Greenwich Public Schools Curriculum Overview

Grade 2: Mathematics

Families as Partners in Learning

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

All grade 2 units of study are directly aligned with the approved Connecticut Core Standards for Mathematics.

The GPS Mathematics Program uses the philosophy of CPA (Concrete, Pictorial, Abstract). In the concrete stage, students use manipulatives to explore new concepts. In the pictorial stage, ideas are represented as models to help demonstrate the relationships between numbers. In the abstract stage, students connect their concrete experiences and pictorial representations to abstract symbols and numbers.

Unit	Student Learning Expectations
Unit 1: Place Value to 1,000 ***Enduring Understandings:*** ● In this unit learners will develop an understanding of the value of a digit and how it depends upon its place in a number; ● How numbers can be represented in many ways, such as with base ten blocks, words, pictures, number lines,	**Students will Do:** ● Represent a hundred as ten groups of ten. ● Represent each digit in a three-digit number using hundreds, tens, and ones. ● Explain the value of each digit in a three-digit number (place value). ● Explain the value of the zeros in a given hundred as zero tens and zero ones. ● Skip count to 1,000 by 10's. ● Skip count to 1,000 by 100's. ● Skip count to 1,000 by 5's. ● Read and write numbers up to 1,000 using base-ten numerals (e.g., 234) ● Read and write numbers using expanded form (e.g., 200 + 30 + 4). ● Read and write numbers up to 1,000 using number names (e.g., two hundred thirty-four). ● Explain a process for determining whether a three-digit number is greater than, less than, or equal to another three-digit number.

and expanded form. ● How place value determines which numbers are larger or smaller than other numbers.	● Determine when a three-digit number is greater than, less than, or equal to another three-digit number, and record the comparison using the symbols >, <, and =.
Unit 2: Fact Strategies (+ -) Up to 20 ***Enduring Understandings:*** ● Digits in each place represent amounts (in thousands, hundreds, tens, ones) ● Numbers can be broken apart and grouped in different ways to make calculations simpler. ● Numbers can be represented using objects, words, and symbols (Story, number sentence and picture to match) ● The unknown does not have to be at the end of a number sentence – it can appear in a variety of positions	**Students will Do:** ● Choose when to use addition and/or subtraction in a word problem ● Represent addition and subtraction word problems using objects, drawings, and equations with unknowns in all positions. ● Solve addition and subtraction word problems that involve two steps (doing one computation, and using that answer to perform a second computation that leads to the solution of the problem). ● Solve word problems with unknown numbers in different positions (e.g., 5 + =___ 13 or ___ + 8 = 13) ● Use mental strategies (e.g., count on, make a ten) to add or subtract numbers within 20 with ease. ● Recall from memory all sums of two one-digit numbers. ● Explain addition and subtraction using place value. ● Explain addition and subtraction using the properties of operations (commutative, associative, identity)

• Keywords do not always tell you the operation to use • Counting on is not for addition only	
Unit 3: Fluency with Addition and Subtraction Within 100 ***Enduring Understandings:*** • Break aparts (Number bonds) are a useful tool when problem solving. • When adding and subtracting it is important to be aware of the value of the digit. 39 represents 3 tens and 9 ones or 30 + 9. • When adding the order does not matter (Associative Property). When subtracting order does matter.	**Students will Do:** • Add and subtract numbers within 100 with ease by applying strategies (e.g., decomposing numbers into tens and ones, using commutative and associative properties, using mental strategies) based on the numbers being added or subtracted. • Add up to four two-digit numbers by applying strategies (e.g., decomposing numbers, rearranging the order of the numbers, making tens or multiples of tens based on the numbers being added. • Choose when to use addition and/or subtraction in a word problem • Represent addition and subtraction word problems using objects, drawings, and equations with unknowns in all positions. • Solve addition and subtraction word problems that involve two steps (doing one computation, and using that answer to perform a second computation that leads to the solution of the problem). • Solve word problems with unknown numbers in different positions (e.g., 5 + = 13, + 8 =) • Solve problems about measurement. • Find sums and differences within 100 using a number line. • Create a number line with whole number intervals (equal spacing). • Represent whole numbers on a number line. • Explain addition and subtraction using place value. • Explain addition and subtraction using the properties of operations (commutative, associative, identity)

