



Greenwich Public Schools Curriculum Overview

Kindergarten: Mathematics

Families as Partners in Learning

In Kindergarten, instructional time in Kindergarten is focused on two areas; representing, relating and operating on whole numbers, initially with sets of objects and describing shapes and space. Students use numbers to represent quantities and to solve quantitative problems. Students describe their physical world using geometric ideas and vocabulary.

All Kindergarten 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
<p>Unit 1: Numbers 0-5</p> <p>Enduring Understandings:</p> <ul style="list-style-type: none"> ● I learn best when I can learn from others. ● Practice makes permanence. ● Being mathematically proficient can determine my future. ● Counting tells how many there are in a group, regardless of their arrangement. The last 	<p>Students will Do:</p> <ul style="list-style-type: none"> • I can count to 10 by ones. • I can count to 20 by ones. • I can count to 100 by ones. • I can count to 100 by tens. • I can write numbers 0-10. • I can write numbers 11-20. • I can represent a group of objects with a written numeral 0-20. • I can count objects in a group (each object is counted only once) regardless of arrangement and order. • I can say "how many" are in a group after counting all the objects. • If I already know how many are in a group, I can say how many there are (without recounting the whole group) when one more object is added to the group. • I can explain my counting strategy.

number said when counting tells the total number of objects counted (naming the collection).

- Numerals are the symbols we read and write to communicate quantities (numbers).
- One quantity is either greater than, less than or equal to the other.
- Numbers can be decomposed in more than one way (example - 5 is 2+3, 4+1, etc.)
- We can describe groups as having more than, less than and greater than or the same. Conservation of numbers- A quantity can be rearranged; even though it looks different, if nothing has been added or subtracted from the quantity, it is still the same – and that the quantity does not need to be recounted each time (the idea that students must trust the number they just counted)

- I can count objects up to 20 in a variety of arrangements.
- I can say "how many" objects are in a group.
- I can show the correct number of objects when I am told a number up to 20.
- I can say which group has more by matching or counting the number of objects in both groups.
- I can say which group has less by matching or counting the number of objects in both groups.
- I can say when groups are equal by matching or counting.
- I can read numerals to 10.
- I can tell the values of numbers to 10.
- I can compare two numerals between 1 and 10 and say which has a greater value.
- I can sort (classify) objects into categories (groups).
- I can determine the number of objects in each category.
- I can sort the categories by number or count.

<p>Unit 2: 2D & 3D Shapes</p> <p><i>Enduring Understandings:</i></p> <ul style="list-style-type: none"> ● Kindergarten students should build an enduring understanding of 2D and 3D shapes to understand and navigate the physical environment around them. ● Students should be able to understand that objects and people have positions relative to other objects. ● They should be able to use positional words to describe relative positions in real life. ● Kindergarteners will be able to state the specific names on shapes regardless of their orientation or size. ● They will take away that 2D shapes are flat and 3D shapes are solid. ● The ability to analyze and compare shapes will help students navigate the world around them. 	<p>Students will Do:</p> <ul style="list-style-type: none"> ● I can find and name shapes (e.g., square, circle, triangle) in my environment. ● I can describe the position of objects (e.g., above, below, beside) ● I can name shapes correctly. ● I can name shapes correctly even when their size and orientation is unusual or different. ● I can define two-dimensional as being flat. ● I can define three-dimensional as being solid. ● I can identify two-dimensional shapes. ● I can identify three-dimensional shapes. ● I can build shapes from materials in my environment. ● I can draw shapes in my environment. ● I can describe a shape by telling things like the number of sides, number of vertices (corners), and other special qualities. ● I can compare two-dimensional shapes and describe their similarities and differences. ● I can compare three-dimensional shapes and describe their similarities and differences. ● I can build shapes from materials in my environment. ● I can draw shapes in my environment.
<p>Unit 3: Numbers 0-10</p> <p><i>Enduring Understandings:</i></p>	<p>Students will Do:</p> <ul style="list-style-type: none"> • I can count to 10 by ones. • I can count to 20 by ones. • I can count to 100 by ones. • I can count to 100 by tens.

<ul style="list-style-type: none"> Counting tells how many there are in a group, regardless of their arrangement. The last number said when counting tells the total number of objects counted. Numerals are the symbols we read and write to communicate quantities (numbers). One quantity is either greater than, less than or equal to the other. 	<ul style="list-style-type: none"> I can write numbers 0-10. I can write numbers 11-20. I can represent a group of objects with a written numeral 0-20. I can count objects in a group (each object is counted only once) regardless of arrangement and order. I can say "how many" are in a group after counting all the objects. If I already know how many are in a group, I can say how many there are (without recounting the whole group) when one more object is added to the group. I can explain my counting strategy. I can count objects up to 20 in a variety of arrangements. I can say "how many" objects are in a group. I can show the correct number of objects when I am told a number up to 20. I can say which group has more by matching or counting the number of objects in both groups. I can say which group has less by matching or counting the number of objects in both groups. I can say when groups are equal by matching or counting. I can read numerals to 10. I can tell the values of numbers to 10. I can compare two numerals between 1 and 10 and say which has a greater value. I can sort (classify) objects into categories (groups). I can determine the number of objects in each category. I can sort the categories by number or count.
<p>Unit 4: Measurement</p> <p><i>Enduring Understandings</i></p> <ul style="list-style-type: none"> Measurement describes the attributes of objects and events and helps us to communicate with others in our world. Students need to understand the idea of measurement as describing attributes about an object before they can 	<p>Students will Do:</p> <ul style="list-style-type: none"> I can describe measurable attributes of objects. I can describe the measurable attributes of a given object. I can tell which object is longer (or shorter or taller) than the other by comparing them side by side. I can tell which object can hold more (or less) than the other by filling up one of the objects and pouring it into the other one. I can tell which object is heavier (or lighter) by lifting one in one hand and the other in my hand.

