

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

Mathematics Kindergarten

2022

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The Trumbull Board of Education, as a matter of policy, prohibits discrimination on the grounds of age, creed, religion, sex, race, color, handicap, political affiliation, marital status, sexual orientation, or national origin.

CORE VALUES AND BELIEFS

Our mission states, “Trumbull Public Schools, in partnership with the community, strives to meet the educational **needs of all students** within a **challenging and supportive** academic environment that **empowers** each student to become a **life-long learner** and to live and participate in a democratic, diverse and global society.” Trumbull Public Schools believes in a shared, **collaboratively created vision of success** for all students in our district. We work throughout the year to ensure all instruction is in service of supporting students to achieve a shared vision of knowledge and skills.

- We believe that all individuals are capable of learning.
- We believe that all individuals should have the resources necessary to achieve success within a challenging curriculum.
- We believe that a family, school, and community partnership is essential to our success.
- We believe that a safe and orderly environment is critical to learning.
- We believe that there is strength in diversity and that all individuals are worthy of our respect and dignity.
- We believe that our school climate must be welcoming, caring, and supportive for all members of the learning community.
- We believe that a reflective evaluation of present practices and processes is necessary in order to plan for our future.

INTRODUCTION

The Elementary Math Curriculum was last revised in 2022 and was aligned to the State of Connecticut Common Core State Standards (CCSS). It includes specific grade level expectations and resources appropriate for this grade, making it a truly teacher-friendly instructional guide for ease in delivery. Appropriate professional development will further aid in fidelity to the implementation of the CCSS and assured use of the resources provided for instruction.

The Trumbull Mathematics Program promotes the empowerment of students and encourages students to embrace the skills needed to become successful in the 21st century. Students expand their mathematical abilities by investigating real world phenomena. Through such experiences, students can access the beauty and power of mathematics and truly appreciate the impact it has on the world in which they live.

PHILOSOPHY

Success in mathematics depends upon active involvement in a variety of interrelated experiences. When students participate in stimulating learning opportunities, they can reach their full potential.

The Trumbull Mathematics Program embraces these goals for all students.

Successful mathematicians:

- develop and demonstrate a balanced understanding of mathematics as conceptual, procedural, and application of skills.
- make meaningful mathematical connections to their world through peer collaboration.
- communicate effectively using mathematical terminology, both independently and collaboratively.
- solve problems utilizing a variety of strategies.
- utilize technology as a tool to enhance the problem solving process.
- use sound mathematical reasoning by utilizing the power of conjecture and proof in their thinking.
- become reflective thinkers through continuous self evaluation.
- become independent, self motivated, lifelong learners.
- engage in robust conversations and peer to peer interactions.
- demonstrate perseverance while building stamina when faced with challenging tasks.
- embody a growth mindset.
- take ownership and communicate their understanding and purpose of their learning.
- extend their learning beyond the classroom.

COURSE DESCRIPTION

In Kindergarten, instructional time should focus on two critical areas:

1. ***Representing and comparing whole numbers, initially with sets of objects***

Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

2. ***Describing shapes and space***

Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

OVERVIEW: Major, Supporting, and Additional Focus Areas for Kindergarten Mathematics

Counting and Cardinality

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

Operations and Algebraic Thinking

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Numbers and Operations Base Ten

- Works with numbers 11-19 to gain foundations for place value.

Measurement and Data

- Describe and compare measurable attributes.
- Classify objects and count the number of objects in each category.

Geometry

- Identify and describe shapes.
- Analyze, compare, create, and compose shapes.

