

Pre- Kindergarten Math Syllabus

1 st Semester	
<p><u>August - December</u></p>	<p><u>Counting and Number</u></p> <ul style="list-style-type: none"> - Counting a Set - Constructing a Set - Using Ordinal Numbers - One-to-One Correspondence - One-to-One Correspondence - Numerical Comparison with 2 sets - Counting Practice - Match Sets to Sets and Sets to Numerals <p><u>Understanding Arithmetic Operations</u></p> <ul style="list-style-type: none"> - Addition and Subtraction with Objects - Addition and Subtraction with Objects - Division <p><u>Spatial Sense and Geometry</u></p> <ul style="list-style-type: none"> - Construction 2-D and 3-D shapes - Shape Naming and Matching - Using Coordinates - Composition of Shapes - Completion of Rotated Figures - Spatial Location Within a Grid
2 nd Semester	
<p><u>December - May</u></p>	<p>Patterns</p> <ul style="list-style-type: none"> - Identifying and Describing Patterns - Pattern Duplication and Analysis - Pattern Extension - Linear Color Pattern <p>Understanding Arithmetic Operations</p> <ul style="list-style-type: none"> - Decomposition of Numbers - Addition/Subtraction with Hidden Objects - Addition/Subtraction with 2 Sets <p>Measurement and Data</p> <ul style="list-style-type: none"> - Direct Comparison of Length - Direct Comparison of Weight - Direct Comparison of Capacity - Length Measurement - Data Representation <p>Logical Reasoning</p> <ul style="list-style-type: none"> - Hierarchical Classification - Logical Terms - Ordering by Size

Kindergarten Math Syllabus

1 st Semester	
<p style="text-align: center;"><u>August-December</u></p>	<p><u>Number Sense</u> NS 1.0 Students understand the relationship between numbers and quantities (i.e., that set of objects has the same number of objects in different situations regardless of its position or arrangement.) NS 1.1 Compare two or more sets of objects (up to 10 objects in each group), and identify which set is equal to, more, than, or less than the other. NS 1.2 Count, recognize, represent, name, and order a number of objects (up to 30). NS 1.3 Know that the larger numbers describe sets with more objects in them than the smaller numbers have. NS 2.0 Students understand and describe simple additions and subtractions. NS 2.1 Use concrete objects to determine the answers to addition and subtraction problems (for two numbers that are each less than 10) NS 3.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones and tens places. NS 3.1 Recognize when an estimate is reasonable.</p> <p><u>Algebra & Functions</u> AF 1.0 Students sort and classify objects. AF 1.1 Identify, sort and classify objects by attribute and identify objects that do not belong to a particular group.</p> <p><u>Statistics, Data Analysis & Probability</u> SDAP 1.1 Pose information questions; collect data; and record the results using objects, pictures, and picture graphs.</p> <p><u>Mathematical Reasoning</u> MR 1.0 Students make decisions about how to set up problems. MR 1.2 Use tools and strategies, such as manipulatives or sketches, to model problems. MR 2.0 Students solve problems in reasonable ways and justify their reasoning. MR 2.1 Explain the reasoning used with concrete objects and/or pictorial representations. MR 2.2 Make precise calculations and check the validity of the results in the context of the problem.</p>

