

## Curriculum at a Glance Elementary Mathematics K-5

### **Description:**

Mathematics is a vigorous and growing discipline—a universal language useful for communication and research in other disciplines. Students reason and communicate mathematically, to be mathematical problem-solvers, to value mathematics and to feel confident in their ability to use mathematics. Mathematics emphasizes conceptual understandings, multiple representations, deliberate connections and mathematical problem solving, comprehension and sense-making.

These mathematical practices are developed in each unit throughout the year:

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and express regularity in repeated reasoning.

## Kindergarten

Unit Name	Content
<b>Who Is In School?</b>	Connect number names, numerals, and quantities Develop strategies for accurately counting Create equivalent sets Count, create, and represent quantities Compare objects Describe shapes, position, and quantity
<b>Counting and Comparing?</b>	Continue to connect number names, numerals, and quantities Develop strategies for accurately counting and keep track of quantities up to 12 Create equivalent sets Develop visual images for quantities up to 6 Begin to count backwards Count, create, and represent quantities Compare objects Order quantities Describe shapes, position, and quantity
<b>What Comes Next?</b>	Compare objects Sort objects by attributes Determine what comes next in a repeating pattern Comparing patterns and non-patterns Count, create, and represent quantities Collect, count, represent, describe, and compare data
<b>Bunk Beds and Apple Boxes</b>	Continue to connect number names, numerals, and quantities Develop strategies for accurately counting Create equivalent sets
<b>Measuring and Counting</b>	Understand length

	<p>Develop strategies for accurately counting</p> <p>Develop strategies to solve addition and subtraction problems</p> <p>Order quantities</p> <p>Use ten frames</p>
<b>Make Shape, Build a Block</b>	<p>Describe and compare 2-D and 3-D shapes and their attributes</p> <p>Compare faces of shapes</p> <p>Explore relationships among pattern block shapes and Geoblocks</p> <p>Construct 2-D and 3-D shapes</p>
<b>Organizing and Collecting</b>	<p>Use synchrony &amp; one-to-one tagging</p> <p>Count on &amp; count backwards</p> <p>Skip-count</p> <p>Use the five &amp; ten structures</p> <p>Make ten</p> <p>Keep one addend whole, use landmark numbers, &amp;/or take leaps of ten</p> <p>Split numbers</p>
<b>Sorting and Survey</b>	<p>Count and keep track of quantities</p> <p>Represent a set of data</p> <p>Use data to solve a problem</p> <p>Sort a set of objects according to their attributes</p> <p>Group data into categories based on attributes</p> <p>Compare two quantities to determine which is more</p>

Grade 1

Unit Name	Content
<b>How Many of Each? Routines</b> <b>The Double Decker Bus</b>	Use synchrony & one-to-one tagging Count on Count backwards Skip-count Use the five & ten structures Make ten Keep one addend whole, use landmark numbers, and/or take leaps of ten
<b>How Many of Each?</b>	Order a set of numbers and quantities up to 12 Compare two quantities and count up to 20 Develop an understanding of how the quantities in the counting sequence are related: each number is 1 more or 1 less than the number before or after it Practice the rote counting sequence forward and backwards, from 1 to 30 Find and explore the relationships among combinations of numbers up to 10 Solve a problem in which the total and one part are known Visualize and retell the action in an addition situation Find the total of two or more quantities up to a total of 20 by counting all, counting on, or using number combinations Use the number line as a tool for counting Introduce standard notation for comparing quantities Introduce and using standard notation (+ and =) to represent addition situations Represent number combinations with numbers, pictures and/or words
<b>Making Shapes and Designing Quilts</b> <b>The Double Decker Bus</b>	Count a set of objects Find the sum of addends Use a repeated unit to create a pattern and see how changing the unit affects the whole pattern Identify common attributes of a group of shapes Identify, describe, compare, and name 2-D shapes Compose and decompose shapes in different ways

