Greenwich Public Schools Curriculum Overview

Grade 1: Mathematics

Families as Partners in Learning

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

All grade 1 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: Fluency with Addition and Subtraction within 10 ***Enduring Understandings:*** ● I learn best when I can learn from others. ● Practice makes permanence. ● Being mathematically	**Students will Do:** • I can count to 120. • I can count to 120 starting at any number. • I can read any number up to 120. • I can write any number up to 120. • I can label a set of objects up to 120 with the written numeral. • I can model addition and subtraction word problems using objects, drawings, and equations with unknown numbers in different positions. • I can solve addition and subtraction word problems using objects, drawings, and equations.

proficient can determine my future. ● Addition is adding to, putting together (combining). ● Subtraction is taking from, taking apart, comparing, finding the difference. ● Word problems tell me what happened and help me decide to add or subtract. ● When adding, the arrangement of the parts does not matter. ● When subtracting, the larger number must be first (Total-part-part).	• I can solve word problems with unknown numbers in different positions (e.g., 6 + = 8, + 2 = 8, 6 + 2 = __). • I can add three whole numbers whose sum is less than or equal to 20 • I can model addition and subtraction word problems using objects, drawings, and equations with unknown numbers in different positions. • I can solve word problems with three whole numbers using objects, drawings, and equations. I can show that adding zero to any number does not change the number (e.g., 4 + 0 = 4). (Quarter 1) • I can show that changing the order of the addends (numbers) does not change the sum. (Quarter 1) • I can show when adding three numbers in any order, the sum does not change (e.g., 2 + 3 + 1 = 5 + 1). (Quarter 3 and 4) • I can use properties of operations to add and subtract. • I can give an example and explain how a subtraction equation can be rewritten as an addition equation. • I can rewrite a subtraction equation as an addition equation with a missing addend. • I can add by counting all, counting on, and recognizing the +1 means the next number and the +2 means the next number in the counting sequence. • I can subtract by counting back, counting up from, and recognizing the -1 means the number before, and -2 means the number that is two numbers before in the counting sequence. • I can add and subtract within 10 easily. • I can add and subtract by counting on or counting back (e.g. 1 + 5 = 6, 7 - 5 = 2) • I can add and subtract by making 10. (e.g. 7 + 3 = 10, 10 - 6 = 4) • I can add and subtract by using doubles (or halves). (e.g. 4 + 4 = 8, 6 - 3 = 3) • I can add and subtract by adding 10. (e.g. 5 + 10 = 15, 17 - 10 = 7) • I can explain that the equal sign means "same as." I can compare the value of both sides of an equation and determine whether the equation is true or false. • I can determine the unknown value in an addition or subtraction equation when two out of three numbers in the equation are given. • I can organize data in up to three categories. • I can represent data in up to three categories.

	• I can answer questions about the total number of data points and how many data points are in each category.
Unit 2: Partition Shapes and Tell Time ***Enduring Understandings:*** ● Time can be shown using the hands on a clock. ● Time on a clock can be written in different ways. ● Time to the hour and half hour can be told and written using analog and digital clocks. ● A shape can be divided into equal part.? ● Circles and rectangles can be divided into two and four equal parts. ● Equal parts of a whole can be described by the number of equal parts (e.g., two	**Students will Do:** • I can partition (divide) a circle and rectangle into two and four equal parts. • I can describe the equal parts of a circle and rectangle with words (halves, fourths, and quarters). • I can describe the whole by the number of equal parts (e.g., two halves make a whole). • I can explain the more equal parts in circle or rectangle, the smaller the parts. • I can identify a digital and an analog clock. • I can identify the hours and minutes on a digital and analog clock. • I can tell how many minutes are in an hour. • I can explain why 30 minutes is a half-hour. • I can look at the time on an analog clock (when the hour hand is pointed to 12 or 6), say what time it is, and write the time as it would appear on a digital clock. • I can look at the time on a digital clock (when the minutes is displayed as :00 or :30), say what time it is, and write the time as it would appear on an analog clock. • I can write the time and draw in the hands on an analog clock when someone tells me what time it is (when time is stated as "_ o'clock" or "_thirty" or "half past _).

halves make a whole).	
Unit 3: Explore Addition and Subtraction to 20 ***Enduring Understandings:*** ● Operations create relationships between numbers. ● The relationships among operations and their properties promote computational fluency.	**Students will Do:** • I can count to 120. • I can count to 120 starting at any number. • I can read any number up to 120. • I can write any number up to 120. • I can label a set of objects up to 120 with the written numeral. • I can model addition and subtraction word problems using objects, drawings, and equations with unknown numbers in different positions. • I can solve addition and subtraction word problems using objects, drawings, and equations. • I can solve word problems with unknown numbers in different positions (e.g., 6 + = 8, + 2 = 8, 6 + 2 = __). • I can model addition and subtraction word problems using objects, drawings, and equations with unknown numbers in different positions. • I can add three whole numbers whose sum is less than or equal to 20. • I can solve word problems with three whole numbers using objects, drawings, and equations. • I can show that adding zero to any number does not change the number (e.g., 4 + 0 = 4). (Quarter 1) • I can show that changing the order of the addends (numbers) does not change the sum. (Quarter 1) • I can show when adding three numbers in any order, the sum does not change (e.g., 2 + 3 + 1 = 5 + 1). (Quarter 3 and 4) • I can use properties of operations to add and subtract. • I can give an example and explain how a subtraction equation can be rewritten as an addition equation. • I can rewrite a subtraction equation as an addition equation with a missing addend. • I can add by counting all, counting on, and recognizing the +1 means the next number and the +2 means the next number in the counting sequence.

