Fourth Grade Math Academic Content Standards

	Number, Number Sense and Operations — Dates									
Number Number Systems	1. Identify and generate equivalent forms of fractions and decimals. For example:									
	a. Connect physical, verbal and symbolic representations of fractions, decimals and whole numbers; e.g., 1/2, 5/10, "five tenths,' 0.5, shaded rectangles with half, and five tenths.									
	b. Understand and explain that ten tenths is the same as one whole in both fraction and decimal form.									
	2. Use place value structure of the base-ten number system to read, write, represent and compare whole numbers through millions and decimals through thousandths.									
	3. Round whole numbers to a given place value.									
	4. Identify and represent factors and multiples of whole numbers through 100, and classify numbers as prime or composite.									
	5. Use models and points of reference to compare commonly used fractions.									
Meaning of Operations	6. Use associative and distributive properties to simplify and perform computations; e.g., use left to right multiplication and distributive property to find an exact answer without paper and pencil, such as 5 x 47 = 5 x 7 = 200 + 35 = 235.									
	7. Recognize that division may be used to solve different types of problem situations and interpret the meaning of remainders; e.g., situations involving measurement, money.									
Computation and Estimation	8. Solve problems involving counting money and making change, using both coins and paper bills.									
	9. Estimate the results of computations involving whole numbers, fractions and decimals, using a variety of strategies.									
	10. Use physical models, visual representations, and paper and pencil to add and subtract decimals and commonly used fractions with like denominators.									
	11. Develop and explain strategies for performing computations mentally.									
	12. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division using an organized approach, and verify and interpret results with respect to the the original problem.									
	13. Use a variety of methods and appropriate tools for computing with whole numbers; e.g., mental math, paper and pencil, and calculator.									
	14. Demonstrate fluency in adding and subtracting whole numbers and in multiplying and dividing whole numbers by 1-and 2-digit numbers and multiples of ten.									
	Measurement									
Measurement Units	1. Relate the number of units to the size of the units used to measure an object; e.g., compare the number of cups to fill a pitcher to the number of quarts to fill the same pitcher.									

	2. Demonstrate and describe perimeter as surrounding and area as covering a two-dimensional shape, and volume as filling a three-dimensional object.									

Fourth Grade Math Academic Content Standards

	Measurement (cont.)									
Measurement Units (cont.)	3. Identify and select appropriate units to measure									
	a perimeter-string or links (inches or centimeters).									
	b. area-tiles (square inches or square centimeters).									
	c. volume-cubes (cubic inches or cubic centimeters).									
Use Measurement Techniques and Tools	4. Develop and use strategies to find perimeter using string or links, area using tiles or a grid, and volume using cubes; e.g., count squares to find area of regular or irregular shapes on a grid, layer cubes in a box to find its volume.									
	5. Make simple unit conversions within a measurement system; e.g., inches to feet, kilograms to grams, quarts to gallons.									
	6. Write, solve and verify solutions to multi-step problems involving measurement.									
	Geometry and Spatial Sense									
Characteristics and Properties	1. Identify, describe and model intersecting, parallel and perpendicular lines and line segments; e.g., use straws or other material to model lines.									
	2. Describe, classify, compare and model two-and three-dimensional objects using their attributes.									
	3. Identify similarities and differences of quadrilaterals; e.g., squares, rectangles, parallelograms and trapezoids.									
	4. Identify and define triangles based on angle measures (equiangular, right, acute and obtuse triangles) and side lengths (isosceles, equilateral and scalene triangles).									
Spatial Relationships	5. Describe points, lines and planes, and identify models in the environment. e.g., a map or graph.									
	6. Specify locations and plot ordered pairs on a coordinate plane, using first quadrant points.									
Transformations and Symmetry	7. Identify, describe and use reflections (flips), rotations (turns), and translations (slides) in solving geometric problems; e.g., use transformations to determine if 2 shapes are congruent.									
Vizualization and Geometric Models	8. Use geometric models to solve problems in other areas of mathematics, such as number (multiplication/division) and measurement (area, perimeter, border).									
	Patterns, Functions and Algebra									
Use Patterns, Relations and Functions	1. Use models and words to describe, extend and make generalizations of patterns and relationships occurring in computation, numerical patterns, geometry, graphs and other applications.									

	2. Represent and analyze patterns and functions using words, tables and graphs.										
Use Algebraic Representations	3. Construct a table of values to solve problems associated with a mathematical relationship.										
	4. Use rules and variables to describe patterns and other relationships.										
	5. Represent mathematical relationships with equations or inequalities.										
Analyze Change	6. Describe how a change in one variable affects the value or a related variable; e.g., as one increases the other increases or as one increases the other decreases.										

Fourth Grade Math Academic Content Standards

	Data Analysis and Probability D										
Data Collection	1. Create a plan for collecting data for a specific purpose.										
	2. Represent and interpret data using tables, bar graphs, line plots and line graphs.										
	3. Interpret and construct Venn diagrams to sort and describe data.										
	4. Compare different representations of the same data to evaluate how well each representation show important aspects of the data, and identify appropriate ways to display the data.										
	5. Propose and explain interpretations and predictions based on data displayed in tables, charts and graphs.										
Statistical Methods	6. Describe the characteristics of a set of data based on a graphical representation, such as range of the data, clumps of data, and holes in the data.										
	7. Identify the median of a set of data and describe what it indicates about the data.										
	8. Use range, median and mode to make comparisons among related sets of data.										
Probability	9. Conduct simple probability experiments and draw conclusions from the results; e.g., rolling number cubes or drawing marbles from a bag.										
	10. Represent the likelihood of possible outcomes for chance situations; e.g., probability of selecting a red marble from a bag containing 3 red and 5 white marbles.										
	11. Relate the concepts of impossible and certain-to-happen events to the numerical values of 0 (impossible) and 1 (certain).										
	12. Place events in order of likelihood and use a diagram or appropriate language to compare the chance of each event occurring; e.g., impossible, unlikely, equal, likely, certain.										
	13. List and count all possible combinations using one member from each of several sets, each containing 2 or 3 members; e.g., the number of possible outfits from 3 shirts, 2 shorts and 2 pairs of shoes.										