

NUMBER SENSE
Grade 4

CONTENT STANDARD 1: Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.

State Model Content Standards Grades K-4	District Expectations Grade 4
1.1 Demonstrating meanings for whole numbers, and commonly-used fractions and decimals (e.g., $\frac{1}{3}$, $\frac{3}{4}$, 0.5, 0.75), and representing equivalent forms of the same number through the use of physical models, drawings, calculators, and computers.	<ul style="list-style-type: none"> • Using concrete materials and visual representations, compare, order, and represent decimal fractions of tenths, hundredths, and commonly used fractions with like and unlike denominators such as: halves, fourths, and tenths (e.g., may use base-ten blocks, pictures, fraction strips, fraction circles). • Recognize different combinations of currency and coins for a set amount up to \$10.00.
1.1 Reading and writing whole numbers and knowing place-value concepts and numeration through their relationships to counting, ordering, and grouping.	<ul style="list-style-type: none"> • Read, write, and order numerals (<, >, =) and number words from zero to 99,999. • Identify place value through 99,999. • Generate equivalent representations for whole numbers up to 99,999 (e.g., $87459 = 80,000 + 7,000 + 400 + 50 + 9$ or $36 = 30 + 6$ or 2 tens + 16 ones). • Rounds to the nearest 100,000.
1.3 Using numbers to count, to measure, to label, and to indicate location.	<ul style="list-style-type: none"> • Using a number line, a hundreds chart or other number chart, locate, label, or count from any number by 2's, 3's, 5's, 10's or 100's. • Locate and label halves, and multiples of fourths, and thirds, between whole numbers on a number line.
1.4 Developing, testing, and explaining conjectures about properties of whole numbers, and commonly-used fractions and decimals (i.e., $\frac{1}{2}$, $\frac{3}{4}$, 0.5, 0.75).	<ul style="list-style-type: none"> • Show division of whole number is not commutative (1-digit into 2-digits). • Use number properties with any of the four basic operations (commutative, associative, properties of zero and one). • Compares and orders simple fractions and decimals.
1.5 Using number sense to estimate and justify the reasonableness of solutions to problems involving whole numbers, and commonly-used fractions and decimals (i.e., $\frac{1}{2}$, $\frac{3}{4}$, 0.5, 0.75).	<ul style="list-style-type: none"> • Use estimation strategies to determine the reasonableness of solutions involving the four basic operations. • Use estimation to round to the nearest dollar in context and determine reasonableness. • Rounds decimals to the nearest whole number. • Place decimals and fractions appropriately on number line.

ALGEBRAIC METHODS
Grade 4

CONTENT STANDARD 2: Students use algebraic methods to explore, model and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.

State Model Content Standards Grades K-4	District Expectations Grade 4
2.1 Reproducing, extending, creating, and describing patterns and sequences using a variety of materials (e.g., beans, toothpicks, pattern blocks, calculators, unifix cubes, colored tiles).	<ul style="list-style-type: none"> • Reproduce, extend, create, or describe patterns, using pictures, geometric shapes, or numbers. • Determine a missing element in a pattern using pictures, geometric shapes, or numbers.
2.1 Describing patterns and other relationships using tables, graphs, and open sentences.	<ul style="list-style-type: none"> • Display numbers in tables or graphs, to show patterns. • Describe patterns given in tables and graphs.
2.2 Recognizing when a pattern exists and using that information to solve a problem.	<ul style="list-style-type: none"> • Identify a rule using addition, subtraction or multiplication and solve a problem using the rule (e.g., function boxes, input/output boxes, T charts).
2.3 Observing and explaining how a change in one quantity can produce a change in another (e.g., the relationship between the number of bicycles and the numbers of wheels).	<ul style="list-style-type: none"> • Using whole numbers, determine how the change in one quantity affects the change in the other by addition, subtraction, or multiplication (e.g., Maria is making ladybugs. For 1 ladybug she needs 6 black dots, for 2 ladybugs she need 12 dots. How many black dots will she need for 4 ladybugs?).

STATISTICS AND PROBABILITY
Grade 4

CONTENT STANDARD 3: Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.

State Model Content Standards Grades K-4	District Expectations Grade 4
3.1 Constructing, reading and interpreting displays of data including tables, charts, pictographs, and bar graphs.	<ul style="list-style-type: none"> • Organize, construct, read and interpret a table, line plot, bar graph and/or pictograph from given data.
3.2 Interpreting data using the concepts of maximum, minimum, mode, and median.	<ul style="list-style-type: none"> • Draw conclusions from a given data display. • Find the median, the mode, the minimum and the maximum element in a set of data.
3.3 Generating, analyzing, and making predictions based on data obtained from surveys and chance devices.	<ul style="list-style-type: none"> • Predict the outcomes of flipping a coin, spinning a spinner with four congruent sectors, and/or rolling a number cube. • Determine and support which outcomes are most likely, least likely or equally likely when using a chance device.
3.4 Solving problems using various strategies for making combinations (e.g., determining the number of different outfits that can be made using two blouses and three skirts).	<ul style="list-style-type: none"> • Given pictures, describe all possible combinations of matching the elements to two sets.

GEOMETRY
Grade 4

CONTENT STANDARD 4: Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.

