

2nd Grade Math Parent Guide

	1 st Grading Period	2 nd Grading Period	3 rd Grading Period	4 th Grading Period
Units/TEKS Process Standards 2.1ABCDEFG and Personal Financial Literacy Standards 2.11ABCDEF through every unit TEKS	<u>Unit 1: Counting, Coins, and Combinations</u> 2.2ABCDEF, 2.4ABCD, 2.5AB, 2.7C, 2.9CG <u>Unit 3: Place Value, Addition, and Subtraction</u> 2.2ABF, 2.4ABCD, 2.6A, 2.7C, 2.9G	<u>Continue Unit 3</u> <u>Unit 4: Data and Graphs</u> 2.10ABCD	<u>Unit 2: 2D and 3D and their Attributes</u> 2.8ABCDE <u>Unit 7: Fractions</u> 2.3ABCD, 2.6B, 2.8E <u>Unit 6: Place Value to 100, Addition and Subtraction of 2-digit numbers</u> 2.2ABCDEF, 2.4ABC, 2.5AB, 2.6A, 2.7BC, 2.9C	<u>Unit 8</u> 2.4ABCD, 2.7BC <u>Unit 5: Patterns, Multiplication Concept, and Tables</u> 2.6AB, 2.9F <u>Unit 9: Measurement</u> 2.9ABDEF <u>Personal Financial Literacy</u> 2.11ABCDEF
Topic Focus	<u>Unit 1:</u> The mathematical focus of this unit is on building number sense through counting and comparing quantities and composing and decomposing numbers. Students also work with the operations of addition and subtraction, developing strategies for comparing, combining, and doubling quantities, as well as taking one quantity away from another. <u>Unit 3:</u> The mathematical focus of this unit is on using what you know (e.g. known combinations, order does not matter in addition, and so on) to make problems easier to solve, developing and refining strategies for solving a variety of addition and subtraction problems, and counting by groups. Students also investigate what makes numbers even and odd.	<u>Continue Unit 3:</u> The mathematical focus of this unit is on using what you know (e.g. known combinations, order does not matter in addition, and so on) to make problems easier to solve, developing and refining strategies for solving a variety of addition and subtraction problems, and counting by groups. Students also investigate what makes numbers even and odd. <u>Unit 4:</u> This unit develops ideas about collecting, representing, describing, and interpreting data.	<u>Unit 2:</u> This unit develops students' ideas about 2D and 3D shapes and their characteristics and attributes. Students work on how to compose and decompose the shapes in different ways, and how to sort, categorize, name, and think about the relationships between them. <u>Unit 7:</u> This unit develops ideas about understanding, representing, and computing with fractions. The mathematical focus will be on understanding fractions as equal parts of a whole, equal parts of a group, and using terms and notations. <u>Unit 6:</u> This unit develops ideas about counting and quantity, the composition of numbers-including work with place value and the structure of the base-10 number system-and the operations of addition and subtraction. The mathematical focus of this unit is on developing students' understanding of place value with specific emphasis on the structure of 100. Students apply their understanding of place value as they continue to develop and refine their strategies for adding and subtracting two-digit numbers.	<u>Unit 8:</u> The mathematical focus of this unit is on making generalizations about what happens when you add even and odd numbers, developing fluency with the remaining strategies for adding and subtracting two- and three-digit numbers, and recording such work. <u>Unit 5:</u> This unit develops the ideas about patterns, sequences, and functions and are part of the early algebra foundation integrated into the curriculum. Students will describe and represent ratios and use tables to represent change. <u>Unit 9:</u> This unit develops ideas about linear measurement as it relates to length, width, and units to measure.

**Suggestions
for Parental
Involvement
/Support**

Counting Coins

Ask your child to name coins and the value of each coin. Count the coins and write the total. Ask your child to find a quarter, how many pennies a quarter is worth, and how much money do I have if I have three quarters.

Telling Time

Practice reading a digital and analog clock to the minute. Discuss daily schedules.

