Number and Operations

K	1	2	3	4	5	6	7	8
1.01 Develop number sense for whole numbers through 30. a) Connect model, number word (orally), and number, using a variety of representations. b) Count objects in a set. c) Read and write numerals. d) Compare and order sets and numbers. e) Use ordinals (1st-10th). f) Estimate quantities fewer than or equal to 10. g) Recognize equivalence in sets and numbers 1-10. 1.02 Share equally (divide) between two people; explain. 1.03 Solve problems and share solutions to problems in small groups.	1.01 Develop number sense for whole numbers through 99. a) Connect the model, number word, and number using a variety of representations. b) Use efficient strategies to count the number of objects in a set. c) Read and write numbers. d) Compare and order sets and numbers. e) Build understanding of place value (ones, tens). f) Estimate quantities fewer than or equal to 100. g) Recognize equivalence in sets and numbers 1-99. 1.02 Use groupings of 2's, 5's, and 10's with models and pictures to count collections of objects. 1.03 Develop fluency with single-digit addition and corresponding differences using strategies such as modeling, composing and decomposing quantities, using doubles, and making tens. 1.04 Create, model, and solve problems that use addition, subtraction, and fair shares (between two or three).	1.01 Develop number sense for whole numbers through 999. a) Connect model, number word, and number using a variety of representations. b) Read and write numbers. c) Compare and order. d) Rename. e) Estimate. f) Use a variety of models to build understanding of place value (ones, tens, hundreds). 1.02 Use area or region models and set models of fractions to explore part-whole relationships in contexts. a) Represent fractions (halves, thirds, fourths) concretely and symbolically. b) Compare fractions (halves, thirds, fourths) using models. c) Make different representations of the same fraction. d) Combine fractions to describe parts of a whole. 1.03 Create, model, and solve problems that involve addition, subtraction, equal grouping, and division into halves, thirds, and fourths (record in fraction form). 1.04 Develop fluency with multi-digit addition and subtraction through 999 using multiple strategies. a) Strategies for adding and subtracting numbers. b) Estimation of sums and differences in appropriate situations. c) Relationships between operations. 1.05 Create and solve problems using strategies such as modeling, composing and decomposing quantities, using doubles, and making tens and hundreds. 1.06 Define and recognize odd and even numbers.	1.01Develop number sense for whole numbers through 9,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (ones through thousands). c) Compare and order. 1.02 Develop fluency with multi-digit addition and subtraction through 9,999 using: a) Strategies for adding and subtracting numbers. b) Estimation of sums and differences in appropriate situations. c) Relationships between operations. 1.03 Develop fluency with multiplication from 1x1 to 12x12 and division up to two-digit by one-digit numbers using: a) Strategies for multiplying and dividing numbers. b) Estimation of products and quotients in appropriate situations. c) Relationships between operations. 1.04 Use basic properties (identity, commutative, associative, order of operations) for addition, subtraction, multiplication, and division. 1.05 Use area or region models and set models of fractions to explore part-whole relationships. a) Represent fractions concretely and symbolically (halves, fourths, thirds, sixths, eighths). b) Compare and order fractions (halves, fourths, thirds, sixths, eighths) using models and benchmark numbers (zero, one-half, one); describe comparisons. c) Model and describe common equivalents, especially relationships among halves, fourths, and eighths, and thirds and sixths. d) Understand that the fractional relationships that occur between zero and one also occur between every two consecutive whole numbers. e) Understand and use mixed numbers and their equivalent fraction forms. 1.06 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	1.01 Develop number sense for rational numbers 0.01 through 99,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (hundredths through ten thousands). c) Compare and order rational numbers. d) Make estimates of rational numbers in appropriate situations. 1.02 Develop fluency with multiplication and division: a) Two-digit by two-digit multiplication (larger numbers with calculator). b) Up to three-digit by two-digit division (larger numbers with calculator). c) Strategies for multiplying and dividing numbers. d) Estimation of products and quotients in appropriate situations. e) Relationships between operations. 1.03 Solve problems using models, diagrams, and reasoning about fractions and relationships among fractions involving halves, fourths, eighths, thirds, sixths, twelfths, fifths, tenths, hundredths, and mixed numbers. 1.04 Develop fluency with addition and subtraction of non-negative rational numbers with like denominators, including decimal fractions through hundredths. a) Develop and analyze strategies for adding and subtracting numbers. b) Estimate sums and differences. c) Judge the reasonableness of solutions. 1.05 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	1.01 Develop number sense for rational numbers 0.001 through 999,999. a) Connect model, number word, and number using a variety of representations. b) Build understanding of place value (thousandths through hundred thousands). c) Compare and order rational numbers. d) Make estimates of rational numbers in appropriate situations. 1.02 Develop fluency in adding and subtracting non-negative rational numbers (halves, fourths, eighths; thirds, sixths, twelfths; fifths, tenths, hundredths, thousandths; mixed numbers). a) Develop and analyze strategies for adding and subtracting numbers. b) Estimate sums and differences. c) Judge the reasonableness of solutions. 1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	1.01 Develop number sense for negative rational numbers. a) Connect the model, number word, and number using a variety of representations, including the number line. b) Compare and order. c) Make estimates in appropriate situations. 1.02 Develop meaning for percents. a) Connect the model, number word, and number using a variety of representations. b) Make estimates in appropriate situations. 1.03 Compare and order rational numbers. 1.04 Develop fluency in addition, subtraction, multiplication, and division of non-negative rational numbers. a) Analyze computational strategies. b) Describe the effect of operations on size. c) Estimate the results of computations. d) Judge the reasonableness of solutions. 1.05 Develop fluency in the use of factors, multiples, exponential notation, and prime factorization. 1.06 Use exponential, scientific, and calculator notation to write very large and very small numbers. 1.07 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	1.01 Develop and use ratios, proportions, and percents to solve problems. 1.02 Develop fluency in addition, subtraction, multiplication, and division of rational numbers. a) Analyze computational strategies. b) Describe the effect of operations on size. c) Estimate the results of computations. d) Judge the reasonableness of solutions. 1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.	1.01 Develop number sense for the real numbers. a) Define and use irrational numbers. b) Compare and order. c) Use estimates of irrational numbers in appropriate situations. 1.02 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Measurement

