

3rd Grade Math Parent Guide

	1 st Grading Period	2 nd Grading Period	3 rd Grading Period	4 th Grading Period
Units/TEKS Process Standards 3.1ABCDEF G through every unit TEKS	<u>Unit 1: Place Value, Addition, and Subtraction</u> 3.2ABCD <u>Unit 8: Addition and Subtraction Strategies</u> 3.4AB, 3.5A <u>Unit 3: Larger Place Value, Addition and Subtraction Word Problems</u> 3.4ABC, 3.5A, 3.7C	<u>Unit 5: Multiplication and Division</u> 3.4DEFGHIJK, 3.5BCDE, 3.6CD, 3.7C <u>Unit 2: Data and Graphs</u> 3.8AB	<u>Continue Unit 5 and Data Review</u> 3.7C, 3.8AB <u>Unit 7: Fractions</u> 3.3ABCDEFGH, 3.6E, 3.7A <u>Unit 4: Perimeter</u> 3.7B <u>Unit 9: 2D and 3D Shapes</u> 3.6AB	<u>Review: Data, Place Value</u> 3.8AB, 3.2AD <u>Unit 8: Addition and Subtraction 3-digit numbers, Liquid Volume</u> 3.4AK, 3.5AB, 3.7DE <u>Personal Financial Literacy:</u> 3.9ABCDEF
Topic Focus	Unit 1: This unit develops ideas about the meaning of operations with whole numbers, the development of computational fluency, the structure of place value and the base-ten number system, and generalizations about numbers and operations. The focus is on understanding the equivalence of one group in the base-ten system and the units that comprise it and adding and subtracting accurately and efficiently. Unit 8: In this unit, students will continue to add and subtract accurately and efficiently and will be able to describe, analyze, and compare strategies to add and subtract whole numbers. Unit 3: This unit develops ideas about extending our knowledge of the number system to 1,000; understanding the equivalence of one group and the discrete units that comprise it; the growth of computational fluency with addition and subtraction; and understanding different types of subtraction problems.	Unit 5: In this unit, students investigate the properties of multiplication and division, examine the inverse relationship between these two operations, learn the multiplication combinations with products up to 50 fluently, and develop strategies for solving multiplication and division problems. Unit 2: In this unit, students will develop ideas about collecting, representing, describing, and interpreting data.	Unit 5: (continued) Unit 7: This unit develops ideas about understanding the meaning of fractions as equal parts of a whole and using representations. Unit 4: This unit develops ideas about the attributes of 2D and 3D shapes and how these determine their classification. It also develops ideas about linear measurement (including perimeter) and square measurement (area). Unit 9: In this unit, students will continue work with 2D and 3D shapes and their attributes which help determine their classification. They also develop ideas about liquid volume.	Unit 8: In this unit, students will continue to add and subtract accurately and efficiently and will be able to describe, analyze, and compare strategies to add and subtract whole numbers. Personal Financial Literacy Students will look at human capital and income, the relationship between availability or scarcity of resources and how that impacts cost, credit and lending practices, and the benefits of saving.

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

$$23 + 48$$



$$20 + 40 = 60$$

$$3 + 8 = 11$$

$$60 + 11 = 71$$

Or using the partial sums algorithm:

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

Or using equations:

$$20 + 40 = 60$$

$$3 + 8 = 11$$

$$60 + 11 = 71$$

Adding One Numbers in Parts

Students begin with one of the addends and add up using numerical relationships such as tens and ones, make ten facts or landmark numbers.

$$23 + 48$$

Show your thinking using pictures:



$$23,$$

$$33, 43, 53, 63, 65, 70, 71$$

Or using a number line:



Or using equations:

$$23 + 10 + 10 + 10 + 10 = 63$$

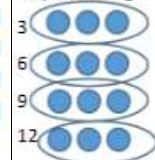
$$63 + 7 = 70$$

$$70 + 1 = 71$$

Multiplication:

In our first multiplication unit, students will develop an understanding of when and how to use multiplication. Multiplication is used when we need to combine many equal groups. There are a variety of strategies students will be learning about to help them combine these groups until they have memorized all their multiplication facts.

Examples for Solving 4×3

Skip Counting**Repeated Addition**

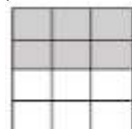
$$3 + 3 + 3 + 3 = 12$$

Arrays**Commutative Property**

4×3 has the same product as 3×4 . If I already know 3×4 , then I also know 4×3 .

