SAUSALITO MARIN CITY SCHOOL DISTRICT
Mathematics Standards - GRADE 3

By the end of third grade, students deepen their understanding of place value and their understanding of and skill with addition, subtraction, multiplication and division of whole numbers. They estimate, measure and describe objects in space. They use patterns to help solve problems. They represent number relationships and conduct simple probability experiments.

NUMBER SENSE
1. Students understand place value of whole numbers.

1.1. count, read, and write whole numbers to 10,000
1.2. compare and order whole numbers to 10,000

+1.3. identify the place value for each digit in numbers to 10,000

1.4. round off numbers to 10,000 to the nearest ten, hundred and thousand

+1.5. use expanded notation to represent numbers (e.g., 3,206 = 3,000 + 200 +6)

2. Students calculate and solve problems involving addition, subtraction, multiplication and division.

+2.1. find the sum or difference of two whole numbers between 0 and 10,000
+2.2. memorize to automaticity the multiplication table for numbers between 1 and 10
+2.3. use the inverse relationship of multiplication and division to compute and check results
+2.4. solve simple problems involving multiplication of multi-digit numbers by one-digit numbers (3,671 x 3 = __)

2.5. solve division problems in which a multi-digit number is evenly divided by a one-digit number (135/5)
2.6. understand the special properties of 0 and 1 in multiplication and division
2.7. determine the unit cost when given the total cost and number of units
2.8. solve problems which combine two or more of the skills above

3. Students understand the relationship between whole numbers, simple fractions and decimals.

3.1. compare fractions represented by drawings or concrete materials to show equivalency, and to add and subtract simple fractions in context (e.g., 1/2 of a pizza is the same amount as 2/4 of another pizza that is the same size; show that 3/8 is more than 1/8)

+3.2. add and subtract simple fractions (e.g., determine that 1/8 + 3/8 is the same as 1/2)
+3.3. solve problems involving addition, subtraction, multiplication and division of money amounts in decimal notation and multiply and divide money amounts in decimal notation using whole number multipliers and divisors
3.4. know and understand that fractions and decimals are two different representations of the same concept (e.g., 50 cents is 1/2 of a dollar, 75 cents is 3/4 of a dollar)

ALGEBRA AND FUNCTIONS
1. Students select appropriate symbols, operations and properties to represent, describe, simplify and solve simple number relationships.

1.1. recognize, use and predict a wide variety of patterns and relationships

+1.2. represent relationships of quantities in the form of mathematical expressions, equations, or inequalities

1.3. solve problems involving numeric equations or inequalities
1.4. select appropriate operational and relational symbols to make an expression true (e.g., 4 __ 3 = 12, what operation symbol goes in the blank?)
1.5. express simple unit conversions in symbolic form (e.g., # inches = # feet x 12)
1.6. recognize and use the commutative and associative properties of multiplication (e.g., if 5 x 7 = 35, then what is 7 x 5?, if 5 x 7 x 3 = 105, then what is 7 x 3 x 5?)

2. Students represent simple functional relationships.

+2.1. solve simple problems involving a functional relationship between two quantities (e.g., find the total cost of multiple items given the per unit cost)

2.2. extend and recognize a linear pattern by its rules (e.g., the number of legs on a given number of horses can be calculated by counting by 4s or by multiplying the number of horses by 4)

MEASUREMENT AND GEOMETRY
1. Students choose and use appropriate units and measurement tools to quantify the properties of objects.

1.1. choose appropriate units (metric and U.S. customary) and tools, and estimate and measure length, liquid volume and weight/mass

+1.2. estimate or determine the area and volume of solid figures by covering them with squares or by counting the number of cubes that would fill them

+1.3. find the perimeter of a polygon with integer sides

~~1.4. carry out simple unit conversions within a~~ system of measurement (e.g., centimeters and meters, hours and minutes)

2. Students describe and compare the attributes of plane and solid geometric figures and use their understanding to show relationships and solve problems.

+2.1. identify, describe and classify polygons (including pentagons, hexagons and octagons)
+2.2. identify attributes of triangles (e.g., two equal sides for the isosceles triangle, three equal sides for the equilateral triangle, right angle for the right triangle)
+2.3. identify attributes of quadrilaterals (e.g., parallel sides for the parallelogram, right angles for the rectangle, equal sides and right angles for the square)

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
2.5. identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder)
2.6. identify the common solid objects that are the component parts needed to make a more complex solid object

STATISTICS, DATA ANALYSIS and PROBABILITY

1. Students conduct simple probability experiments by determining the number of possible outcomes, and make simple predictions.

1.1. identify whether common events are certain, likely, unlikely, or improbable
+1.2. record the possible outcomes for a simple event (e.g., tossing a coin) and systematically keep track of the outcomes when the event is repeated many times
+1.3. summarize and display the results of probability experiments in a clear and organized way (e.g., use a bar graph or a line plot)
1.4. use the results of probability experiments to predict future events (e.g., use a line plot to predict the temperature forecast for the next day)
1.5. read, interpret and compare information in simple tables and graphs. Show a understanding of graphs by writing or verbalizing mathematical statements that explain the data

and use the terms mode, median, outlier, range

MATHEMATICAL REASONING

1. Students make decisions about how to approach problems.

1.1. analyze problems by identifying relationships, discriminating relevant from irrelevant information, sequencing and prioritizing information, and observing patterns
1.2. determine when and how to break a problem into simpler parts

2. Students use strategies, skills and concepts in finding solutions.

2.1. use estimation to verify the reasonableness of calculated results
2.2. apply strategies and results from simpler problems to more complex problems
2.3. use a variety of methods such as words, numbers, symbols, charts, graphs, tables, diagrams and models to explain mathematical reasoning
2.4. express the solution clearly and logically using appropriate mathematical notation and terms and clear language, and support solutions with evidence, in both verbal and symbolic work
2.5 indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy
2.6 make precise calculations and check the validity of the results from the context of the problem
2.7 find a solution that makes sense and explain reasoning. Justify math reasoning, in written or oral form, using visuals and manipulatives, if needed

3. Students move beyond a particular problem by generalizing to other situations.

3.1 evaluate the reasonableness of the solution in the context of the original situation
3.2 note method of deriving the solution and demonstrate conceptual understanding of the derivation by solving similar problems
3.3 develop generalizations of the results obtained and extend them to other circumstances