Unit 4: Time and Money ***Enduring Understandings:*** ● The hands on the clock tell the hours and the minutes. ● When telling time it is important to denote morning (am) or afternoon (pm). ● Different combinations of coins can yield the same value	**Students will Do:** ● Explain the difference between a.m. and p.m. ● Look at the time on an analog clock (when the hour hand is pointing to any of the numbers), say what time it is, and write the time as it would appear on a digital clock. ● Look at the time on a digital clock (when the minutes are displayed as a multiple of 5), say what time it is, and draw in the hands on an analog clock. ● Write the time and draw in the hands on an analog clock when someone tells me what time it is to the nearest 5 minutes. ● Understand and use special terms such as: half past, quarter after/past, quarter to, minutes after/past, minutes to. ● Identify and give the value of dollar bills, quarters, dimes, nickels, and pennies. ● Use $ (dollar) and ¢ (cents) symbol appropriately. ● Solve a word problem with dollar bills, quarters, dimes, nickels, and pennies.
Unit 5: Exploring Addition and Subtraction within 1,000 ***Enduring Understandings:*** ● Composing/Decomposing numbers is an important strategy when adding and subtracting. ● It is critical to constantly pay attention to the place value of the digits in order to regroup properly.	**Students will Do:** ● Use concrete models or drawings to show how to add within 1000 using a strategy based on place value (collecting the hundreds, tens, and ones, and when necessary, composing ten ones to make a ten or composing ten tens to make a hundred.) ● Mentally add 10 to a given number from 100-900. ● Mentally subtract 10 from a given number from 100-900. ● Mentally add 100 to a given number 100-900. ● Mentally subtract 100 from a given number from 100-900. ● Explain addition and subtraction using place value. ● Explain addition and subtraction using the properties of operations (commutative, associative, identity) ● Choose when to use addition and/or subtraction in a word problem

Example: 98 the 9 represents a 90. ● The use of manipulatives and graphic organizers is helpful when trying to understand a new concept.	● Represent addition and subtraction word problems using objects, drawings, and equations with unknowns in all positions. ● Solve addition and subtraction word problems that involve two steps (doing one computation, and using that answer to perform a second computation that leads to the solution of the problem). ● Solve word problems with unknown numbers in different positions (e.g., 5 + = 13, + 8 =)
Unit 6: Reasoning with Shapes ***Enduring Understandings:*** ● Equal shares of a whole are written in word form (e.g., halves, thirds, fourths). ● Equal shares of a whole are described as words (e.g., two halves, three thirds). ● Equal shares of a partitioned shape do not have to look the same. ● Shapes are classified by their number of sides and vertices.	**Students will Do:** ● Identify important attributes of a shape. ● Use important attributes to name shapes (number of sides, faces, angles/vertices/corners). ● Draw a shape when given its attributes. ● Draw rows and columns of equal size in a rectangle. ● Count the equal size squares in a rectangle. ● Partition (divide) a circle and rectangle into two, three, or four equal parts. ● Describe the equal shares with words (e.g., halves, thirds, fourths). ● Describe a whole by the number of equal parts (e.g., two halves make a whole). ● Explain and give examples to show that halves, thirds, and fourths of an identical whole need not be the same shape (e.g., half of a rectangle can be shown horizontally or vertically).

Unit 7: Standard Linear Measurement and Data ***Enduring Understandings:*** ● Having standard units of measure helps us communicate to others. ● It is important to think about the relative size of an object when choosing the best unit of measure. Examples: yards for a field, inches for a book. ● Attention to precision when measuring is critical for accuracy.	**Students will Do:** ● Select an appropriate tool (e.g., ruler, yardstick, meter stick, measuring tape) to measure an object. ● Measure the length of an object using a tool. ● Select several appropriate units of length (e.g., inches, feet, centimeter, meter) to measure an object. ● Accurately measure an object with two different unit lengths. ● I can compare the measurement using the shorter unit length to the measurement using the longest unit length, and explain how the size of the unit length affects the measurement. ● Estimate the length of a given object in inches and feet. ● I can estimate the length of a given object in centimeters and meters. ● Measure the length of any object in a given unit. ● Find the difference in length between two objects using standard units.
Unit 8: Exploring Multiplication ***Enduring Understandings:*** ● Repeated addition can be used to solve multiplication problems. Example “5x3” is the same as “5+5+5”.	**Students will Do:** ● Identify a group of objects as being even or odd using different strategies. ● Write an equation to show an even sum has the same addends (e.g., 5 + 5 = 10, 6 + 6 = 12). ● Use addition to find the total number of objects in an array. ● Write an addition equation (e.g., 3 + 3 + 3 = 9) to express the total as a sum of equal addends. ● Represent the total number of objects arranged in a rectangular array as an expression with the repeated addition of number of objects in each row (or column). For example if there are 3 rows with 4 objects in each row, I can write the expression 4 + 4 + 4. .