Fact Fluency

In this first unit, students will be working to become fluent with the three following sets of combinations:

- **Make 10:** All of the combinations of 10 make with two numbers (8+2, 3+7, etc...)
- **Plus 1 Combinations:** Any number plus one (5+1, 1+8, etc...)
- **Plus 2 Combinations:** Any number plus two (3+2, 2+7, etc...)
- **Doubles:** A fact that has two addends that are the same (5+5, 8+8, 3+3 etc...)
- **Near Doubles:** A fact that is 1 more or 1 less than a doubles fact (5+6, 8+7, 2+3m etc...)

Students will work to master other sets of combinations in later units. To learn these combinations, we will be frequently working with these combinations in a variety of experiences such as games and problem solving. To become fluent, students must be able to recall these facts without counting on their fingers.

Addition Strategy #1:

Adding by Place Value

Once students understand place value, this is one of the first strategies they utilize. Each addend is broken into expanded form and like place values are combined. When combining

Subtraction Strategy #1:

Subtracting by Place Value

Once students are comfortable skip counting forward and backward by 10's, subtracting by place value becomes a natural mental strategy. In this strategy, students only decompose the second number. Then they subtract it in parts.

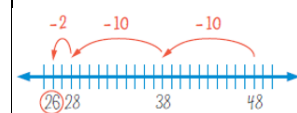
$$48 - 22$$

Show your thinking using pictures:



Think about counting backwards
48, 38,
28, 27, 26

Or using a number line:



$$48 - 10 - 10 = 28 \quad 28 - 2 = 26$$

Or using equations:

$$48 - 20 = 28$$

$$28 - 2 = 26$$

We begin the year with the Subtracting by Place Value strategy because it reinforces understanding of how our place value system is based on tens and ones and provides practice for skip counting by tens. Being able to mentally add or subtract ten from any given number is a very important skill for third grade. We will learn more strategies as the year progresses.

Activities to Try at Home - Collect \$1

In 1st grade, students began skip counting by 2's, 5's, and 10's. Many 2nd graders still struggle with this skill past the number 10.

We can support this learning through games and by making connections to money.

Playing this game at home with your student will encourage development of these skills.

Materials: two dice, a collection of coins, paper and pencil

How to Play:

- 1) Each player will roll both dice and then take that amount of cents from the

Addition Strategy #2: Adding One Number in Parts

This strategy is a great extension for students who can add groups of ten to a number mentally. In this strategy, decompose one of the addends into easier parts to add.

$$23 + 48$$

$$23 + 40 = 63 \quad 23 + 40 = 63 \quad 48 + 20 = 68$$

$$63 + 7 = 70 \quad 63 + 8 = 71 \quad 68 + 3 = 71$$

$$70 + 1 = 71$$

Addition Strategy #3: Compensation

This strategy is a great extension for students who are ready to mentally calculate larger problems. This strategy requires you to take a little from one number and give it to the other number in order to make the problem easier to mentally compute.

$$23 + 48$$

$$23 + 48$$

Erica explains: I took 2 away from the 23 and gave it to the 48 to make 50. 50 + 21 is easier to do in my head than 23 + 48.

$$21 + 50 = 71$$

Subtraction Strategy #2: Adding Up

Since addition and subtraction are related, many students prefer to add up rather than subtract. This is an appropriate strategy because it uses a skill most students are strong in (addition) and most students are less likely to make mistakes.

$$500 - 246 = 254$$

$$246 + ? = 500$$

$$246 + 4 = 250$$

$$250 + 50 = 300$$

$$300 + 200 = 500$$

$$1,000 - 734 = 266$$

$$734 + ? = 1,000$$

$$734 + 6 = 740$$

$$740 + 60 = 800$$

$$800 + 200 = 1,000$$

Fractional Understandings:

Second graders will be learning the fraction counting sequence for halves, fourths, and eighths.

Multiplication and Repeated Addition:

In 2nd Grade, students will begin to explore situations that involve many equal groups. In previous grades, students have counted to find these totals, either by ones, twos, fives, or tens. Now they will make connections between skip counting and repeatedly adding equal sized groups.

Sample Problem:

A new hotel is being built. They want to build a chart to figure out how many rooms they can build without having to walk down every hall and count the rooms. Help them create a chart to represent the number of rooms in the hotel.

Total Number of Floors	Total Number of Rooms	How I Figured it Out
1	10	10
2	20	10+10
3	30	10+10+10
4	?	

