3** Use the rule “add 15” to help fill in the table.

**Step 4** Ask your child to identify how much money Chris and Lila have each saved in all after different numbers of weeks.

**Savings**

Week	Chris	Lila
Start	\$40	\$50
1	\$55	\$65
2		
3		
4		
5		

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## Observe Your Child

Discuss the relationship between corresponding terms in the number patterns. Ask your child if Chris will ever have as much saved as Lila if the patterns continue.

Name \_\_\_\_\_

# Geometric Measurement: Classify Two-Dimensional Figures

Dear Family,

In this topic, your student is continuing to develop his or her understanding of geometry. Your student will be able to classify two-dimensional shapes in a hierarchy based on properties. He or she will understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.

Help your student reinforce his or her ability to identify two-dimensional shapes by completing the following activity together.

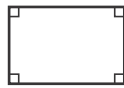
## The Presence of Polygons



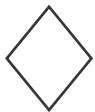
triangle



square



rectangle



rhombus



parallelogram



trapezoid

**Step 1** Discuss the properties of the six polygons shown. Have your child identify pairs of parallel sides, number and types of angles, and then discuss what makes each figure unique.

**Step 2** Have your child find an example of each polygon inside or outside of your home.

**Step 3** Have him or her place a checkmark on the figure on this page to record that the polygon has been found. Below each figure, ask him or her to briefly describe where the example of the polygon was found. Continue this activity until all the polygons are checked.

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## Observe Your Child

As you look for and identify real-world objects that resemble each polygon, compare selected items. For example, hold up objects that resemble a square and a trapezoid. Discuss how these shapes are similar to and different from each other.