<p>use standard units of measurement.</p> <ul style="list-style-type: none"> Standard measurement allows people to interpret results or data and understand attributes of items in ways that everyone sees equally. Building this foundation will allow them to build towards standard measurement. 	
<p>Unit 5: Numbers 0-20</p> <p>Enduring Understandings:</p> <ul style="list-style-type: none"> Counting tells how many there are in a group regardless of the order in which the objects are counted. The last number said when counting, tells the total number of objects counted. Numerals are the symbols we read and write to communicate quantities (numbers). One quantity is either greater than, less than or equal to the other. 	<p>Students will Do:</p> <ul style="list-style-type: none"> I can count to 10 by ones. I can count to 20 by ones. I can count to 100 by ones. I can count to 100 by tens. I can count to 10. I can count to 100. I can count on from a number other and 1 up to 100. I can write numbers 0-10. I can write numbers 11-20. I can represent a group of objects with a written numeral 0-20. I can count objects in a group (each object is counted only once) regardless of arrangement and order. I can say "how many" are in a group after counting all the objects. If I already know how many are in a group, I can say how many there are (without recounting the whole group) when one more object is added to the group. I can explain my counting strategy. I can count objects up to 20 in a variety of arrangements. I can say "how many" objects are in a group. I can show the correct number of objects when I am told a number up to 20.
<p>Unit 6: Add/Subtract to 10</p>	<p>Students will Do:</p>

<p>Enduring Understandings:</p> <ul style="list-style-type: none"> • Numbers represent quantity. 	<ul style="list-style-type: none"> • I can count to 10 by ones. • I can count to 20 by ones. • I can count to 100 by ones. • I can count to 100 by tens. • I can count to 10. • I can count to 100. • I can count on from a number other and 1 up to 100. • I can write numbers 0-10. • I can write numbers 11-20. • I can represent a group of objects with a written numeral 0-20. • I can count objects in a group (each object is counted only once) regardless of arrangement and order. • I can say "how many" are in a group after counting all the objects. • If I already know how many are in a group, I can say how many there are (without recounting the whole group) when one more object is added to the group. • I can explain my counting strategy. • I can count objects up to 20 in a variety of arrangements. • I can say "how many" objects are in a group. • I can show the correct number of objects when I am told a number up to 20. • I can explain addition (putting together and adding to). • I can explain subtraction (taking apart and taking from). • I can identify the mathematical symbols used to show addition and subtraction. • I can show addition and subtraction using objects, fingers, sounds, acting out situations, expressions, and equations. • I can add and subtract numbers within 10. • I can solve addition and subtraction word problems using objects and drawings. • I can decompose (break apart) numbers to 10 using objects or drawings. • I can record the answer using a drawing or equation. • I can easily add numbers that add up to 5 or less. • I can easily subtract numbers when the starting number is 5 or less.
<p>Unit 7: Numbers 11-19 (Place Value)</p> <p>Enduring Understandings:</p>	<p>Students will Do:</p> <ul style="list-style-type: none"> • I can count to 10 by ones. • I can count to 20 by ones. • I can count to 100 by ones. • I can count to 100 by tens.

<ul style="list-style-type: none"> There are relationships among numbers and by building an understanding of place value, students understand the relationship and the difference between the digit and the value of the number in a certain place. 	<ul style="list-style-type: none"> I can count to 10. I can count to 100. I can count on from a number other and 1 up to 100. I can count objects in a group (each object is counted only once) regardless of arrangement and order. I can say "how many" are in a group after counting all the objects. If I already know how many are in a group, I can say how many there are (without recounting the whole group) when one more object is added to the group. I can explain my counting strategy. I can count objects up to 20 in a variety of arrangements. I can say "how many" objects are in a group. I can show the correct number of objects when I am told a number up to 20. I can count to 20. I can use numbers 1-9 to make 10 using objects or drawings (e.g., ten frame, base ten blocks) I can compose (put together) numbers 11-19 using a ten and some ones, and show my work with a drawing or equation. I can decompose (break apart) numbers 11-19 into a ten and some ones, and show my work with a drawing or an equation. I can explain addition (putting together and adding to). I can explain subtraction (taking apart and taking from). I can identify the mathematical symbols used to show addition and subtraction. I can show addition and subtraction using objects, fingers, sounds, acting out situations, expressions, and equations. I can easily subtract numbers when the starting number is 5 or less.
<p>Unit 8: Compare, Analyze, and Compose Shapes</p> <p>Enduring Understandings:</p> <ul style="list-style-type: none"> Kindergarten students build and use enduring understanding of 2D and 3D shapes to understand and navigate the physical environment around them. 	<p>Students will Do:</p> <ul style="list-style-type: none"> I can find and name shapes (e.g., square, circle, triangle) in my environment. I can describe the position of objects (e.g., above, below, beside) I can name shapes correctly. I can name shapes correctly even when their size and orientation is unusual or different. I can define two-dimensional as being flat. I can define three-dimensional as being solid. I can identify two-dimensional shapes. I can identify three-dimensional shapes. I can describe a shape by telling things like the number of sides, number of vertices (corners), and other special qualities.

<ul style="list-style-type: none">• Objects and people have positions relative to other objects.• Positional words to describe relative positions in real life.• 2D shapes are flat and 3D shapes are solid.• The ability to analyze and compare shapes will help students navigate the world around them.	<ul style="list-style-type: none">• I can compare two-dimensional shapes and describe their similarities and differences.• I can compare three-dimensional shapes and describe their similarities and differences.• I can build shapes from materials in my environment.• I can draw shapes in my environment.• I can compose shapes to form larger shapes.
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