

**NUMBER SENSE**  
**Grade 3**

**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 3
1.1 Demonstrating meanings for whole number, commonly used fractions and decimals, <i>e.g.</i> : $1/2$ , $3/4$ , $0.5$ , $0.75$ ; and representing equivalent forms of the same number through the use of physical models, drawing, calculators, and computers.	<ul style="list-style-type: none"> <li>• Identify whether a given number is odd or even.</li> <li>• Counts and converts to dozens with models.</li> <li>• Identify the fractional part of a drawing or a set (restricted to halves, thirds, fourths, eighths, and tenths).</li> <li>• Writes a fraction from visual representation.</li> <li>• Orders fractions using visual representation.</li> <li>• Compares visual representation of equivalent fractions.</li> <li>• Compute and count change up to \$100.00</li> <li>• Identifies number 0 to over 999 using base-10 blocks.</li> <li>• Compares sets of objects and identifies which is equal to, more than or less than the other.</li> </ul>
1.2 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"> <li>• Reads, writes, and orders numerals 0-9,999.</li> <li>• Identifies the numeral and written name for ordinal number 0-100<sup>th</sup>.</li> <li>• Identifies the number and written name for numbers through billions.</li> <li>• Writes numbers in place value terms and vice versa to the hundreds place.</li> <li>• Writes numbers in standard and expanded form through the thousands.</li> <li>• Identifies the place value and value of each digit in numbers through the hundred thousand.</li> <li>• Read the number words for selected numbers from zero to nine thousand, nine hundred ninety-nine.</li> <li>• Identify place value through ten-<i>thousands</i> (<i>e.g.</i>, in <i>86,243</i>, '6' is in the thousands place).</li> <li>• Generates equivalent representations for the same number up to a 4-digit number (<i>e.g.</i>, <math>25=20+5</math> or <math>10+15</math> or <i>2 tens and 5 ones</i>).</li> <li>• Compares whole numbers as greater than, less than, or equal to one another using words or symbols.</li> <li>• Compares and orders money in the decimal form.</li> <li>• Rounds 2 and 3digit numbers to the nearest tens.</li> <li>• Rounds 3 digit numbers to the nearest hundred.</li> <li>• Converts to dozens without models.</li> <li>• Finds equivalent combinations of coins with the same value.</li> <li>• Finds equivalent combinations of dollars and cents with the same value.</li> </ul>
1.3 Using numbers to count, to measure, to label, and to indicate location.	<ul style="list-style-type: none"> <li>• Locates, labels, or counts forward from any even number by 2's and from any number by 10's and 100's up to 999.</li> <li>• Locates and labels <math>1/2</math> 's between whole numbers on the number line.</li> <li>• Uses a number line to identify a fractional point.</li> <li>• Identifies a decimal on a number line.</li> </ul>
1.4 Developing, testing, and explaining conjectures about properties of whole numbers, and commonly-used fractions and decimals ( <i>e.g.</i> , $1/2$ , $3/4$ , $0.5$ , $0.75$ ).	<ul style="list-style-type: none"> <li>• Use the multiplication properties of zero and one with whole numbers.</li> <li>• Solve addition and subtraction problems using commutative and associative properties (<i>e.g.</i>, <math>2+3+6=6+3=2</math>, the words commutative and associative will not be used in test items).</li> </ul>
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>i.e.</i> , $1/2$ , $3/4$ , $0.5$ , $0.75$ ).	<ul style="list-style-type: none"> <li>• Use estimation strategies to determine the reasonableness of solutions to problems.</li> </ul>

**ALGEBRA**  
**Grade 3**

**CONTENT STANDARD 2** 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 3
2.1 Reproducing, extending, creating, and describing patterns and sequences using a variety of materials ( <i>e.g., beans, toothpicks, pattern blocks, calculators, unifix cubes, colored tiles</i> ).	<ul style="list-style-type: none"> <li>• Reproduce, extend, and create patterns, using pictures. Objects, letters, or geometric shapes.</li> <li>• Use a pattern to find missing elements (<i>e.g., multiples of 2, 3, 4, 5, 10</i>).</li> </ul>
2.2 Describing patterns and other relationships using tables, graphs, and open sentences.	<ul style="list-style-type: none"> <li>• Describe patterns given in tables and graphs.</li> </ul>
2.3 Recognizing when a pattern exists and using that information to solve a problem	<ul style="list-style-type: none"> <li>• Identify a rule using addition or subtraction patterns and solve a new problem using the rule.</li> <li>• Given numbers in a table, extend the table.</li> <li>• Solves simple open and complex open sentences using diagrams and models. (<i>e.g., using balances</i>)</li> </ul>
2.4 Observing and explaining how a change in one quantity can produce a change in another ( <i>e.g., the relationship between the number of bicycles and the numbers of wheels</i> ).	<ul style="list-style-type: none"> <li>• Use whole numbers, determine how the change in one quantity effects the change in the other by addition or subtraction (<i>e.g., one bicycle has 2 wheels, 2 bicycles have 4 wheels, and 3 bicycles and 6 wheels. How many wheels do 4 bicycles have? The solution could be presented in chart or picture form.</i></li> </ul>