KINDERGARTEN MATH YEAR AT A GLANCE Primary Resource: **Bridges**

September	<p>Building a Math Classroom</p> <p>Unit 1: Numbers to To Five and Ten</p> <ul style="list-style-type: none"> ▪ Counting sequence to 20 ▪ Quantities to 10 ▪ Classroom routines
October	<p>Unit 2: Numbers to Ten</p> <ul style="list-style-type: none"> ▪ Counting sequence to 20 ▪ Quantities to 10 ▪ Number sequence ▪ 1:1 correspondence ▪ Cardinality ▪ Subitizing ▪ Combinations of 5 ▪ Comparing quantities within 10
November-Early December	<p>Unit 3: Bikes & Bugs: Double, Add & Subtract</p> <ul style="list-style-type: none"> ▪ Counting by 2s ▪ Exploration of doubling and even numbers ▪ Use five- and ten-frames to add 1 to a number from 1 to 10 ▪ Compare and order numbers ▪ Write equations to show combinations of 5
Mid December-January	<p>Unit 3 Continued</p> <p>Unit 4: Paths to Adding, Subtracting & Measuring</p> <ul style="list-style-type: none"> ▪ Build number line to model number sequence from 0 to 10 ▪ Counting forward and backward between 0 and 50 ▪ Solve addition and subtraction problems ▪ Measure with non-standard units
February	<p>Unit 5: Two-Dimensional Geometry</p> <ul style="list-style-type: none"> ▪ Exploring the differences between 2- and 3-dimensional shapes ▪ Identifying, comparing, and sorting 2-D shapes ▪ Construct and deconstruct shapes
March	<p>Unit 6: Three-Dimensional Shapes & Numbers Beyond Ten</p> <ul style="list-style-type: none"> ▪ Describe the attributes, similarities and differences among 2D and 3D shapes ▪ Combinations to 5 ▪ Counting forward and backward ▪ Read and write numbers to 20 ▪ Combinations from 5 to 10 with emphasis on five plus, ten plus
April	<p>Unit 7: Weight & Place Value</p> <ul style="list-style-type: none"> ▪ Explore weight and capacity ▪ Solve addition and subtraction story problems ▪ Measure weight and capacity ▪ Counting by 10s and 1s
May/June	<p>Unit 8: Computing & Measuring with Frogs & Bugs</p> <ul style="list-style-type: none"> ▪ Deepen understanding of subtraction ▪ Fluency within 5 ▪ Add to 10

KINDERGARTEN MATH YEAR AT A GLANCE Primary Resource: **Number Corner**

September	<ul style="list-style-type: none">▪ Two dimensional shapes (circles, squares, triangles, and squares).▪ Basic counting skills and combinations to 5
October	<ul style="list-style-type: none">▪ Counting skills to develop sense of the two landmark numbers, 5 and 10
November	<ul style="list-style-type: none">▪ Three and two dimensional shapes▪ Comparing quantities and measuring▪ Counting skills▪ Numeral reading, writing▪ Combinations to 5 and 10
December	<ul style="list-style-type: none">▪ Positional language▪ Sorting shapes▪ Orders collections by quantities▪ Numbers and combinations between 5 and 10▪ Numbers through 29
January	<ul style="list-style-type: none">▪ Addition combinations to 10▪ Interval counting▪ Comparing numerals to 20
February	<ul style="list-style-type: none">▪ Count and compare sets to 30▪ Penny and nickels collection▪ Counting on from 5▪ Fluency with combinations to 5▪ Counting by 10's to 100▪ Counting and reading numbers to 20▪ Teen numbers▪ Story problems to 10
March	<ul style="list-style-type: none">▪ Counting by 1's and counting by 10's to 100▪ Addition combinations to 5 and 10▪ How many more to make the next set of 10▪ Pose and solve subtraction story problems▪ Read and count to 30
April	<ul style="list-style-type: none">▪ Measurement▪ Addition combinations of 5▪ Pose and solve subtraction story problems▪ Counting by 1s and 10s to 100▪ Focus on counting sequence between 30 and 50
May/June	<ul style="list-style-type: none">▪ Pose and solve addition and subtraction story problems▪ Represent and solve addition and subtraction combinations to 10▪ Fluency with facts to 5▪ Counting by 1s and 10s