Kindergarten Math Syllabus

2 nd Semester	
<p data-bbox="217 716 431 747" style="text-align: center;"><u>December-May</u></p>	<p data-bbox="581 233 1105 264"><u>Statistics, Data Analysis & Probability</u></p> <p data-bbox="581 268 1495 296">SDAP 1.0 Students collect information about objects and events in their environment.</p> <p data-bbox="581 300 1516 359">SDAP 1.1 Pose information questions; collect data; and record the results using objects, pictures, and picture graphs.</p> <p data-bbox="581 363 1479 422">SDAP 1.2 Identify, describe, and extend simple patterns by referring to their shapes, sizes, or colors.</p> <p data-bbox="581 453 922 485"><u>Mathematical Reasoning</u></p> <p data-bbox="581 489 1256 516">MR 1.0 Students make decisions about how to set up problems.</p> <p data-bbox="581 520 1317 548">MR 1.1 Determine the approach, materials, and strategies to be used.</p> <p data-bbox="581 552 1511 579">MR 1.2 Use tools and strategies, such as manipulatives or sketches, to model problems.</p> <p data-bbox="581 583 1430 611">MR 2.0 Students solve problems in reasonable ways and justify their reasoning.</p> <p data-bbox="581 615 1360 674">MR 2.1 Explain the reasoning used with concrete objects and/or pictorial representations.</p> <p data-bbox="581 678 1516 737">MR 2.2 Make precise calculations and check the validity of the results in the context of the problem.</p> <p data-bbox="581 768 951 800"><u>Measurement & Geometry</u></p> <p data-bbox="581 804 1487 890">MG 1.0 Students understand the concept of time and units to measure it; they understand that objects have properties such as length, weight, and capacity, and that comparisons may be made by referring to those properties.</p> <p data-bbox="581 894 1414 953">MG 1.1 Compare the length, weight, and capacity of objects by making direct comparisons with reference objects.</p> <p data-bbox="581 957 1516 984">MF 1.2 Demonstrate an understanding of concepts of time, and tools that measure time.</p> <p data-bbox="581 989 967 1016">MG 1.3 Name the days of the week.</p> <p data-bbox="581 1020 1284 1047">MG 1.4 Identify the time (to the nearest hour) of everyday events.</p> <p data-bbox="581 1052 1438 1110">MG 2.0 Students identify common objects in their environment and describe the geometric features.</p> <p data-bbox="581 1115 1195 1142">MG 2.1 Identify and describe common geometric objects.</p> <p data-bbox="581 1146 1354 1173">MG 2.2 Compare familiar plane and solid objects by common attributes.</p>

First Grade Math Syllabus

1 st Semester	
<u>August - December</u>	<p><u>Number Sense</u> NS 1.0 Students understand and use numbers up to 100. NS 1.1 Count, read, and write whole number to 100. NS 1.2 Compare and order whole numbers to 100 by using the symbols for less than, equal to, or greater than (<, =, >) NS 1.3 Represent equivalent forms of the same number through the use of physical models, diagrams, and number expressions (to 20) (e.g., 8 may be represented as 4 + 4, 5 + 3, 2 + 2 + 2 + 2, 10 - 2, 11 - 3). NS 1.4 Count and group object in ones and tens (e.g., three groups of 10 and 4 equals 34, or 30 + 4). NS 2.1 Know the addition facts (sums to 20) and the corresponding subtraction facts and commit them to memory. NS 2.2 Use the inverse relationship between addition and subtraction to solve problems. NS 2.3 Identify one more than, one less than, 10 more than, and 10 less than a given number. NS 2.4 Count by 2s, 5s, and 10s to 100. NS 2.5 Show the meaning of addition (putting together, increasing) and subtraction (taking away, comparing, finding the difference). NS 2.6 Solve addition and subtraction problems with one- and two-digit numbers (e.g., 5 + 58 = ___). NS 2.7 Find the sum of three one-digit numbers. NS 3.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, and hundreds places. NS 3.1 Make reasonable estimates when comparing larger or smaller numbers.</p> <p><u>Algebra & Functions</u> AF 1.1 Write and solve number sentences from problem situations that express relationships involving addition and subtraction. AF 1.2 Understand the meaning of the symbols +, -, =.</p> <p><u>Measurement & Geometry</u> MG 1.2 Tell time to the nearest half hour and relate time to events. MG 2.0 Students identify common geometric figures, classify them by common attributes, and describe their relative position or their location in space. MG 2.1 Identify, describe, and compare triangles, rectangles, squares, and circles, including the faces of three-dimensional objects. MG 2.2 Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification. MG 2.3 Give a follow directions about location. MG 2.4 Arrange and describe objects in space by proximity, position, and direction.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.0 Students organize, represent, and compare data by category on simple graphs and charts.</p> <p><u>Mathematical Reasoning</u> MR 1.1 Determine the approach, materials, and strategies to be used. MR 1.2 Use tools, such as manipulatives or sketches, to model problems. MR 2.1 Explain the reasoning used and justify the procedures selected. MR 2.2 Make precise calculations and check the validity of the results from the context of the problem.</p>