	Find different combinations of shapes that fill the same area
<b>Solving Story Problems</b>	<p>Practice the counting sequence forward and backward starting from any number 1-65</p> <p>Write the sequence of numbers (as high as students know)</p> <p>Find as many 2-addend combinations of a number as possible</p> <p>Solve a problem in which the total and one part are known</p> <p>Generate equivalent expressions for a number and use equal sign</p> <p>Develop strategies for, model, visualize and retell the action in addition and subtraction situations involving removal</p> <p>Find the total of two or more quantities up to a total of 20 by counting all, counting on, or using number combinations, modeling</p> <p>Subtract one number from another, up to 12</p> <p>Use the number line as a tool for counting</p> <p>Connect written numbers and standard notation (+, -, =) to record</p> <p>See the 100 chart as a representation of the counting numbers to 100</p> <p>Consider attributes that can be measured (e.g. length, perimeter, area)</p>
<b>Organizing and Collecting</b>	<p>Use synchrony &amp; one-to-one tagging</p> <p>Count on &amp; count backward</p> <p>Skip-count</p> <p>Use the five &amp; ten structures</p> <p>Make ten</p> <p>Keep one addend whole, use landmark numbers, &amp;/or take leaps of ten</p> <p>Split numbers by tens and ones</p>
<b>What Would You Rather Be?</b>	<p>Describe and use attributes of objects to sort</p> <p>Make sense of data representations, including pictures, bar graphs, tallies and Venn diagrams</p> <p>Compare what different representations communicate about a set of data</p> <p>Use equations to show how the sum of the responses in each category equals the total responses collected</p> <p>Describe and compare the number of pieces of data in each category or at each value and interpret what the data tell you about the group</p> <p>Understand that the sum of the pieces of data in all the categories equals the number of people surveyed</p>

	<p>Use data to compare how two groups are similar or different</p> <p>Interpret results of a data investigation</p>
<b>Fish Lengths and Animal Jumps</b>	<p>Understand what length is and how it can accurately be measured</p> <p>Measure lengths using different-sized units</p> <p>Compare lengths to determine which is longer</p> <p>Describe measurements that are in between whole numbers of units</p> <p>Understand that measurements of the same length should be the same when they are measured twice or by different people using the same unit</p> <p>Understand that measuring an object using different- lengths units will result in different measurements</p> <p>Use inch tiles to measure objects in inches</p>
<b>Measuring for the Art Show</b>	<p>Count 3 times</p> <p>Counting on</p> <p>Use the five &amp; ten structures</p> <p>Make ten</p> <p>Keep one number whole, use landmark numbers, &amp;/or take leaps of ten</p> <p>Split numbers by tens and ones</p>
<b>Number Games and Crayon Puzzles</b>	<p>Reason about more, less, and equal amounts</p> <p>Find a solution that fits several clues</p> <p>Develop fluency with the 2-addend combinations of 10</p> <p>Find relationships among different combinations of numbers up to 20</p> <p>Add 2 or more single-digit numbers</p> <p>Visualize, retell, and model the action in addition and subtraction situations</p> <p>Develop strategies for solving and recording addition and subtraction story problems using standard notation (+, -, =)</p>
<b>Color, Shape, and Number Patterns</b>	<p>Identify what comes next in a repeating pattern</p> <p>Compare repeating and non-repeating sequences</p> <p>Describe a repeating pattern as a sequence built from a part that repeats over and over called the “unit”</p> <p>Identify the unit of a repeating pattern</p> <p>Identify what comes several steps beyond the visible part of a repeating pattern</p> <p>Associate counting numbers with elements of a repeating pattern</p>