**STATISTICS AND PROBABILITY**  
Grade 3

**CONTENT STANDARD 3:** Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.

**DATA ANALYSIS**  
Grade 3

**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 3
3.1 Constructing, reading and interpreting displays of data including tables, charts, pictographs, and bar graphs.	<ul style="list-style-type: none"> <li>• Organize and display data using tallies, bar graphs, pictographs, or tables.</li> <li>• Reads and interprets simple line graphs, bar graphs, and dual bar graphs.</li> </ul>
3.2 Interpreting data using the concepts of largest, smallest, most often (mode), and middle.(median).	<ul style="list-style-type: none"> <li>• Determine the mode from a given set of numbers, the mode is the number that occurs most often.</li> <li>• Use various displays of data, interpret and draw conclusions.</li> </ul>
3.3 Generating, analyzing, and making predictions based on data obtained from surveys and chance devices.	<ul style="list-style-type: none"> <li>• Determine which outcomes are the <u>most likely, least likely, or equally likely</u> when using a chance device (e.g., a spinner or dart board).</li> </ul>
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"> <li>• Given pictures, determine all the possible combinations of matching a set containing two elements with a set containing three elements.</li> <li>• Solves problems using tables and tally charts.</li> </ul>

**GEOMETRIC CONCEPTS**  
**Grade 3**

**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 3
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"> <li>• Identify figures which are congruent.</li> <li>• Identify a line of symmetry for regular polygons and other familiar objects.</li> <li>• Create a figure with at least one line of symmetry.</li> <li>• Identifies diagonals of a figure.</li> <li>• Identifies points on a figure.</li> </ul>
4.2 Identifying, describing, drawing, comparing, classifying, and building physical models of geometric figures.	<ul style="list-style-type: none"> <li>• Identify the characteristics of two-dimensional figures (e.g., number of sides or vertices, contains a right angle, contains parallel sides).</li> <li>• Identify points, lines, and line segments.</li> <li>• Identify three dimensional figures (e.g., cubes, spheres, cylinders, cones and pyramids).</li> <li>• Identify right angles.</li> <li>• Create and identify the results of combining or subdividing given geometric shapes (e.g., pattern blocks, tangrams).</li> <li>• Identifies the number of faces on solid figures.</li> <li>• Sorts 2-D shapes and objects according to their attributes.</li> <li>• Creates patterns by putting different shapes together or taking them apart.</li> <li>• Analyses position of shapes (e.g., inside, outside, between)</li> <li>• Identifies figures that are the same size and shape.</li> </ul>
4.3 Relating geometric ideas to measurement and number sense.	<ul style="list-style-type: none"> <li>• Find the perimeter of a polygon.</li> <li>• Determines the perimeter of a figure where all sides are labeled.</li> <li>• Determines the perimeter of a figure where some sides are labeled.</li> </ul>
4.4 Solving problems using geometric relationships and spatial reasoning	<ul style="list-style-type: none"> <li>• Use rectangular coordinates to locate objects, constructing models of three-dimensional objects.</li> </ul>
4.5 Recognizing geometry in their world (e.g., in art and in nature)	<ul style="list-style-type: none"> <li>• Identify geometric concepts in their immediate environment.</li> </ul>

**MEASUREMENT  
Grade 3**

**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 3
5.1 Knowing, using, describing, and estimating measures of length, perimeter, capacity, weight, time, and temperature.	<ul style="list-style-type: none"> <li>• Using analog and digital clock, tell time to the nearest quarter hour, and to nearest minute.</li> <li>• Read and interpret pictorial representations of measurements of length, weight, temperature, and capacity.</li> <li>• Choose the appropriate tool to measure familiar objects/situations containing length, weight, temperature or time.</li> <li>• Knows approximate size of ounce pint, foot, mile.</li> <li>• Uses balance scale to measure weight of unknown object.</li> </ul>
5.2 Comparing and ordering objects according to measurable attributes (e.g., longest to shortest, lightest to heaviest).	<ul style="list-style-type: none"> <li>• Compare objects according to the measurable attributes of length, capacity, weight, or temperature.</li> <li>• Converts between measurements (e.g., cups to pints, quarts, etc.)</li> <li>• Orders years.</li> <li>• Determines elapsed time involving whole hours, whole days, whole years.</li> </ul>
5.3 Demonstrating the process of measuring and explaining the concepts related to units of measurement.	<ul style="list-style-type: none"> <li>• Measure the length of objects including the sides of rectangles and squares to the nearest inch and centimeter.</li> <li>• Read Celsius thermometer to nearest degree.</li> <li>• Computes simple conversions among units of time (minutes, hours, days).</li> <li>• Selects and uses the appropriate type and size of unit in customary system.</li> </ul>
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"> <li>• Approximate the measurement of familiar objects using standard units (e.g., a paper clip is about one inch).</li> </ul>
5.5 Selecting and using appropriate standard and non-standard units of measurement in problem-solving situations.	<ul style="list-style-type: none"> <li>• Select and use the appropriate standard and non-standard units of measure in problem-solving.</li> <li>• Solves simple problems involving elapsed time, with the conversion of hours.</li> <li>• Solves problems involving measurement of temperature.</li> </ul>