K	1	2	3	4	5	6	7	8
2.01 Compare attributes of two objects using appropriate vocabulary (color, weight, height, width, length, texture). 2.02 Recognize concepts of calendar time using appropriate vocabulary (days of the week, months of the year, seasons).	2.01 For given objects: a) Select an attribute (length, capacity, mass) to measure (use non-standard units). b) Develop strategies to estimate size. c) Compare, using appropriate language, with respect to the attribute selected. 2.02 Develop an understanding of the concept of time. a) Tell time at the hour and half-hour. b) Solve problems involving applications of time (clock and calendar).	2.01 Estimate and measure using appropriate units. a) Length (meters, centimeters, feet, inches, yards). b) Temperature (Fahrenheit). 2.02 Tell time at the five-minute intervals.	2.01 Solve problems using measurement concepts and procedures involving: a) Elapsed time. b) Equivalent measures within the same measurement system. 2.02 Estimate and measure using appropriate units. a) Capacity (cups, pints, quarts, gallons, liters). b) Length (miles, kilometers) c) Mass (ounces, pounds, grams, kilograms). d) Temperature (Fahrenheit, Celsius).	2.01 Develop strategies to determine the area of rectangles and the perimeter of plane figures. 2.02 Solve problems involving perimeter of plane figures and areas of rectangles.	2.01 Estimate the measure of an object in one system given the measure of that object in another system. 2.02 Identify, estimate, and measure the angles of plane figures using appropriate tools.	2.01 Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures, using appropriate tools. 2.02 Solve problems involving perimeter/ circumference and area of plane figures.	2.01 Draw objects to scale and use scale drawings to solve problems. 2.02 Solve problems involving volume and surface area of cylinders, prisms, and composite shapes.	2.01 Determine the effect on perimeter, area or volume when one or more dimensions of two- and three-dimensional figures are changed. 2.02 Apply and use concepts of indirect measurement.