Kindergarten Mathematics: Trimester 1

Unit Name: Kindergarten Trimester 1			
Focused Content and Skills			
Mathematical Practices: See p 13-14 for Mathematical Practices (MP 1-8)			
Counting and Cardinality:			
<ul style="list-style-type: none"> ▪ Counts to 20 by ones ▪ Reads numbers from 0-10 ▪ Writes numbers 0-10 ▪ Counts objects one by one to 10 ▪ Tells how many objects in the range of 1-10 ▪ Can count forward to 10 starting with numbers other than 1 (NC Nov) ▪ Has one to one correspondence up to 10 objects ▪ Identify objects in a group as greater than, less than, or equal to up to 10 objects 			
Big Ideas (Student Learning Outcomes)			
Kindergarten Mathematicians can:			
<ul style="list-style-type: none"> ▪ Count to 20 by ones ▪ Read and write numbers from 0-10 ▪ Use one to one correspondence ▪ Count forward to 10 starting with a number other than 1 ▪ Identify objects in a group as greater than, less than or equal to in a set up to 10 			
Focus Question(s):			
<ul style="list-style-type: none"> ▪ How many objects are in a collection? How did you find your answer? ▪ When comparing quantities students will be asked, ‘Which is more? Which is less?’ ▪ How many more do you need to make 5? ▪ Can you model your thinking using tools such as: number racks, ten frames, finger patterns or words, numbers or pictures? 			
Focused Common Core State Standards for Mathematics <i>(See p. 16-17 for complete description)</i>		Time Allotment	Assured Learner Activities
K.CC.1 K.CC.2 K.CC.3 K.CC.4 K.CC.5 K.CC.6	Math Practices (MP 1-8) <i>(See p.13-14 for complete description)</i>	70 minutes daily per Trumbull Board of Education Policy # 6112.2	Bridges In Mathematics <u>Unit 1:</u> Numbers to Five & Ten <ul style="list-style-type: none"> ▪ Counting & Cardinality <u>Unit 2:</u> Numbers to Ten <ul style="list-style-type: none"> ▪ Counting & Cardinality <u>Unit 3:</u> Bikes and Bugs (Double Add & Subtract) <ul style="list-style-type: none"> ▪ Operations & Algebraic Thinking Number Corner <ul style="list-style-type: none"> ▪ September ▪ October ▪ November
Technology Competency Standards <i>(See p. 18 for complete description)</i> 2. Communicate and Collaborate 5. Digital Citizenship			<ul style="list-style-type: none"> ▪ Bridges Assessments within Units ▪ Number Corner Baseline and Assessment

Vocabulary:Bridges:

Unit 1: circle, create, different, eight, extend, five, five-frame, four, graph, greater than, greatest, less than, most, nine, numeral, number, one, pattern, repeating pattern, same, seven, six, sort, ten, ten-frame, three, two, and triangle.

Unit 2: above, attribute, below, beside, bottom, compare, create, different, eight, extend, five, five-frame, four, graph, greater than, half, hexagon, horizontal, in all, left, less than, middle, next to, nine, number, numeral, one, pattern, problem, rectangle, rhombus, right, row, same, seven, six, square, tally, ten, ten-frame, three, top, trapezoid, triangle, two, and zero.

Unit 3: add, addition, alike, backward, bottom, circle, compare, different, double, even, equal, equation, forward, greater than, in all, less than, less, longer than, minus, more, number, number words 0-10, numeral, order, plus, same, shorter than, strategies, subtract, subtraction, symbol, ten-frame, top and Venn diagram.

Number Corner:

September: add, after, backward, before, between, box, circle, choral count, collections, corners, count, curved, day, different, digit, draw, estimate, estimation, finger patterns, five frame, forward, Friday, identify, length, Monday, number, number words 1-30, numeral, ones, ones family, pattern, rectangle, row, same, Saturday, September, set, shape, sides, square, straight, sum/total, Sunday, ten frame, tens, Thursday, triangle, Tuesday, Wednesday, week, and write.

October: after, backward, before, between, box, choral count, circle, collection, compare, count, day, digit, down, draw, equal, estimate, estimation, finger patterns, five, five frame, forward, Friday, identify, less, line, Monday, month, more, number, number words 1-30, numeral, October, one more, ones, family, pattern, row, Saturday, set, shape, square, sum/total, Sunday, teens family, ten, tens, ten frame, Thursday, to the left, to the right, triangle, Tuesday, up, Wednesday, week, and write.