**COMPUTATION**  
**Grade 3**

**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 3
6.1 Demonstrating conceptual meanings for the four basic arithmetic operations of addition, subtraction, multiplication, and division.	<ul style="list-style-type: none"> <li>• Use pictures, diagrams, numbers or words to demonstrate addition and subtraction of whole numbers with 2-digit numbers.</li> <li>• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)</li> <li>• Uses models to add and subtract fractions and connect actions to algorithms.</li> </ul>
6.2 Adding and subtracting commonly-used fractions and decimals using physical models (e.g., $\frac{1}{2}$ , $\frac{3}{4}$ , 0.5, 0.75).	<ul style="list-style-type: none"> <li>• Use pictures to demonstrate addition and subtraction of proper fractions with common denominators of four or less.</li> <li>• Use money notation to add and subtract commonly used decimals in which sums and differences should not exceed \$10.00.</li> <li>• Adds and subtracts whole numbers using place value.</li> <li>• Subtracts fractions with like denominators without reducing.</li> <li>• Adds money with regrouping.</li> <li>• Adds decimals to the hundredths place (same number of digits)</li> <li>• Subtracts decimals to the hundredths place (same number of digits) without regrouping.</li> </ul>
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"> <li>• Demonstrate understanding of basic multiplication facts through 12's.</li> <li>• Demonstrate proficiency with basic addition and subtraction facts.</li> <li>• Adds two 2-, 3-, and/or 4-digit numbers regrouping with sums over 1000.</li> <li>• Subtracts up to 3-digit number from a 4-digit number with regrouping.</li> <li>• Subtracts multiple-digit numbers, with no regrouping</li> <li>• Performs mental subtraction with numbers 1000 and over.</li> <li>• Multiplies up to a 3-digit number by a 2-digit number with no regrouping.</li> <li>• Instantly recalls division facts with dividend and divisors less than 13.</li> <li>• Divides a 2-digit number by a 1-digit number, with no remainder.</li> </ul>
6.4 Constructing, using, and explaining procedures to compute and estimate with whole numbers.	<ul style="list-style-type: none"> <li>• Use estimation strategies with whole numbers prior to performing the operations of addition and subtraction (e.g., front-end estimation, estimation by rounding, flexible rounding, clustering).</li> <li>• Demonstrate three basic operations of whole numbers (e.g., addition and subtraction of three digits, and</li> </ul>

	<ul style="list-style-type: none"> <li>• multiplication of multiples of ten by 1, 2, 3, 5).</li> <li>• Uses rounding to estimate answers to 1-step problems involving answers less than \$1, less than \$20, and real world problems involving numbers less than 1000 with addition and subtraction (whole numbers only).</li> <li>• Uses strategies for sums and differences with 2- digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)</li> <li>• Uses number sense strategies to judge the reasonableness of given answers for addition and subtraction.</li> <li>• Uses strategies to determine 1 missing digit (multiplication/division only)</li> <li>• Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition, division as repeated subtraction)</li> <li>• Demonstrates understanding of the commutative property of multiplication with simple problems.</li> <li>• Demonstrates an understanding of the zero property of multiplication.</li> <li>• Demonstrates an understanding of the multiplicative property of 1 (identity).</li> </ul>
<p>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.</p>	<ul style="list-style-type: none"> <li>• Given a real-world problem-solving situation use addition, subtraction, or multiplication to solve the problem.</li> <li>• Determine from real-world problems, whether an estimated or exact sum, difference, or product is acceptable.</li> <li>• Analyzes another student's explanation to understand more difficult problems.</li> <li>• Restates the problem in own words.</li> <li>• Selects the information necessary to solve a simple</li> <li>• Determines the problems and determines whether any further information is needed.</li> <li>• Determines the operation needed from a simple problem.</li> <li>• Translates from a diagram to an expression or equation.</li> <li>• Translates a 1-step problem to a symbolic expression or equation.</li> <li>• Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models).</li> <li>• Uses calculators as problems solving tools (e.g., to explore patterns to validate solutions)</li> <li>• Uses a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</li> <li>• Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g. " add more" becomes "plus")</li> <li>• Verify reasonableness of results of simple problems.</li> <li>• Solves problems using the inverse relationship between addition and subtraction.</li> <li>• Solves real-world addition and subtraction problems with numbers over 1000.</li> <li>• Solves word problems involving division with remainder and dividends and divisors less than 11.</li> </ul>