Geometry

K	1	2	3	4	5	6	7	8
3.01 Identify, build, draw, and name triangles, rectangles, and circles; identify, build, and name spheres and cubes. 3.02 Compare geometric shapes (identify likenesses and differences). 3.03 Model and use directional and positional vocabulary. 3.04 Complete simple spatial visualization tasks and puzzles.	3.01 Identify, build, draw and name parallelograms, squares, trapezoids, and hexagons. 3.02 Identify, build, and name cylinders, cones, and rectangular prisms. 3.03 Compare and contrast geometric figures. 3.04 Solve problems involving spatial visualization.	3.01 Combine simple figures to create a given shape. 3.02 Describe the change in attributes as two- and three-dimensional figures are cut and rearranged. 3.03 Identify and make: a) Symmetric figures. b) Congruent figures.	3.01 Use appropriate vocabulary to compare, describe, and classify two- and three-dimensional figures. 3.02 Use a rectangular coordinate system to solve problems. a) Graph and identify points with whole number and/or letter coordinates. b) Describe the path between given points on the plane.	3.01 Use the coordinate system to describe the location and relative position of points and draw figures in the first quadrant. 3.02 Describe the relative position of lines using concepts of parallelism and perpendicularity. 3.03 Identify, predict, and describe the results of transformations of plane figures. a) Reflections. b) Translations. c) Rotations.	3.01 Identify, define, describe, and accurately represent triangles, quadrilaterals, and other polygons. 3.02 Make and test conjectures about polygons involving: a) Sum of the measures of interior angles. b) Lengths of sides and diagonals. c) Parallelism and perpendicularity of sides and diagonals. 3.03 Classify plane figures according to types of symmetry (line, rotational). 3.04 Solve problems involving the properties of triangles, quadrilaterals, and other polygons. a) Sum of the measures of interior angles. b) Lengths of sides and diagonals. c) Parallelism and perpendicularity of sides and diagonals.	3.01 Identify and describe the intersection of figures in a plane. 3.02 Identify the radius, diameter, chord, center, and circumference of a circle; determine the relationships among them. 3.03 Transform figures in the coordinate plane and describe the transformation. 3.04 Solve problems involving geometric figures in the coordinate plane.	3.01 Using three-dimensional figures: a) Identify, describe, and draw from various views (top, side, front, corner). b) Build from various views. c) Describe cross-sectional views. 3.02 Identify, define, and describe similar and congruent polygons with respect to angle measures, length of sides, and proportionality of sides. 3.03 Use scaling and proportional reasoning to solve problems related to similar and congruent polygons.	3.01 Represent problem situations with geometric models. 3.02 Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems. 3.03 Identify, predict, and describe dilations in the coordinate plane.