	• I can subtract by counting back, counting up from, and recognizing the -1 means the number before, and -2 means the number that is two numbers before in the counting sequence. • I can add and subtract within 10 easily. • I can add and subtract by counting on or counting back (e.g. 1 + 5 = 6, 7 - 5 = 2) • I can add and subtract by making 10. (e.g. 7 + 3 = 10, 10 - 6 = 4) • I can add and subtract by using doubles (or halves). (e.g. 4 + 4 = 8, 6 - 3 = 3) • I can add and subtract by adding 10. (e.g. 5 + 10 = 15, 17 - 10 = 7) • I can explain that the equal sign means "same as." I can compare the value of both sides of an equation and determine whether the equation is true or false. • I can determine the unknown value in an addition or subtraction equation when two out of three numbers in the equation are given. • I can organize data in up to three categories. • I can represent data in up to three categories. • I can answer questions about the total number of data points and how many data points are in each category.
Unit 4: 2D/3D Shapes and Non-Standard Measurement ***Enduring Understandings:*** ● Measurement describes the attributes of shapes, objects, and events. ● Understanding shapes and measurement offer ways for students to interpret and reflect on the physical environment around	**Students will Do:** • I can explain the difference between defining attributes (e.g. sides, angles, faces) and non-defining attributes (e.g. color, orientations, overall size) • I can construct and draw a shape when defining attributes. • I can identify two-dimensional and three-dimensional shapes. • I can create new shapes using two-dimensional and/or three dimensional shapes. • I can recognize when an object is longer or shorter than another object. • I can organize three objects by length in order from shortest to longest. • I can compare the lengths of two objects by using a third object. • I can explain how to use a shorter object to measure the length of a longer object and explain why it is important to avoid gaps and overlaps. • I can report the length of an object as the total number of shorter objects it takes to span the longer object without gaps and overlaps. • I can represent the length of the longer object with a whole number.

them. ● Analyzing shapes and their relationships to one another develops reasoning and justification skills. ● Understanding non-formal standards of measurement eventually leads students to understand standard measurement which enables people to communicate about objects and events in the same terms, interpret data and results, and coordinate objects and events in the real world.	
Unit 5: Counting and Place Value (through addition and subtraction) ***Enduring Understandings:*** ● There are many ways to represent a number.	**Students will Do:** • I can count to 120. • I can count to 120 starting at any number. • I can read any number up to 90. • I can write any number up to 90. • I can label a set of objects up to 90 with the written numeral (moving from concrete objects to pictures, and abstract representations -also moving from counting all to counting in groups of ten).

● By building knowledge of place value, students will understand the difference between a digit and the value of the place it is in.	• I can represent 10 as ten ones. • I can represent numbers 11 to 19 as a ten and some ones. • I can represent multiple sets of ten using number names (2 tens is 20). • I can explain the value of each digit in a two-digit number (place value). • I can determine when a two-digit number is greater than, less than, or equal to another two-digit number. • I can explain why a two-digit number is greater than, less than, or equal to another two-digit number. • I can record the comparison using the symbols >, <, and =. • I can mentally find 10 more for any two-digit number (e.g., 32 + 10 = 42) • I can mentally find 10 less for any two-digit number (e.g., 32 - 10 = 22) • I can explain why the tens digit increases or decreases by 1 when 10 is added or subtracted. • I can organize data in up to three categories. • I can represent data in up to three categories. • I can answer questions about the total number of data points and how many data points are in each category.
Unit 6: Exploring Addition and Subtraction Within 100 ***Enduring Understandings:*** ● Operations create relationships between numbers. ● The relationships among the operations and their properties promote computational fluency.	**Students will Do:** • I can show that adding zero to any number does not change the number (e.g., 4 + 0 = 4). • I can show that changing the order of the addends (numbers) does not change the sum. • I can show when adding three numbers in any order, the sum does not change (e.g., 2 + 3 + 1 = 5 + 1). • I can use properties of operations to add and subtract. • I can add by counting all, counting on, and recognizing the +1 means the next number and the +2 means the next number in the counting sequence. • I can subtract by counting back, counting up from, and recognizing the -1 means the number before, and -2 means the number that is two numbers before in the counting sequence. • I can explain that the equal sign means "same as." • I can compare the value of both sides of an equation and determine whether the equation is true or false (in this unit we will link true/false questions with yes and no. Students will identify mostly true/yes questions in various equation formats - moving the = sign. Students will encounter false/no questions only when the equals sign is in the

	right position. When the equals sign is in the left position, students will be presented with correct equations., unless students show errors/mistakes they will then be shown to class as false/no/not true equations). • I can count to 120. • I can count to 120 starting at any number. • I can read any number up to 120. • I can write any number up to 120. • I can label a set of objects up to 120 with the written numeral (moving from concrete objects to pictures, and abstract representations -also moving from counting all to counting in groups of ten). • I can represent 10 as ten ones. • I can represent numbers 11 to 19 as a ten and some ones. • I can represent multiple sets of ten using number names (2 tens is 20). • I can explain the value of each digit in a two-digit number (place value). • I can use concrete models or drawings to show a strategy based on place value (collecting tens, collecting ones, and if necessary, composing ten ones to make a ten) and other strategies (such as applying the operations properties) to add the following: a two-digit number and a one-digit number, a two-digit number and a multiple of ten, and a two-digit number and a two-digit number. • I can write down and explain the steps that I followed as I used the concrete models or drawings to show how I added. • I can subtract a multiple of 10 from a multiple of 10. (e.g., subtract 90 - 40) • I can explain my strategy for subtracting a multiple of 10 from a multiple of 10. • I can explain how subtracting by a multiple of ten is related to subtracting the tens digit.