First Grade Math Syllabus

2 nd Semester	
<p style="text-align: center;"><u>December – May</u></p>	<p><u>Number Sense</u> NS 1.5 Identify and know the value of coins and show different combinations of coins that equal the same value. NS 2.1 Know the addition facts (sums to 20) and the corresponding subtraction facts and commit them to memory. NS 2.2 Use the inverse relationship between addition and subtraction to solve problems. NS 2.6 Solve addition and subtraction problems with one-and two-digit numbers (e.g., $5+58 = \underline{\quad}$). NS 2.7 Find the sum of three one-digit numbers. NS 3.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, and hundreds places. NS 3.1 Make reasonable estimates when comparing larger or smaller numbers.</p> <p><u>Algebra & Functions</u> AF 1.3 Create problem situations that might lead to given number sentences involving addition and subtraction.</p> <p><u>Measurement & Geometry</u> MG 1.0 Students use direct comparison and nonstandard units to describe the measurement of objects. MG 1.1 Compare the length, weight, and volume of two or more objects by using direct comparison or a nonstandard unit.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.0 Students organize, represent, and compare data by category on simple graphs and charts. SDAP 1.1 Sort objects and data by common attributes and describe the categories. SDAP 1.2 Represent and compare data by using pictures, bar graphs, tally harts, and picture graphs. SDAP 2.0 Students sort objects and create and describe patterns by numbers, shapes, sizes, rhythms, or colors. SDAP 2.1 Describe, extend, and explain ways to get to a next element in simple repeating patterns.</p> <p><u>Mathematical Reasoning</u> MR 1.1 Determine the approach, materials, and strategies to be used. MR 1.2 Use tools, such as manipulatives or sketches, to model problems. MR 2.0 Students solve problems and justify their reasoning. MR 2.1 Explain the reasoning used and justify the procedures selected. MR 2.2 Make precise calculations and check the validity of the results from the context of the problem. MR 3.0 Students note connections between one problem and another.</p>

Second Grade Math Syllabus

<p>1st Semester</p>	<p><u>Number Sense</u> NS 1.0 Students understand the relationship between numbers, quantities, and place value in whole numbers up to 1000. NS 1.1 Count, read, and write whole numbers to 1000, and identify the place value for each digit. NS 1.2 Use words, models, and expanded forms to represent numbers to 1000. NS 1.3 Order and compare whole numbers to 1000 by using the symbols $<$, $=$, $>$. NS 2.0 Students estimate, calculate, and solve problems involving addition and subtraction of two-and-three-digit numbers. NS 2.1 Understand and use the inverse relationship between addition and subtraction to solve problems and check solutions. NS 2.2 Find the sum or difference of two whole numbers up to three digits long. NS 2.3 Use mental arithmetic to find the sum or difference of two two-digit numbers. NS 3.0 Students model and solve simple problems involving multiplication and division. NS 3.1 Use repeated addition, arrays, and counting multiples to do multiplication.</p> <p><u>Algebra & Functions</u> AF 1.0 Student model, represents, and interpret number relationships to create and solve problems involving addition and subtraction. AF 1.1 Use the commutative and associative rules to simplify mental calculations and to check results. AF 1.2 Relate problem situations to number sentences involving addition and subtraction. AF 1.3 Solve addition and subtraction problems by using data from simple charts, picture graphs, and numbers sentences.</p> <p><u>August - December</u> <u>Measurement & Geometry</u> MG 2.0 Students identify and describe the attributes of common figures in the plane and of common objects in space. MG 2.1 Describe and classify plane and solid geometric shapes according to the number and shape of faces, edges, and vertices. MG 2.2 Put shapes together and take them apart to form other shapes.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.1 Record numerical data in systemic ways, keeping track of what has been counted. SDAP 1.2 Represent the same data set in more than one way. SDAP 1.3 Identify features of data sets. SDAP 1.4 Ask and answer simple questions related to data representations. SDAP 2.0 Students demonstrate an understanding of patterns and how patterns grown and describe them in general ways. SDAP 2.1 Recognize, describe, and extend patterns and determine a next term in linear patterns. SDAP 2.2 Solve problems involving simple number patterns.</p> <p><u>Mathematical Reasoning</u> MR 1.0 Students make decisions about how to set up a problem. MR 1.1 Determine the approach, materials, and strategies to be used. MR 1.2 Use tools, such as manipulatives or sketches, to model problems. MR 2.0 Students solve problems and justify their reasoning. MR 2.1 Defend the reasoning used and justify the procedures selected. MR 2.2 Make precise calculations and check the validity of the results from the context of the problem. MR 3.0 Students not connections between one problem and another.</p>
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Second Grade Math Syllabus