Nichole explained: If there are 10 rooms on the first floor, then there are 10+10 on the second floor. The fourth floor will have four groups of ten.

Common Measurement Errors:

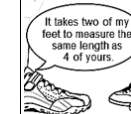
In 1st grade, students measured items using non-standard units (paper clips or popsicle sticks). In 2nd grade, students explore standard units of measurement to measure both area and length. Here are a few common errors students make while learning about measurement.

- Overlapping rulers or gaps between the rulers



- The same number of different sized units are not the same length

- The same length can be labeled with more than one measurement

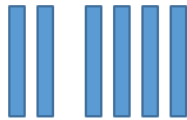


- When a length is measured in inches and centimeters, there are less inches used

quantities, children can work from left to right because the magnitude of the numbers is not changed.

$$23 + 48$$

Show your thinking using pictures:



$$20 + 40 = 60$$

$$60 + 11 = 71$$



$$3 + 8 = 11$$

Or using the partial sums algorithm:

$$\begin{array}{r} 23 \\ +48 \\ \hline 60 \\ +11 \\ \hline 71 \end{array}$$

Or using equations:

$$20 + 40 = 60$$

$$3 + 8 = 11$$

$$60 + 11 = 71$$

We begin the year with the Adding by Place Value strategy because it reinforces understanding of how our place value system is based on tens and ones. We will learn more strategies as the year progresses.

collection of coins. Record your total on the paper.

2) Keep taking turns, adding your coin collection

each time. You may trade coins to make it easier. (Remember to count by 5's and 10's.)

3) The game is over when both players have collected \$1.

Sample Game: I rolled a 9, so I am going to take a nickel and 4 pennies. My next roll is a 3, so I take 3 pennies. I now have 12 cents. I can trade ten cents for a dime. Now I have a dime and two pennies left.

$$5\text{¢} + 4\text{¢} = 9\text{¢}$$

$$9\text{¢} + 3\text{¢} = 12\text{¢}$$

2D and 3D Shapes

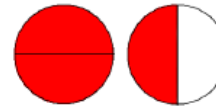
This year, students will begin sorting a variety of shapes based on their attributes. For example, given a variety of 2D shapes, students might sort the shapes by the number of sides by putting all the shapes with 4 sides in a group, 5 sides in a group, etc. Students will also be asked to create shapes with given attributes. For example, draw a shape that has 5 vertices.

New Vocabulary:

Polygons – Any closed, 2-d shape with three or more straight sides.



Vertex – The point where two or more sides (on a 2-d shape) meet to form an angle or where 3 or more faces of a 3-d shape intersect.



Think: $\frac{1}{2}, \frac{2}{2}, \frac{3}{2}$
Or $\frac{1}{2}, 1, 1\frac{1}{2}$

Students will also identify examples and non-examples of pictures that represent a fraction.



Sam explains: *This is a non-example of one-half because it does not have two equal parts.*



Clara explains: *This is an example of two-fourths because it has four equal parts and two parts are colored in.*

Vocabulary:

Unit Fraction – A fraction that has a 1 as its numerator

Compose -Putting together smaller pieces or numbers to create a larger number

Decompose – Breaking a number down into its smaller pieces or numbers

$$\begin{array}{c} \text{numerator} \rightarrow 2 \\ \hline 4 \leftarrow \text{denominator} \end{array}$$

How can I support my child's learning?

- Practice measuring the length of different objects around the house in inches and centimeters with a ruler.
- Compare measurements of the same object in inches and centimeters. Ask questions such as, "Why aren't the measurements the same number?"
- Use sidewalk chalk to mark a starting point and then measure how far different people can jump. Ask questions such as, "How much longer did Dad jump than Ben?" or "How much more does Ben need to jump to go the same distance as Dad?"

General Resources

Math 4 Texas: <https://www.math4texas.org/>

Graham Fletcher Progression Videos: <https://gfletchy.com/progression-videos/>

Interactive Math Glossary: <https://www.texasgateway.org/resource/interactive-math-glossary>

ST Math: sso.ems-isd.net

Khan Academy: <https://www.khanacademy.org/math>