	Model a constant rate of increase with concrete materials
<b>Twos, Fives, and Tens</b>	<p>Identify and use patterns in the number sequence and on the 100 chart</p> <p>Count and combine things that come in groups of 1,2,4,5, and 10</p> <p>Count by 2s, 5s, and 10s</p> <p>Develop strategies for organizing sets of objects so that they are easy to count and combine</p> <p>Develop meaning for counting by groups of 10</p> <p>Consider a 2-digit number as tens and ones</p> <p>Develop fluency with the 2-addend combinations of 10</p> <p>Solve a problem in which the total (10) and one part are known</p>
<b>Blocks and Boxes</b>	<p>Describe and compare 3-D shapes and their attributes</p> <p>Compare size, shape and orientation of objects</p> <p>Recognize shapes in the world</p> <p>Match a 3-D object to a 2-D outline of one of its faces</p> <p>Make 3-D objects out of 2-D pieces</p>

**Grade 2**

<b>Unit Name</b>	<b>Content</b>
<b>Counting, Coins, and Combinations</b>	Use synchrony & one-to-one tagging Count on Use trial & adjustment vs. systematic exploration Skip-count Use doubles strategy Use near doubles strategy Use the compensation strategy
<b>Shapes Blocks and Symmetry</b>	Combine shapes to make a new shape Cover a region, without gaps or overlaps, using different shapes Draw 3-D shapes Identify names and attributes of 2-D and 3-D shapes Construct and describe rectangular arrays of tiles Describe and identify objects and designs that have mirror symmetry Reflect a shape across a line of symmetry Review known addition combinations Achieve fluency with the doubles combinations up to $10 + 10$

<p><b>Stickers, Number Strings, and Story Problems</b></p>	<p>Develop strategies for solving addition and subtraction story problems with totals up to 45 and recording work</p> <p>Consider a generalization about reordering addends for all numbers</p> <p>Consider whether reordering the numbers in a subtraction problem results in the same total</p> <p>Consider the relationship between addition and subtraction</p> <p>Investigate numbers that can and cannot be made into groups of two or two equal groups</p> <p>Consider whether observations about even or odd numbers apply to all even numbers or all odd numbers</p> <p>Count by groups of 2, 5, and 10</p> <p>Identify coins and their values</p> <p>Use a place-value model to represent a number as 10s and 1s</p> <p>Use tally marks to represent groups of 5</p> <p>Develop fluency with the Plus 10 combinations</p> <p>Achieve fluency with the near-doubles combinations</p>
<p><b>Pockets, Teeth and Favorite Things</b></p>	<p>Group data into categories based on similar attributes</p> <p>Use equations to show how the sum of the responses in each category equals the total responses collected</p> <p>Use a Venn diagram to represent a sorted set of data</p> <p>Order, represent, and describe a set of numerical data</p> <p>Compare ways of organizing data</p> <p>Describe what the data show about the group surveyed</p> <p>Predict, collect, record, and interpret data from a survey</p> <p>Represent and interpret data on a line plot</p>

<p><b>How Many Floors? How Many Rooms?</b></p>	<p>Describe the relationship between two quantities in a constant ratio situation          Use the table to represent the ratio relationship between two quantities          Find the value of one quantity in a constant ratio situation, given the value of the other          Connect numbers in the table to the situation they represent          Use language for a table &amp; its parts: row, columns          Compare &amp; contrast the charts          Describe how the two numbers in the row of a table are connected to the situation the table represents          Use information in a table to determine the relationship between two quantities          Extend a repeating pattern          Identify the unit of a repeating pattern          Define even &amp; odd numbers          Determine &amp; describe the number sequence associated with the repeating pattern</p>
<p><b>How Many Tens? How Many Ones?</b></p>	<p>Develop efficient strategies for adding and subtracting 2- digit numbers          Add multiples of 5 and 10, up to 100          Add and subtract coins up to \$1.00          Add and subtract 10 and multiples of 10 to/from any number          Find and use patterns in the sequence of numbers          Skip count by 2s, 5s, and 10s and identify patterns          Use the relationship between 5 and 10, and between nickels and dimes, to solve problems          Organize cubes into 10s and 1s          Work with the relationship between 1, 10, and 100</p>