2 nd Semester	
December- May	<p><u>Number Sense</u> NS 3.2 Use repeated subtraction, equal sharing, and forming equal groups with remainders to do division. NS 3.3 Know the multiplication tables of 2s, 5s, and 10s and commit them to memory. NS 4.0 Students understand that fractions and decimals may refer to parts of a set and parts of a whole. NS 4.1 Recognize, name, and compare unit fractions from $\frac{1}{12}$ to $\frac{1}{2}$ NS 4.2 Recognize fractions of a whole and parts of a group NS 4.3 Know that when all fractional parts are included, such as four-fourths, the result is equal to the whole and to one. NS 5.0 Students model and solve problems by representing, adding, and subtracting amounts of money. NS 5.1 Solve problems using combinations of coins and bills. NS 5.2 Know and use the decimal notation and the dollar and cent symbols for money. NS 6.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, hundreds, and thousands places. NS 6.1 Recognize when an estimate is reasonable in measurements.</p> <p><u>Algebra & Functions</u> AF 1.0 Student model, represents, and interpret number relationships to create and solve problems involving addition and subtraction. AF 1.1 Use the commutative and associative rules to simplify mental calculations and to check results. AF 1.2 Relate problem situations to number sentences involving addition and subtraction. AF 1.3 Solve addition and subtraction problems by using data from simple charts, picture graphs, and numbers sentences.</p> <p><u>Measurement & Geometry</u> MG 1.0 Students understand that measurement is accomplished by identifying a unit of measurement is accomplished by identifying a unit of measure, iterating that unit, and comparing it to the item to be measured. MG 1.1 Measure the length of objects by iterating a nonstandard or standard unit. MG 1.2 Use different units to measure the same object and predict whether the measure will be greater or smaller when a different unit is used. MG 1.3 Measure the length of an object to the nearest inch and/or centimeter. MG 1.4 Tell time to the nearest quarter hour and know relationships of time. MG 1.5 Determine the duration of intervals of time in hours.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.0 Students collect numerical data and record, organize, display, and interpret the data on bar graphs and other representations. SDAP 1.1 Record numerical data in systemic ways, keeping track of what has been counted. SDAP 1.4 Ask and answer simple questions related to data representations. SDAP 2.0 Students demonstrate an understanding of patterns and how patterns grown and describe them in general ways. SDAP 2.1 Recognize, describe, and extend patterns and determine a next term in linear patterns. SDAP 2.2 Solve problems involving simple number patterns.</p> <p><u>Mathematical Reasoning</u> MR 1.0 Students make decisions about how to set up a problem. MR 1.1 Determine the approach, materials, and strategies to be used. MR 1.2 Use tools, such as manipulatives or sketches, to model problems. MR 2.0 Students solve problems and justify their reasoning. MR 2.1 Defend the reasoning used and justify the procedures selected. MR 2.2 Make precise calculations and check the validity of the results from the context of the problem. MR 3.0 Students not connections between one problem and another.</p>