November: add, after, backward, before, between, choral count, circle, collection, combination(s), compare, cone, count, cube, cylinder, day, digit, equal, equation, estimate, estimation, finger pattern, five, flat, forward, Friday, height, higher, identify, larger, length, line, long/longer/longest, lower, Monday, month, November, number, number words 1-40, numeral, ones, ones family, pattern, rectangle, row, Saturday, set, short/shorter/shortest, smaller, solid, sphere, square, sum/total, Sunday, tens family, ten, ten frame, tens, three-dimensional (3-D) shape, Thursday, Tuesday, twenties family, two-dimensional (2-D) shape, Wednesday, and week.

Kindergarten Mathematics: Trimester 2

Unit Name: Kindergarten Mathematics: Trimester 2			
Focused Content and Skills			
Mathematical Practices: See p.13-14 for Mathematical Practices (MP 1-8)			
Counting and Cardinality:			
<ul style="list-style-type: none"> ▪ Has one to one correspondence up to 15 objects ▪ Knows total number does not change when you change the order of the objects ▪ Can count to 60 ▪ Writes numbers 0 to 15 ▪ Counts backward within 10 given any number ▪ Can identify numbers 0-10 out of sequence ▪ Can count forward past 20 from another starting point than 0 ▪ Can identify objects in a group as greater than, less than or equal to up to 10 objects 			
Geometry:			
<ul style="list-style-type: none"> ▪ Can identify square, rectangle, triangle, hexagon, circle, rhombus and trapezoid ▪ Can identify multiple attributes of 2-D shapes ▪ Can draw a circle, square, and triangle ▪ Fits pattern blocks together easily making the turns and moves needed to make designs and create larger shape 			
Big Ideas (Student Learning Outcomes)			
Kindergarten Mathematicians can:			
<ul style="list-style-type: none"> ▪ Count a group of objects. ▪ Count to 60 by ones ▪ Write my numbers 0-15 ▪ Identify flat shapes (7 different shapes) 			
Focus Questions			
<ul style="list-style-type: none"> ▪ What does counting look, sound, and feel like? ▪ How do you count from a number other than 1? What is the order of the counting sequence? ▪ How are manipulatives and representations used to show quantity? ▪ How are manipulatives and representations used to compare and order numbers? ▪ What are attributes of 2-D shapes? 			
Focused Common Core State Standards for Mathematics <i>(See p. 16-17 for complete description)</i>	Time Allotment	Assured Learner Activities	Assured Assessment
K.CC.1 K.CC.3 K.CC.4 K.CC.6 K.G.1 K.G.4 K.G.5 K.G.6	Math Practices (MP 1-8) <i>(See p.13-14 for complete description)</i>	70 minutes daily per Trumbull Board of Education Policy # 6112.2	Bridges In Mathematics <u>Unit 3:</u> Bikes and Bugs (Double Add & Subtract) <ul style="list-style-type: none"> ▪ Operations & Algebraic Thinking <u>Unit 4:</u> Paths to Adding, Subtracting and Measuring <ul style="list-style-type: none"> ▪ Counting & Cardinality ▪ Operations & Algebraic Thinking ▪ Measurement & Data <u>Unit 5:</u> 2 Dimensional Geometry <ul style="list-style-type: none"> ▪ Geometry Number Corner <ul style="list-style-type: none"> ▪ December ▪ January ▪ February ▪ March
Technology Competency Standards <i>(See p. 18 for complete description)</i> 2. Communicate and Collaborate 5. Digital Citizenship			<ul style="list-style-type: none"> ▪ Bridges Assessments within Units ▪ Number Corner Baseline and Assessment

Vocabulary:

Bridges:

Unit 3: add, addition, alike, backward, bottom, circle, compare, different, double, even, equal, equation, forward, greater than, in all, less than, less, longer than, minus, more, number, number words 0-10, numeral, order, plus, same, shorter than, strategies, subtract, subtraction, symbol, ten-frame, top and Venn diagram.

Unit 4: add, addition, after, backward, before, between, cent, compare, count back, count on, equal, equation, forward, graph, greater than, half, in all, left, length, less, less than, long/longer/longest, longer than, measure, middle, minus, more, next to, nickel, ones, order, penny, plus, right, short/shorter/shortest, shorter than, strategies, subtract, subtraction, sum or total, tens and the same.