<p><b>Parts of a Whole, Parts of a Group</b></p>	<p>Find equal parts of whole and naming them with fractions  Recognize the equivalence of different fourths of the same object  Identify halves, thirds, and fourths of regions  Identify and name fractional parts that have numerators greater than 1  Find equal parts of a group and name them with fractions  Solve problems about finding halves of quantities in different contexts  Solve problems that result in mixed numbers  Find fractions of sets  Learn the terms one half, one fourth, one third, mixed numbers and their notations</p>
<p><b>Measuring Length and Time</b></p>	<p>Use direct and indirect comparison to identify equal lengths  Identify length and width as different dimensions of an object  Estimate and calculate length using units that are related by a 2:1 ratio  Identify strategies for accurate measurement  Understand that different-sized units yield different counts  Identify and label partial units  Establish the need for and use a standard unit of measure  Measure lengths that are longer than 12 inches  Use a ruler as a standard measuring tool  Become familiar with the terms inches, feet, yards, centimeters, and meters as standard units of measure  Compare centimeters and inches</p>
<p><b>Partners, Teams, and Paper Clips</b></p>	<p>Subtract 2-digit numbers.  Reason and justify what happens when even &amp; odd numbers are added  Add two 2-digit numbers accurately &amp; efficiently  Demonstrate fluency with addition combination: plus 9 &amp; remaining combinations.</p>

**Grade 3**

<b>Unit Name</b>	<b>Content</b>
<b>Grocery Stamps and Measuring Strips</b>	Use repeated addition Skip-count Double Use Partial Products Use Five-Times & Ten-times Doubles & Halves
<b>Surveys and Line Plots</b>	Organize, describe, interpret, graph, and categorical data pictorially Read and interpret a bar graph Use a line, bar graph, pictures to represent data Use a scale Describe using almost all, very few, half, more than half Describe the shape of data (spread, highest, lowest, outliers) Use data to compare groups
<b>Collections and Travel Stories</b>	Read, write, and order numbers to 1000 Use place value to determine the size of a number Make 3 digit numbers using 100's, 10's and 1's Find pairs that add to 100 Subtract 3 digit numbers using parts, adding up, subtracting back Add 3 digit numbers by breaking apart and combining Add and subtract multiples of 10 and 100 Use number lines Visualize comparison and removal problems Telling time to the nearest 5 minutes
<b>Finding Fair Shares</b>	Naming, ordering unit fractions Identify equivalent fractional parts Use mixed numbers

	<p>Identify halves and fourths in decimal and fraction form</p> <p>Express fractions in terms of area</p> <p>Combine fractions that sum to 1</p> <p>Combine fractions into other fractions</p> <p>Telling time to a minute</p>
<b>Solids and Boxes</b>	<p>Distinguish polyhedra and non-polyhedra</p> <p>Distinguish pyramids and prisms</p> <p>Identify parts of polyhedra (faces, edges, vertices) and pyramids</p> <p>Design open boxes and nets for pyramids, cubes and other polyhedra</p> <p>Decompose 3D shapes and recombine them</p> <p>Determine the number of cubes that will fit in a box</p>
<b>Muffles Truffles</b>	<p>Use Repeated Addition</p> <p>Skip-count</p> <p>Use Partial Products</p> <p>Use Ten-times</p> <p>Double &amp; Halve</p>
<b>Perimeter Angles and Area</b>	<p>Use US standard and metric units to measure length</p> <p>Find the perimeter of 2 D figures</p> <p>Create different shapes with the same perimeter</p> <p>Find the area of squares, triangles, and irregular shapes</p> <p>Use slides, flips, and turns to prove congruence between shapes</p> <p>Identify triangles and quadrilaterals</p> <p>Compare squares and rectangles</p> <p>Recognize right angles</p> <p>Compare size of angles</p>
<b>Equal Groups</b>	<p>Understand multiplying as combining groups and division as splitting into equal groups</p> <p>Use skip Counting, repeated addition, multiplication, arrays</p> <p>Writing and solving multiplication and division problems in context</p> <p>Finding multiples of 2,3,4,5,6, and 10 by skip counting</p> <p>Doubling and Halving</p>