Third Grade Math Syllabus

<p>1st Semester</p>	
<p><u>August - December</u></p>	<p><u>Number Sense</u> NS 1.0 Students understand the place value of whole numbers. NS 1.1 Count, read, and write whole numbers to 10,000. NS 1.2 Compare and order whole numbers to 10,000. NS 1.3 Identify the place value for each digit in numbers to 10,000. NS 1.5 Use expanded notation to represent numbers. NS 2.0 Students calculate and solve problems involving addition, subtraction, multiplication, and division. NS 2.1 Find the sum or difference of two whole numbers between 0 and 10,000. NS 2.2 Memorize to automaticity the multiplication table for numbers between 1 and 10. NS 2.3 Use the inverse relationship of multiplication and division to compute and check results. NS 2.4 Solve simple problems involving multiplication of multi-digit numbers by one-digit numbers. NS 2.5 Solve division problems in which a multi-digit number is evenly divided by a one-digit number. NS 2.6 Understand the special properties of 0 and 1 in multiplication and division. NS 3.0 Students understand the relationship between whole numbers, simple fractions, and decimals. NS 3.3 Solve problems involving addition, subtraction, multiplication, and division of money amounts in decimal notation by using whole number multipliers and divisors.</p> <p><u>Algebra & Functions</u> AF 1.0 Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships. AF 1.1 Represent relationships of quantities in the form of mathematical expressions, equations, or inequalities. AF 1.5 Recognize and use the commutative and associative properties of multiplication. AF 2.0 Students represent simple functional relationships. AF 2.1 Solve simple problems involving a functional relationship between two quantities. AF 2.2 Extend and recognize a linear pattern by its rules.</p> <p><u>Measurement & Geometry</u> Mg 1.0 Students choose and use appropriate units and measurement tools to quantify the properties of objects. MG 1.1 Choose appropriate tools and units and estimate and measure the length, liquid volume, and weight/mass of given objects. MG 1.2 Estimate or determine the area and volume of solid figures by covering them with squares or counting the number of cubes that would fill them. MG 1.3 Find the perimeter of a polygon with integer sides. MG 1.4 Carry out simple conversions within a system measurement. MG 2.0 Students describe and compare the attributes of plane and solid geometric figures and use their understanding to show relationship and solve problems. MG 2.1 Identify, describe, and classify polygons. MG 2.2 Identify attributes of triangle.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.1 Identify whether common events are certain, likely, unlikely, or improbable. SDAP 1.2 Record the possible outcomes for a simple event, and systematically keep track of the outcomes when the event is repeated many times. SDAP 1.3 Summarize and display the results of probability experiments to predict future events.</p> <p><u>Mathematical Reasoning</u> MR 1.0 Students make decisions about how to approach problems. MR 1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns. MR 2.0 Students use strategies, skills, and concepts in finding solutions. MR 2.1 Use estimation to verify the reasonableness of calculated results. MR 2.3 Use variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning. MR Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work. MR 2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.</p>

Third Grade Math Syllabus

<p>2nd Semester</p>	
<p>December- May</p>	<p><u>Number Sense</u> NS 1.0 Students understand the place value of whole numbers. NS 1.1 Count, read, and write whole numbers to 10,000. NS 1.2 Compare and order whole numbers to 10,000. NS 1.3 Identify the place value for each digit in numbers to 10,000. NS 2.0 Students calculate and solve problems involving addition, subtraction, multiplication, and division. NS 2.1 Find the sum or difference of two whole numbers between 0 and 10,000. NS 2.2 Memorize to automaticity the multiplication table for numbers between 1 and 10. NS 2.3 Use the inverse relationship of multiplication and division to compute and check results. NS 2.4 Solve simple problems involving multiplication of multi-digit numbers by one-digit numbers. NS 2.5 Solve division problems in which a multi-digit number is evenly divided by a one-digit number. NS 3.0 Students understand the relationship between whole numbers, simple fractions, and decimals. NS 3.1 Compare fractions represented by drawing or concrete materials to show equivalency and to add and subtract simple fractions in context. NS 3.3 Solve problems involving addition, subtraction, multiplication, and division of money amounts in decimal notation by using whole number multipliers and divisors. NS 3.4 Know and understand that fractions and decimals are two different representations of the same concept.</p> <p><u>Algebra & Functions</u> AF 1.0 Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships. AF 1.1 Represent relationships of quantities in the form of mathematical expressions, equations, or inequalities. AF 1.2 Solve problems involving numeric equations or inequalities. AF 1.4 Express simple unit conversions in symbolic form. AF 1.5 Recognize and use the commutative and associative properties of multiplication. AF 2.0 Students represent simple functional relationships. AF 2.1 Solve simple problems involving a functional relationship between two quantities. AF 2.2 Extend and recognize a linear pattern by its rules.</p> <p><u>Measurement & Geometry</u> Mg 1.0 Students choose and use appropriate units and measurement tools to quantify the properties of objects. MG 1.1 Choose appropriate tools and units and estimate and measure the length, liquid volume, and weight/mass of given objects. MG 1.2 Estimate or determine the area and volume of solid figures by covering them with squares or counting the number of cubes that would fill them. MG 1.3 Find the perimeter of a polygon with integer sides. MG 1.4 Carry out simple conversions within a system measurement. MG 2.0 Students describe and compare the attributes of plane and solid geometric figures and use their understanding to show relationship and solve problems. MG 2.1 Identify, describe, and classify polygons. MG 2.2 Identify attributes of triangle. MG 2.3 Identify attributes of quadrilaterals. MG 2.4 Identify right angles in geometric figures or in appropriate objects and determine whether other angles are greater or less than a right angle. MG 2.5 Identify, describe, and classify common three-dimensional geometric objects.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.0 Students conduct simple probability experiments by determining the number of possible outcomes and make simple predictions. SDAP 1.1 Identify whether common events are certain, likely, unlikely, or improbable. SDAP 1.2 Record the possible outcomes for a simple event, and systematically keep track of the outcomes when the event is repeated many times. SDAP 1.3 Summarize and display the results of probability experiments to predict future events. SDAP 1.4 Use the results of probability experiments to predict future events.</p>

Mathematical Reasoning

MR 1.0 Students make decisions about how to approach problems.