Unit 5: above, add, addition, attribute, below, beside, circle, color, compare, curved, estimate, flat, graph, hexagon, in all, large, least, length, less, more, most, next to, pattern, problem, rectangle, rhombus, round, shape, shapes, side, size, small, solid, sort, sphere, straight, strategies, square, three-dimensional (3-D) shape, trapezoid, triangle, two-dimensional (2-D) shape and vertex or corner.

Unit 6: add, addition, attribute, between, circle, combinations, compare, cone, cube, cylinder, dime, edge, equation, estimate, expression, face, flat, greater than, hexagon, in all, less, less than, longer than, more, number words 1-5, ones, penny, problem, pyramid, rectangle, rectangular prism, rhombus, short, shorter than, solid, sort, sphere, square, surface, tall, tens, three-dimensional (3-D) shape, trapezoid, triangle, triangular prism, two-dimensional (2-D) shape, vertex or corner.

Number Corner:

December: above, add, after, backward, before, behind, below, between, bottom, choral count, collection, compare, count, countback, count on, day, December, digit, equal, equation, estimate, estimation, fewest, five, forward, Friday, hexagon, identify, in all, in front of inside, least, less, line, Monday, month, more, most, number, number words 1-40, numeral, ones, ones number family, opposite, order, outside, pattern, row, Saturday, sequence, set, smaller, square, sum/total, Sunday, teens number family, ten, tens, ten frame, to the left, to the right, top, trapezoid, triangle, Tuesday, twenties number family, Wednesday, and week.

January: add, after, backward, before, behind, beside, between, bottom, choral count, collection, combinations, compare, cone, count, count on, cube, cylinder, day, digit, double, doubles facts, equal, equation, estimate, estimation, family, fewer than, forward, Friday, greater than, identify, in all, in front of, inside, interval, January, larger, least, less, less than, Monday, month, more, more than, most, number, number tree, number words 1-30, numeral, on top of, ones, one's number, part/parts, pattern, put together, row, Saturday, smaller, sphere, sum/total, Sunday, take apart, teen's number, ten frame, tens, three-dimensional (3-D) shape, Thursday, top, Tuesday, two-dimensional (2-D) shape, under, Wednesday, week and write.

February: add, after, all, before, cent, cents, choral count, column, compare, count, count on, day, digit, equal, equation, February, forward, Friday, greater than, identify, in all, interval, least, left/left over, less, less than, Monday, month, more, most, nickel, none, number tree, number words 1-20, numeral, one, ones, pattern, penny, plus, row, Saturday, story problem, strategy, subtract, sum/total, Sunday, ten frame, tens, Thursday, Tuesday, Wednesday and week.