<b>Stories, Tables and Graphs</b>	Describe the shape of a line graph (increasing, decreasing, staying the same) Plot points on a graph Connect points on a graph, values in a table, and the situation it represents Compare situations by describing differences in graphs, differences in tables, Work with values that have a constant rate of change Identify the unit of a repeating pattern Extend number sequences with a constant increment Identify multiples of three Read and interpret positive and negative temperatures on a thermometer and on a graph
<b>How Many Hundreds, How Many Miles</b>	Combine hundred multiples above 1000 Subtract from multiples of 100 Solve 3 digit addition and subtraction problems Solve addition and subtraction problems using money Solve multi step addition and subtraction problems Use number lines Change numbers to create an equivalent problem that is easier to solve Fluently solve subtraction problems related to addition combinations of 10+10 Demonstrate fluency with multiplication combinations with products up to 50

**Grade 4**

<b>Unit Name</b>	<b>Content</b>
<b>Factors, Multiples, and Arrays</b>	Review Multiplication if necessary Deal out or count all, group, then count the groups Use repeated Addition or Skip-count Use Ten-times Use Partial Products
<b>Landmarks and Large Numbers</b>	Read, write and sequence numbers 1,000 to 10,000 Recognize place value of large numbers Add and subtract multiples of 10, 100, and 1000 Add 3- and 4- digit numbers using mental arithmetic, number lines, estimation, understanding and the US algorithm Solve subtraction by breaking numbers apart, number lines, 100 charts, story contexts Solve multi-step addition and subtraction problems Find numbers that add to 1000
<b>Fraction Cards &amp; Decimal Squares</b>	Identify fractions as a part of an area Identify and visualize fractions larger than 1 Compare size of fractions with different denominators Identify equivalent fractions and decimal equivalents Compare fractions to landmarks (0, $\frac{1}{2}$ , 1, 2) Order decimals Add fractions by using visual representations (Areas, Number lines) Adding decimals that are multiples of 0.1 and 0.25
<b>Describing the Shape of the Data</b>	Organize data to describe a data set Use a line plot to represent data Represent two sets of data using line plot or bar graph, to compare them. Describe the shape of a data set (spread, maximum, minimum, range, outliers) Find the median, range

	<p>Compare two sets of data using shape and spread of data, medians  Draw conclusions based on data  Develop and revise a survey question  Record and keep track of data</p>
<b>Multiple Towers and Division Stories</b>	<p>Multiply by breaking apart numbers, using arrays, diagrams  Review multiplication combinations up to 12x12  Multiply multiples of 10  Solve division by making groups of the divisor and by using multiplication combinations.  Find multiples of 2 digit numbers  Find the product when the factor is doubled or halved  Create story problems to represent a division expression</p>
<b>Size, Shape and Symmetry</b>	<p>Measure using US Standard and metric units  Estimate lengths using cm, in, ft, yd, m  Find the perimeter of objects  Identify and classify polygons (especially quadrilaterals) using number of sides, length of sides, size of angles  Combine polygons to make new polygons  Identify a right angle as 90 degrees  Measure acute angles  Find the area of polygons by decomposing shapes  Find the area of rectangles and triangles  Make designs with line symmetry</p>
<b>Box Factory</b>	<p>Skip count  Use partial products  Use ten frames  Double and halve  Factor and group flexibly</p>
<b>Penny Jars and Plant Growth</b>	<p>Plot points on a coordinate grid  Identify points on a grid with values in a table and the context it represents  Describe steepness of a graph</p>

	<p>Compare rates of change in tables, graphs and situations between two quantities</p> <p>Write an arithmetic expression for finding one value in terms of another</p>
<p><b>How Many Packages, How Many Groups</b></p>	<p>Multiply multiples of 10</p> <p>Solve 2 digit multiplication problems by breaking apart and making an easier problem</p> <p>Solve division problems by breaking the problem into parts and using multiples of 10</p>