MR 1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

MR 2.1 Use estimation to verify the reasonableness of calculated results.

MR 2.2 Apply strategies and results from simpler problems to more complex problems.

MR 2.3 Use variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

MR Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

MR 2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

MR 2.6 Make precise calculations and check the validity of the results from the context of the problem.

MR 3.3 Develop generalizations of the results obtained and apply them in other circumstances.

Fourth Grade Math Syllabus

1 st Semester	
<u>August - December</u>	<p><u>Number Sense</u></p> <p>NS 1.0 Students understand the place value of whole numbers and decimals to two decimal places and numbers and decimals relate to simple fractions. Students begin to use the concept of negative numbers.</p> <p>NS 1.1 Read and write whole numbers in the millions.</p> <p>NS 1.2 Order and compare whole numbers and decimals to two decimal places.</p> <p>NS 1.5 Explain different interpretations of fractions, for example parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalence of fractions.</p> <p>NS 1.6 Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths.</p> <p>NS 1.8 Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in “owing”)</p> <p>NS 2.0 Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals.</p> <p>NS 2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.</p> <p>NS 2.2 Round two –place decimals to one decimal or to the nearest whole number and judge the reasonableness of the rounded answer.</p> <p>NS 3.0 Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations.</p> <p>NS 3.1 Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi-digit numbers.</p> <p>NS 3.3 Solve problems involving multiplication of multi-digit numbers by two-digit numbers.</p> <p>NS 4.1 Understand that many whole numbers break down in different ways.</p> <p><u>Algebra & Functions</u></p> <p>AF 1.0 Students use and interpret variable, mathematical symbols, and properties to write and simplify expressions and sentences.</p> <p>AF 1.1 Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).</p> <p>AF 1.2 Interpret and evaluate mathematical expressions that now use parentheses.</p> <p>AF 1.3 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.</p> <p>AF 1.4 Use and interpret formulas to answer questions about quantities and their relationships.</p> <p>AF 2.0 Students know how to manipulate equations.</p> <p><u>Measurement & Geometry</u></p> <p>MG 3.0 Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.</p> <p>MG 3.1 Identify lines that are parallel and perpendicular.</p> <p>MG 3.2 Identify the radius and diameter of a circle.</p> <p>MG 3.3 Identify congruent figures.</p> <p>MG 3.7 Know the definitions of different triangles and identify their attributes.</p> <p>MG 3.8 Know the definition of different quadrilaterals.</p> <p><u>Statistics, Data Analysis, & Probability</u></p> <p>SDAP 1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables and charts.</p> <p>SDAP 1.2 Identify the mode(s) for sets of categorical data and the mode(s), medians and any apparent outliers for numerical data sets.</p> <p><u>Mathematical Reasoning</u></p> <p>MR 1.0 Students make decisions about how to approach problems.</p> <p>MR 1.1 Analyze problems by identifying relationships distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.</p> <p>MR 2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.</p> <p>MR 2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.</p> <p>MR 3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.</p>