Kindergarten Mathematics: Trimester 3

Unit Name: Kindergarten Mathematics: Trimester 3			
<p>Focused Content and Skills</p> <p>Mathematical Practices: See p 13-14 for Mathematical Practices (MP 1-8)</p> <p>Counting and Cardinality:</p> <ul style="list-style-type: none"> ▪ Counts to 100 by ones and tens ▪ Writes numbers 0 to 20 ▪ Count forward from a number other than 1 ▪ One to one correspondence up to 20 objects ▪ Knows total number does not change when you change the order of the objects ▪ Recognizes the number of objects in a collection arranged in different configurations <p>Numeration, Operations, and Algebraic Thinking:</p> <ul style="list-style-type: none"> ▪ Composes and decomposes numbers 11-19 into groups of tens and ones ▪ Solves addition problems accurately within 10 with manipulatives (4 + 2 with unifix cubes) ▪ Solves subtraction problems accurately within 10 with manipulatives (5-2 with unifix cubes) ▪ Fluently adds and subtracts within 5 <p>Measurement and Data:</p> <ul style="list-style-type: none"> ▪ Describes measurable attributes (weight and length) ▪ Compares lengths/weights using words such as longer, shorter, lighter and heavier ▪ Classifies objects into given categories 			
<p>Big Ideas (Student Learning Outcomes)</p> <p>Kindergarten Mathematicians can:</p> <ul style="list-style-type: none"> ▪ Count to 100 by ones and tens ▪ Write numbers 0-20 ▪ Fluently add and subtract within 5 ▪ Add and subtract using tools ▪ Use measurement vocabulary to compare two objects ▪ Put objects into categories <p>Focus Question(s):</p> <ul style="list-style-type: none"> ▪ How do we count by ones? by tens? ▪ How do you use tools to show combinations of 5? of 10? ▪ What are the combinations that make 5? ▪ How can a number be broken into smaller parts? How can these parts be put together? ▪ What math vocabulary is used to compare measurable attributes? ▪ How are objects classified into categories? 			
<p>Focused Common Core State Standards for Mathematics</p> <p><i>(See p. 16-17 for complete description)</i></p>	<p>Time Allotment</p>	<p>Assured Learner Activities</p>	<p>Assured Assessment</p>
<p>K.CC.1 K.CC.2 K.CC.3 K.CC.4 K.CC.5 K.NBT.1 K.OA.1 K.OA.2 K.OA.5 K.MD.1 K.MD.2 K.MD.3</p>	<p>Math Practices (MP 1-8) <i>(See p.13-14 for complete description)</i></p>	<p>70 minutes daily per Trumbull Board of Education Policy # 6112.2</p> <p>Bridges In Mathematics <u>Unit 6:</u> Dimensional Shapes & Numbers Beyond Ten</p> <ul style="list-style-type: none"> ▪ Geometry ▪ Number Base Ten ▪ Operations & Algebraic Thinking <p><u>Unit 7:</u> Weight & Place Value Measurement & Data</p> <ul style="list-style-type: none"> ▪ Number Base Ten ▪ Operations & Algebraic Thinking 	<ul style="list-style-type: none"> ▪ Bridges Assessments within Units ▪ Number Corner Baseline and Assessment

<p>Technology Competency Standards (See p. 18 for complete description)</p> <p>2. Communicate and Collaborate</p> <p>5. Digital Citizenship</p>		<p><u>Unit 8: Computing & Measuring with Frogs & Bugs</u></p> <ul style="list-style-type: none"> ▪ Number Base Ten ▪ Operations & Algebraic Thinking ▪ Measurement & Data <p>Number Corner</p> <ul style="list-style-type: none"> ▪ March ▪ April ▪ May ▪ June 	
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Vocabulary:

Bridges:

Unit 6: add, addition, attribute, between, circle, combinations, compare, cone, cube, cylinder, dime, edge, equation, estimate, expression, face, flat, greater than, hexagon, in all, less, less than, longer than, more, number words 1-5, ones, penny, problem, pyramid, rectangle, rectangular prism, rhombus, short, shorter than, solid, sort, sphere, square, surface, tall, tens, three-dimensional (3-D) shape, trapezoid, triangle, triangular prism, two-dimensional (2-D) shape and vertex or corner.

Unit 7: actual, after, before, combinations, compare, different, equal, equation, estimate, greater, greater than, heavy/heavier/heaviest, in all, less than, less, light/lighter/lightest, measure, minus, more, numeral, number, ones, plus, same, strategies, strategy, tens, weight and zero.

Unit 8: add, addition, after, before, different, equal, equation, estimate, fact family, greater than, in all, length, less than, long/longer/longest, measure, minus, more, more than, numeral, number, ones, pattern, plus, reasonable, same, short/shorter/shortest, square, strategies, subtract, subtraction and tens.

Number Corner:

March: 10 and some more, add, after, backward, before, between, circle, column, compare, count, count on, day, equal, equation, forward, Friday, graph, greater than, how many more, identify, in all, interval, less, less than, March, minus, Monday, month, more, most, number, number words 1-31, ones, pattern, plus, row, Saturday, square, story problem, subtract, sum or total, Sunday, ten-frame, tens, Thursday, triangle, Tuesday, Wednesday and week.

April: add, after, April, backward, before, between, capacity, choral count, column, compare, count, count on, cup, day, digit, equal, equation, forties number family, forward, Friday, gallon, graph, greater than, heavy/heavier/heaviest, identify, in all, less, less than, light/lighter/lightest, liter, long/longer/longest, measure, minus, Monday, month, more, most, number, number words for 1-50, number words for the multiples of 10 to 100, numeral, ones, pattern, plus, row, quart, ruler, Saturday, scale, short/shorter/shortest, story problem, subtract, sum or total, Sunday, temperature, ten-frame, tens, thermometer, thirties number family, Thursday, tools, Tuesday, Wednesday, week and weight.