Distributive Property

Decompose one of the factors in a multiplication problem into easier parts then multiply and combine the parts.



$$3 \times 4 = (3 \times 2) + (3 \times 2)$$

$$3 \times 4 = 6 + 6$$

$$3 \times 4 = 12$$

Fact Fluency:

By the end of 3rd grade, students will be expected to know the basic facts up to 10×10 . Until we can get those facts known, students will be encouraged to use mental math and the distributive property to solve facts they are still working on. See above example. To help your child learn their facts, ask your child questions such as the following:

- Which factor could you break down into easier parts?
- Which two or three facts can we focus on this week?

Fractions:

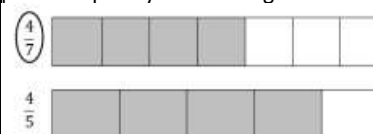
In 3rd grade, students will continue their understanding of fractions to include fractions of a whole, fractions of a number line, and fractions of a set of objects.

One way 3rd grade students determine the name of a fraction is counting by unit fractions. This strategy is also helpful to learn the fractional sequence so they can label number lines.

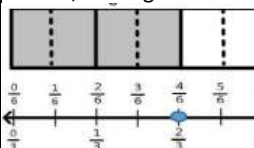
Think: $\frac{1}{3}, \frac{2}{3}, \frac{3}{3}$ or $\frac{1}{3}, \frac{2}{3}, 1$ whole

Reasoning about Fractions:

Which fraction has a smaller shaded piece? Explain your thinking.

**Equivalent Fractions:**

Students will explore the relationship between thirds and sixths, and halves, fourths, and eighths.



Sarah explained it like this: *To make sixths, you just have to cut the thirds in half.*

Jimmy explained it like this: *If you mark your thirds on the number line, you can find the sixths easy. Just put a line in the middle of each third.*

Perimeter and Area:

Perimeter is the measurement around an object. Students can add all the side lengths to find perimeter. They will also calculate missing lengths of sides when given the total perimeter.



The perimeter of this pentagon is 40 inches. What is the length of the missing side?

Area is the measurement of the space inside a 2D shape. Students will begin by using square tiles to cover the inside of a shape and then move to length X width. They will also decompose an irregular shape into smaller shapes and add the areas of both together to find the total area.

Subtraction Strategies:**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.

$$500 - 246 = 254$$

$$1,000 - 734 = 266$$

$$246 + ? = 500$$

$$734 + ? = 1,000$$

$$246 + 4 = 250$$

$$734 + 6 = 740$$

$$250 + 50 = 300$$

$$740 + 60 = 800$$

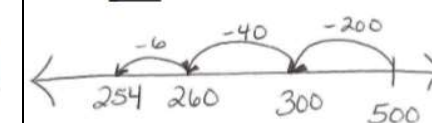
$$300 + 200 = 500$$

$$800 + 200 = 1,000$$

Subtracting by Place Value

Once students are comfortable skip counting forward and backward by 10s, subtracting by place value becomes a natural mental strategy. In this strategy, students decompose the second number into its expanded form and then subtract it in parts.

$$500 - 246 =$$



Or Subtracting by Place Value with Equations:

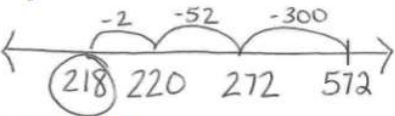
$$500 - 200 = 300$$

$$300 - 40 = 260$$

$$260 - 6 = 254$$

Subtracting Back

In the subtracting back strategy, students can decompose the number that is being subtracted in any way that makes the problem easier to solve. Students typically choose to use landmark numbers (multiples of ten) or basic fact computations that they are comfortable with. See below.

	Compensation: The goal of this strategy is to decompose the numbers into easier, friendly numbers. When compensating, remove a specific amount from one addend and give it to the other addend. Choosing which number to adjust is an important decision that is linked students' number sense. $23 + 48$ $(23 - 2) + (48 + 2)$ $21 + 50 = 71$ Think: I am going to take 2 away from 23 and give it to the 48 because 50 is easier to mentally add than 48.		2D Shapes: Students will focus on the attributes of quadrilaterals. Students will use the definitions of each quadrilateral to justify if a shape fits a rule or category through sorting shapes and solving riddles. Try this one!  Shape A Shape B Shape C Shape D Shape E Clue 1: I have 4 vertices. Clue 2: I have 2 pairs of parallel sides. Clue 3: I have 4 congruent sides. (The mystery shape is Shape C, a square-also known as rhombus and rectangle.)	$572 - 354 = \underline{218}$ Using a number Line  Or Using Equations: $572 - 354 = \underline{\quad}$ $572 - 300 = 272$ $272 - 52 = 220$ $220 - 2 = \underline{218}$ Jose explained his thinking like this: <i>First I subtracted 300 to get 272. Then I chose to do 272-52 instead of 272-54 because I am not sure what -54 would be in my head. I can do 272-52 in my head. It's 220. I have taken away 352 so far, I need to take away 2 more. So that's 218.</i>
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			