Fourth Grade Math Syllabus

2 nd Semester	
<p>December- May</p>	<p><u>Number Sense</u> NS 1.0 Students understand the place value of whole numbers and decimals to two decimal places and numbers and decimals relate to simple fractions. Students begin to use the concept of negative numbers. NS 1.1 Read and write whole numbers in the millions. NS 1.2 Order and compare whole numbers and decimals to two decimal places. NS 1.3 Round whole numbers through the millions to the nearest ten hundred, thousand, ten thousand, or hundred thousand. NS 1.4 Decide when a rounded solution is called for and explain why such a solution may be appropriate. NS 1.5 Explain different interpretations of fractions, for example parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalence of fractions. NS 1.6 Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths. NS 1.7 Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line. NS 1.9 Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places. NS 2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places. NS 3.0 Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations. NS 3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi-digit number by a one-digit number; use relationships between them to simplify computations and to check results. NS 3.4 Solve problems involving division of multi-digit numbers by one-digit numbers.</p> <p><u>Algebra & Functions</u> AF 1.1 Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable). AF 1.4 Use and interpret formulas to answer questions about quantities and their relationships.</p> <p><u>Measurement & Geometry</u> MG 1.0 Students understand perimeter and area. MG 1.1 Measure the area of rectangular shapes by using appropriate units, such as square inch, square yard, square mile. MG 1.4 Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find areas of more complex figures by dividing the figures into basic shapes. MG 2.0 Students use two-dimensional coordinate grids to represent points and graph lines and simple figures. MG 3.0 Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems. MG 3.4 Identify figures that have bilateral and rotational symmetry. MG 3.6 Visualize, describe, and make models of geometric solids in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns for a solid that, when cut and folded, will make a model of the solid.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables and charts. SDAP 1.2 Identify the mode(s) for sets of categorical data and the mode(s), medians and any apparent outliers for numerical data sets. SDAP 1.3 Interpret one-and-two variable data graphs to answer questions about a situation.</p> <p><u>Mathematical Reasoning</u> MR 1.2 Determine when and how to break a problem into simpler parts. MR 2.1 Uses estimation to verify the reasonableness of calculated results.</p>

Fifth Grade Math Syllabus

1st Semester	<p><u>Number Sense</u> NS 1.0 Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers. NS 1.1 Estimate, round, and manipulate very large (e.g., millions) and very small (e.g., thousandths) numbers. NS 1.4 Determine the prime factors of all numbers through 50 and write the numbers as the product of their prime factors by using exponents to show multiples of a factor. NS 2.1 Add, subtract, multiply, and divide with decimals; ass with negative integers; subtract positive integers from negative integers; and verify the reasonless of the results. NS 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multi-digit divisors.</p> <p><u>Algebra & Functions</u> AF 1.2 Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution. AF 1.4 Identify and graph ordered pairs in the four quadrants of the coordinate plane. AF 1.5 Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.</p> <p><u>Measurement & Geometry</u> MG 1.0 Students understand and compute the volumes and areas of simple objects. MG 1.1 Derive and use the formula for the area of a triangle and of a parallelogram by comparing it with the formula for the area od a rectangle (i.e., two of the same triangles make a parallelogram by comparing it with the formula for the area of a rectangle (i.e., two of the same triangles make a parallelogram with twice the area; a parallelogram is compared with a rectangle of the same area by cutting and pasting a right triangle on the parallelogram). MG 1.3 Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeter [cm³], cubic meter [m³], cubic inch [in³], cubic yard [yd³]) to compute the volume of rectangular solids. MG 1.4 Differentiate between, and use appropriate units of measures for, two-and three-dimensional objects (i.e., find the perimeter, area, volume). MG 2.0 Students identify, describe, and classify the properties of, and the relationships between plane and solid geometric figures. MG 2.1 Measures, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools. MG 2.2 Know that the sum of the angles of any triangle is 180° and the sum of the angles of any quadrilateral is 360° and use this information to solve problems.</p> <p><u>Statistics, Data Analysis, & Probability</u> SDAP 1.0 Students display, analyze, compare, and interpret different data sets, including data sets of different sizes. SDAP 1.1 Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.</p> <p><u>Mathematical Reasoning</u> MR 1.1 Analyze problems by identifying relationships distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns. MR 1.2 Determine when and how to break a problem into simpler parts. MR 2.1 Use estimation to verify the reasonableness of calculated. MR 2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work. MR 2.5 Indicate he relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy. MR 2.6 Make precise calculations and check the validity of the results from the context of the problem. MR 3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems. MR 3.3 Develop generalizations of the results obtained and apply them in other circumstances.</p>
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**August -
December**