State Model Content Standards Grades K-4	District Expectations Grade 4
4.1 Recognizing shapes and their relationships (e.g., symmetry, congruence) using a variety of materials (e.g., pasta, boxes, pattern blocks).	<ul style="list-style-type: none"> • Identify and give examples of congruency. • Identify lines of symmetry for a given shape.
4.2 Identifying, describing, drawing, comparing, classifying, and building physical models of geometric figures.	<ul style="list-style-type: none"> • Identify, classify, and compare 2-dimensional shapes and use vocabulary to describe the attributes (e.g., number of sides, vertices, angles, parallel sides). • Identify parallel lines, and intersecting lines and right angles. • Identify 2- and 3-dimensional figures such as, trapezoids, parallelograms, rhombuses and other polygons. • Recognize common attributes of squares and rectangles.
4.3 Relating geometric ideas to measurement and number sense.	<ul style="list-style-type: none"> • Solve for perimeter and area of rectangles and squares using a drawing on a grid.
4.4 Solving problems using geometric relationships and spatial reasoning (e.g., using rectangular coordinates to locate objects, constructing models of three-dimensional objects).	<ul style="list-style-type: none"> • Locate objects on a coordinate grid (1st quadrant only) and label ordered pairs.
4.5 Recognizing geometry in their world (e.g., in art and in nature)	<ul style="list-style-type: none"> • Identify geometric concepts in their immediate environment.

MEASUREMENT
Grade 4

CONTENT STANDARD 5: Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.

State Model Content Standards Grades K-4	District Expectations Grade 4
5.1 Knowing, using, describing, and estimating measures of length, perimeter, capacity, weight, time, and temperature.	<ul style="list-style-type: none"> • Tell time in hours and minutes, including a.m. and p.m. using both analog and digital displays. • Choose the appropriate tool to measure familiar objects in situations that contain length, weight, capacity, time and temperature. • Solves simple problems involving elapsed time. • Convert among unites of time, minutes to hours to days.
5.2 Comparing and ordering objects according to measurable attributes (e.g., longest to shortest, lightest to heaviest).	<ul style="list-style-type: none"> • Compare objects according to the measurable attributes of length, area, volume, capacity, weight, and/or temperature in US customary and/or metric units.
5.3 Demonstrating the process of measuring and explaining the concepts related to units of measurements.	<ul style="list-style-type: none"> • Measure and determine perimeter of polygons to the nearest half inch or centimeter. • Determine the areas of squares and rectangle on a grid. • Converts between inches and feet.
5.4 Using the approximate measures of familiar objects (e.g., the width of your finger, the temperature of a room, the weight of a gallon of milk) to develop a sense of measurement.	<ul style="list-style-type: none"> • Relate units of measurement of length, area, volume, capacity, weight, and/or temperature in US customary and/or metric units to every day objects or situations (e.g. yard to a stride, liter to a quart). • Knows common referents (boiling, freezing point, body temp., room temp.) in Centigrade and Fahrenheit.
5.5 Selecting and using appropriate standard and non-standard units of measurement in problem-solving situations.	<ul style="list-style-type: none"> • Choose appropriate units of measure for length, area, volume, capacity, weight, temperature, and/or time to solve problems.

COMPUTATION
Grade 4

CONTENT STANDARD 6: Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.

State Model Content Standards Grades K-4	District Expectations Grade 4
6.1 Demonstrating conceptual meanings for the four basic arithmetic operations of addition, subtraction, multiplication, and division.	<ul style="list-style-type: none"> • Demonstrate the conceptual meaning (using pictures, words, diagrams or numbers) of addition, subtraction, multiplication, and division of whole numbers. • Demonstrates an understanding of commutative, associative, and zero property.
6.2 Adding and subtracting commonly used fractions and decimals using physical models (e.g., $\frac{1}{3}$, $\frac{3}{4}$, 0.5, 0.75).	<ul style="list-style-type: none"> • Using pictures, demonstrate addition and subtraction of commonly-used fractions with the same denominators where sums/differences are equal or less than a whole ($\frac{1}{2}$, $\frac{1}{3}$ $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{10}$). • Using money notation, add and subtract decimals in which sums and differences should not exceed a \$100.00.
6.3 Demonstrating understanding of and proficiency with basic addition, subtraction, multiplication, and division facts without the use of a calculator.	<ul style="list-style-type: none"> • Demonstrate proficiency of basic multiplication and division facts. • Continue to demonstrate proficiency of basic addition and subtraction facts. • Use a multiplication facts table to locate all the factors for a particular product (e.g., for a product of six; 1, 23 and 6 are all factors).
6.4 Constructing, using, and explaining procedures to compute and estimate with whole numbers.	<ul style="list-style-type: none"> • Use reasonable estimation techniques before performing basic math operations (e.g., front-end estimation, estimation by rounding, friendly numbers, compatible numbers, flexible rounding, clustering). • Using paper and pencil, demonstrate the four basic operations of whole numbers including: addition, subtraction, multiplication of 2 or 3-digit numbers by a 1-digit number, division of a 2-digit number by a 1-digit divisor.
6.5 Selecting and using appropriate methods for computing with whole numbers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods.	<ul style="list-style-type: none"> • Given a real world problem-solving situation use any mathematical operation and an appropriate method (paper-pencil, mental math, estimation, calculator, computer) to solve the problem. • Determine from a real-world problem whether an estimated or exact sum, difference, product, or quotient is acceptable.