May: add, addition, after, before, between, column, compare, count, count on, day, digit, equal, equation, Friday, graph, greater than, heavy/heavier/heaviest, hexagon, least, length, less, less than, light/lighter/lightest, long/longer/longest, May, measure, minus, Monday, month, more, most, number grid, number line, numbers, number words 1-50, number words for the multiples of 10-100, ones, pattern, pictures, plus, row, Saturday, short/shorter/shortest, solve, story problem, strategy, subtract, sum or total, Sunday, ten-frame, tens, Thursday, Tuesday, Wednesday, week and weight.

What Do the **Math Practices** Look Like in Kindergarten?

Math Practice		Explanations and Examples
Habits of Mind	MP.1 Make sense of problems and persevere in solving them.	Using both verbal and nonverbal means (e.g., drawing pictures, demonstrating on their fingers), kindergarten students begin to explain to themselves and others the meaning of a problem, look for ways to solve it, and determine if their thinking makes sense. As the teacher uses thoughtful questioning and provides opportunities for students to share thinking, kindergarten students begin to reason as they become more conscious of what they know and how they solve problems.
	MP.6 Attend to precision	Mathematically proficient students in kindergarten begin to express their ideas and reasoning using words. As their mathematical vocabulary increases in response to exposure, modeling, and practice, kindergarteners become more precise in their communication, calculations, and measurements. In all types of mathematical tasks, students begin to describe their actions and strategies more clearly, understand and use grade-level appropriate vocabulary accurately, and begin to give more precise explanations and reasoning regarding their process of finding solutions. For example, a student may use basic attributes (number of corners, number of sides, curved or straight sides) to accurately describe how a collection of shapes is sorted.
Reasoning and Explaining	MP.2 Reason abstractly and quantitatively	Mathematically proficient students in kindergarten begin to use numerals to represent specific amount (quantity). For example, a student may write the numeral 11 to represent an amount of objects counted, select the correct number card 17 to follow 16 on the calendar, or build a pile of counters depending on the number drawn. Kindergarten students also begin to draw pictures, manipulate objects, use diagrams or charts, and so on, to express quantitative ideas such as a joining or a separating situation. Using the language developed through numerous joining and separating scenarios, kindergarten students begin to understand how symbols (+, -, =) are used to represent quantitative ideas in a written format.
	MP.3 Construct viable arguments and critique the reasoning of others.	In kindergarten, mathematically proficient students begin to clearly express, explain, organize and consolidate their math thinking using both verbal and written representations. Through opportunities that encourage exploration, discovery, and discussion, kindergarten students begin to learn how to express opinions, become skillful at listening to others, describe their reasoning and respond to others' thinking and reasoning.
Modeling & Using Tools	MP.4 Model with mathematics.	Mathematically proficient students in kindergarten begin to experiment with representing real-life problem situations in multiple ways such as with numbers, words (mathematical language), drawings, objects, acting out, charts, lists, and number sentences. For example, when building 2-color trains of linking cubes to represent the various combinations of the number 5, the student writes the numerals for the various parts (such as 4 and 1) or selects a number sentence that represents that particular situation (such as $5 = 4 + 1$).
	MP.5 Use appropriate tools strategically.	In kindergarten, mathematically proficient students begin to explore various tools and use them to investigate mathematical concepts. Through multiple opportunities to examine materials, they experiment and use both concrete materials (e.g., three-dimensional solids, linking cubes, ten frames, number racks) and technological materials (e.g., virtual manipulatives, apps, interactive websites) to explore mathematical concepts. Based on these experiences, they become able to decide which tools may be helpful to use depending on the problem or task. For example, when solving the problem, "There are 4 dogs in the park. Three more dogs show up in the park. How many dogs are in the park?" students may decide to act it out using counters and a story mat; draw a picture; use a number rack, or use the number rack app on a tablet.