Fifth Grade Math Syllabus

1st Semester	
	<p><u>Number Sense</u></p> <p>NS 1.0 Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers.</p> <p>NS 1.1 Estimate, round, and manipulate very large (e.g., millions) and very small (e.g., thousandths) numbers.</p> <p>NS 1.2 Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.</p> <p>NS 1.3 Understand and compute positive integer powers of nonnegative integer; compute examples as repeated multiplication.</p> <p>NS 1.5 Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative numbers.</p> <p>NS 2.0 Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals.</p> <p>NS 2.1 Add, subtract, multiply, and divide with decimals; ass with negative integers; subtract positive integers from negative integers; and verify the reasonless of the results.</p> <p>NS 2.3 Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers, and express answers in the simplest form.</p> <p>NS 2.4 Understand the concept of multiplication and division of fractions.</p> <p>NS 2.5 Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.</p> <p><u>Measurement & Geometry</u></p> <p>MG 2.3 Visualize and draw two-dimensional views of three-dimensional objects made from rectangular solids.</p>
<u>August - December</u>	<p><u>Statistics, Data Analysis, & Probability</u></p> <p>SDAP 1.0 Students display, analyze, compare, and interpret different data sets, including data sets of different sizes.</p> <p>SDAP 1.1 Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.</p> <p>SDAP 1.2 Organize and display single-variable data in appropriate graphs and representations and explain which types of graphs are appropriate for various data sets.</p> <p>SDAP 1.3 Use fractions and percentages to compare data sets of different sizes.</p> <p>SDAP 1.4 Identify ordered pairs of data from a graph and interpret the meaning of the data in terms of the situation depicted by the graph.</p> <p>SDAP 1.5 Know how to write ordered pairs correctly; for example (x,y).</p> <p><u>Mathematical Reasoning</u></p> <p>MR 1.1 Analyze problems by identifying relationships distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.</p> <p>MR 2.1 Use estimation to verify the reasonableness of calculated.</p> <p>MR 2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.</p> <p>MR 2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.</p> <p>MR 3.1 Evaluate the reasonableness of the solution in the context of the original situation.</p> <p>MR 3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.</p> <p>MR 3.3 Develop generalizations of the results obtained and apply them in other circumstances.</p>

Sixth Grade Math Syllabus

1st Semester	
August-December	<p><u>The Number System</u></p> <p><i>Apply and extend previous understandings of multiplication and division to divide fractions by fractions.</i></p> <p>NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, including reasoning strategies such as using visual fraction models and equations to represent the problem.</p> <p><i>Compute fluently with multi-digit numbers and find common factors and multiples.</i></p> <p>NS.2 Fluently divide multi-digit numbers using the standard algorithm.</p> <p>NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>NS.4 Find the common multiples of two whole numbers less than or equal to 12 and less than or equal to 100.</p> <p><i>Apply and extend previous understandings of numbers to the system of rational numbers.</i></p> <p>NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.</p> <p>NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <p>NS.7 Understand ordering and absolute value of rational numbers. about order. NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate</p> <p><u>Expressions and Equations</u></p> <p><i>Apply and extend previous understandings of arithmetic to algebraic expressions.</i></p> <p>EE.1 Write and evaluate numerical expressions involving whole-number exponents.</p> <p>EE.2 Write, read, and evaluate expressions in which letters stand for numbers. EE.3 Apply the properties of operations to generate equivalent expressions. EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).</p> <p><i>Reason about and solve one variable equations and inequalities.</i></p> <p>EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p> <p>EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.</p> <p>EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.</p> <p>EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a</p>

	<p>real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p> <p><i>Represent and analyze quantitative relationships between dependent and independent variables.</i> EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another.</p>
<p>2nd Semester</p>	
<p>December-May</p>	<p><u>Ratios and Proportional Relationships</u></p> <p><i>Understand ratio concepts and use ratio reasoning to solve problems.</i> RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. RP.2 Understand the concept of a unit rate a / b associated with a ratio $a : b$ with $b \neq 0$ (b not equal to zero), and use rate language in the context of a ratio relationship. RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems utilizing strategies such as tables of equivalent ratios, tape diagrams (bar models), double number line diagrams, and/or equations.</p> <p><u>Geometry</u></p> <p><i>Solve real-world and mathematical problems involving area, surface area, and volume.</i> G.1 Find the area of right triangles, other triangles, quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths ($1/2$ u), and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = (\text{length}) \times (\text{width}) \times (\text{height})$ and $V = (\text{area of base}) \times (\text{height})$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p><u>Statistics and Probability</u></p> <p><i>Develop understanding of statistical variability.</i> SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. SP.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. Summarize and describe distributions. SP.4 Display numerical data in plots on a number line,</p>

	including dot plots, histograms, and box plots. SP.5 Summarize numerical data sets in relation to their context
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