**Grade 5**

Unit Name	Content
<b>Number Puzzles and Multiple Towers</b>	<p>Identify prime, square, even and odd numbers</p> <p>Find all the factors of a number</p> <p>Solve 2 digit by 2 digit multiplication problems by breaking up number and by multiples of 10</p> <p>Solve division problems with 2 digit divisors by breaking up numbers and by multiples of 10</p> <p>Use dot arrangements and arrays to model multiplication</p>
<b>What's the Portion Fractions and Percents Field Trips and Fundraisers</b>	<p>Use landmark unit fractions or common fractions</p> <p>Use decimal &amp;/or percentage equivalents</p> <p>Use a ratio table as a tool to make equivalent fractions</p> <p>Use multiplication &amp; division to make equivalent fractions</p> <p>Use a common whole to compare fractions.</p>
<b>Thousands of Miles, Thousands of Seats -3)</b>	<p>Read, write, and name the numbers and their relationships between 10,100,1,000 and 10,000</p> <p>Add and subtract with large numbers using place value, the subtraction algorithm, and number lines</p> <p>Solve division problems related to multiplication combinations up to 12x12</p>
<b>Decimals on Grids and Number Lines</b>	<p>Place decimals on a number line</p> <p>Identify fraction, decimal and percents that are equivalent</p> <p>Represent fractions as a part of an area</p> <p>Order decimals and compare to landmark numbers (0, <math>\frac{1}{2}</math>, 1)</p> <p>Add decimals to the thousandths using place value reasoning</p>
<b>Measuring Polygons</b>	<p>Describe triangles using angle measures and lengths of sides</p> <p>Use angles to find other angle sin a polygon</p> <p>Compare perimeters and areas of rectangles</p> <p>Build similar figures</p> <p>Decompose and recombine 2D shapes</p>
<b>What's the Portion</b>	<p>Use Partial Quotients</p>

<p><b>Fractions and Percents Best Buys</b></p>	<p>Use Proportional Reasoning          Use decimal or money sense          Use a ratio table as a tool to make equivalent fractions          Use <math>\times</math> and <math>\div</math> to make equivalent fractions          Use a common whole to add fractions          Simplify to make a common whole</p>
<p><b>Prism and Pyramids</b></p>	<p>Decompose 3 D Shapes and recombine to make a given figure.          Determine the volume of rectangular prisms, pyramids, cylinders, cones          Use cubes to find volumes of larger figures.          Comparing volumes as dimensions change          Comparing volumes of different shaped containers</p>
<p><b>Playgrounds</b></p>	<p>Skip-count &amp;/or use repeated addition to find a fraction of a whole          Use multiplication &amp; division to make equivalent relations          Use landmark fractions to make partial products          Use decimal &amp;/or percentage equivalents          Use a ratio table as a tool for making equivalent fractions          Double &amp; halve &amp; the more generalized use of the associative property to eliminate fractions          Use the standard algorithm for multiplication of fractions          Interchange numerators (or denominators) to simplify first when multiplying</p>
<p><b>Growth Patterns</b></p>	<p>Use tables to represent the relationship between two quantities          Plot points on a coordinate grid          Compare and interpret graphs and tables          Describe and compare steepness on graphs          Write an arithmetic expression for finding one quantity in terms of another when using constant rates of change.          Find a missing value given a constant rate of change          Compare and describe graphs, tables, and situations for constant and non-constant rates of change</p>
<p><b>How Long Can You Stand on One Foot</b></p>	<p>Describe shape of data using spread, median, maximum, minimum, range, outliers          Compare two sets of data using line plots and bar graphs          Compare two sets of data using shape, spread, and medians</p>

	<p>Develop arguments and present conclusions based on data</p> <p>Design and carryout out an experiment to answer a question about two groups</p> <p>Compare the actual results of an experiment with the expected probability</p> <p>Express probability of possible outcomes</p>
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