Data Analysis and Probability

K	1	2	3	4	5	6	7	8
4.01 Collect and organize data as a group activity. 4.02 Display and describe data with concrete and pictorial graphs as a group activity.	4.01 Collect, organize, describe and display data using line plots and tallies. 4.02 Describe events as certain, impossible, more likely or less likely to occur.	4.01 Collect, organize, describe and display data using Venn diagrams (three sets) and pictographs where symbols represent multiple units (2's, 5's, 10's). 4.02 Conduct simple probability experiments; describe the results and make predictions.	4.01 Collect, organize, analyze, and display data (including circle graphs and tables) to solve problems. 4.02 Determine the number of permutations and combinations of up to three items. 4.03 Solve probability problems using permutations and combinations.	4.01 Collect, organize, analyze, and display data (including line graphs and bar graphs) to solve problems. 4.02 Describe the distribution of data using median, range and mode. 4.03 Solve problems by comparing two sets of related data. 4.04 Design experiments and list all possible outcomes and probabilities for an event.	4.01 Collect, organize, analyze, and display data (including stem-and-leaf plots) to solve problems. 4.02 Compare and contrast different representations of the same data; discuss the effectiveness of each representation. 4.03 Solve problems with data from a single set or multiple sets of data using median, range, and mode.	4.01 Develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle. 4.02 Use a sample space to determine the probability of an event. 4.03 Conduct experiments involving simple and compound events. 4.04 Determine and compare experimental and theoretical probabilities for simple and compound events. 4.05 Determine and compare experimental and theoretical probabilities for independent and dependent events. 4.06 Design and conduct experiments or surveys to solve problems; report and analyze results.	4.01 Collect, organize, analyze, and display data (including box plots and histograms) to solve problems. 4.02 Calculate, use, and interpret the mean, median, mode, range, frequency distribution, and inter-quartile range for a set of data. 4.03 Describe how the mean, median, mode, range, frequency distribution, and inter-quartile range of a set of data affect its graph. 4.04 Identify outliers and determine their effect on the mean, median, mode, and range of a set of data. 4.05 Solve problems involving two or more sets of data using appropriate statistical measures.	4.01 Collect, organize, analyze, and display data (including scatterplots) to solve problems. 4.02 Approximate a line of best fit for a given scatterplot; explain the meaning of the line as it relates to the problem and make predictions. 4.03 Identify misuses of statistical and numerical data.

Algebra

K	1	2	3	4	5	6	7	8
5.01 Sort and classify objects by one attribute. 5.02 Create and extend patterns with actions, words, and objects.	5.01 Sort and classify objects by two attributes. 5.02 Use Venn diagrams to illustrate similarities and differences in two sets. 5.03 Create and extend patterns, identify the pattern unit, and translate into other forms.	5.01 Identify, describe, translate, and extend repeating and growing patterns. 5.02 Write addition and subtraction number sentences to represent a problem; use symbols to represent unknown quantities.	5.01 Describe and extend numeric and geometric patterns. 5.02 Extend and find missing terms of repeating and growing patterns. 5.03 Use symbols to represent unknown quantities in number sentences. 5.04 Find the value of the unknown in a number sentence.	5.01 Identify, describe, and generalize relationships in which: a) Quantities change proportionally. b) Change in one quantity relates to change in a second quantity. 5.02 Translate among symbolic, numeric, verbal, and pictorial representations of number relationships. 5.03 Verify mathematical relationships using: a) Models, words, and numbers. b) Order of operations and the identity, commutative, associative, and distributive properties.	5.01 Describe, extend, and generalize numeric and geometric patterns using tables, graphs, words, and symbols. 5.02 Use algebraic expressions, patterns, and one-step equations and inequalities to solve problems. 5.03 Identify, describe, and analyze situations with constant or varying rates of change.	5.01 Simplify algebraic expressions and verify the results using the basic properties of rational numbers. a) Identity. b) Commutative. c) Associative. d) Distributive. e) Order of operations. 5.02 Use and evaluate algebraic expressions. 5.03 Solve simple (one- and two-step) equations or inequalities. 5.04 Use graphs, tables, and symbols to model and solve problems involving rates of change and ratios.	5.01 Identify, analyze, and create linear relations, sequences, and functions using symbols, graphs, tables, diagrams, and written descriptions. 5.02 Translate among different representations of algebraic expressions, equations and inequalities. 5.03 Use and evaluate algebraic expressions, linear equations or inequalities to solve problems. 5.04 Develop fluency in the use of formulas to solve problems.	5.01 Develop an understanding of function. a) Translate among verbal, tabular, graphic, and algebraic representations of functions. b) Identify relations and functions as linear or nonlinear. c) Find, identify, and interpret the slope (rate of change) and intercepts of a linear relation. d) Interpret and compare properties of linear functions from tables, graphs, or equations. 5.02 Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept. 5.03 Solve problems using linear equations and inequalities; justify symbolically and graphically. 5.04 Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.