Structures & Generalizing	MP.7 Look for and make use of structure.	Mathematically proficient students in kindergarten begin to look for patterns and structures in the number system and other areas of mathematics. For example, when searching for triangles around the room, kindergarteners begin to notice that some triangles are larger than others or come in different colors— yet they are all triangles. While exploring the part-whole relationships of a number using a ten-frame, students begin to realize that 5 can be broken down into sub-parts, such as 4 and 1 or 3 and 2, and still remain a total of 5.
	MP.8 Look for and express regularity.	In kindergarten, mathematically proficient students begin to make generalizations about shapes and numbers. Presented with patterned sequences of objects, pictures, or numbers, they begin to make predictions based on the available information.

Source: Bridges in Mathematics Second Edition Kindergarten Assessment Guide, The Math Learning Center: Salem, Oregon 2017

INSTRUCTIONAL STRATEGIES

The curriculum writing team recognizes that these facilitation styles and routines are used in each unit. Within each unit is an outline for methods to reteach, support, and challenge all learners including multilingual.

Facilitation Styles	<ul style="list-style-type: none"> ▪ Direct instruction ▪ Guided instruction ▪ Group work ▪ Partner work ▪ Independent practice ▪ Formative and summative assessments
Routines	<ul style="list-style-type: none"> ▪ Turn & talk ▪ Work Places ▪ Math tool use ▪ Calendar Grid ▪ Calendar Collector ▪ Computational Fluency ▪ Number Line ▪ Days in School

PRIMARY RESOURCES

<i>Title</i>	<i>Author</i>	<i>Date of Publication</i>
Bridges in Mathematics 2 nd Edition © 2016	<i>The Math Learning Center</i> <i>Salem, Oregon</i>	2016
Number Corner 2 nd Edition © 2017	<i>The Math Learning Center</i> <i>Salem, Oregon</i>	2017

MATERIALS/RESOURCES

- *Bridges in Mathematics and Number Corner kits*
<https://www.mathlearningcenter.org/curriculum/bridges/components/package>
- *Bridges Family Support*
<https://www.mathlearningcenter.org/families/bridges2>
- *Connecticut Core State Standards for Mathematics*
- *Technology Competency Standards*

CURRENT REFERENCES

Common Core State Standards for Mathematics

www.corestandards.org

International Society for Technology in Education

www.iste.org/STANDARDS

National Council of Teachers of Mathematics

www.nctm.org

Connecticut's Common Core Standards

Mathematics – Kindergarten Standards

Counting and Cardinality

Know number names and the count sequence.

K.CC.A.1: Count to 100 by ones and by tens.

K.CC.A.2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

K.CC.A.3: Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Counting to tell the number of objects.

K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.

a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

c. Understand that each successive number name refers to a quantity that is one larger.

K.CC.B.5: Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Comparing numbers.

K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Note: Include groups with up to ten objects.)

K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking

Understanding addition as putting together and adding to, and understanding subtraction as taking apart and taking from.

K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. (Note: Drawings need not show details, but should show the mathematics in the problem -- this applies wherever drawings are mentioned in the Standards.)

K.OA.A.2: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).

K.OA.A.4: For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

K.OA.A.5: Fluently add and subtract within 5.

Number and Operations in Base Ten

Working with numbers 11 – 19 to gain foundations for place value.

K.NBT.A.1: Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Measurement and Data

Describe and compare measurable attributes.

K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category.

K.MD.B.3: Classify objects or people into given categories; count the numbers in each category and sort the categories by count. (Note: Limit category counts to be less than or equal to 10.)

Geometry

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

K.G.A.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.

K.G.A.2: Correctly name shapes regardless of their orientations or overall size.

K.G.A.3: Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).

Analyze, compare, create, and compose shapes.

K.G.B.4: Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).

K.G.B.5: Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

K.G.B.6: Compose simple shapes to form larger shapes. *For example, “Can you join these two triangles with full sides touching to make a rectangle?”*

TECHNOLOGY COMPETENCY STANDARDS

1. Creativity and Innovation - Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
2. Communication and Collaboration - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
3. Research and Information Fluency - Students apply digital tools to gather, evaluate, and use information.
4. Critical Thinking, Problem Solving, and Decision Making - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
5. Digital Citizenship - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
6. Technology operations and Concepts – Students demonstrate a sound understanding of technology concepts, systems, and operations.