RSU 1 K-8 MATHEMATICS STANDARDS

NUMBER & QUANTITY
Reason & model quantitatively, using units & number systems to solve problems.

Grade K
Understand the place value system by knowing number names to 120 and count sequences; by counting to tell the number of objects; by being able to compare numbers; and, being able to work with numbers 11-19 to gain foundations of place value. (CCSS CC.A-C; NBT.A.1)

Grade 1
Understand the place value system by extending grade K counting sequence to 120; understand place value by knowing that the two digits of a two-digit number represent amounts of tens & ones; and, use place value understanding & properties of operations to add & subtract. (CCSS NBT.A-C)

Grade 2
Understand the place value system knowing that three digit numbers represent amount of hundreds, tens & ones; by reading & writing number to 1000; by comparing two three digit numbers; and, use place value understanding & properties of operation to add & subtract fluently within 100 & within 1000 using concrete models or drawings. (CCSS NBT.A & B)

Grade 3
Use place value understanding & properties of operations to round to whole numbers to the nearest 10 or 100; to perform multi-digit arithmetic by fluently adding and subtracting within 1000; and, to multiply one-digit whole numbers by multiples of 10 in the range 10-90. (CCSS NBT.A; NF.A)

Grade 4
Generalize place value understanding for multi-digit whole numbers by recognizing that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right; by reading & writing multi-digit whole numbers using base ten numerals, number names & expanded form; by rounding multi-digit whole numbers to any place; by fluently adding & subtracting multi-digit whole numbers using the standard algorithm; and, by multiplying a whole number of up to four digits by a one-digit number & multiply two two0digit numbers.

Build fractions from unit fractions by applying & extending previous understandings of operations on whole numbers by understanding addition & subtraction of fractions; by decomposing a fraction into a sum of fractions; by adding & subtracting mixed numbers with like denominators; and, by solving word problems involving addition & subtraction of fractions.

Understand decimal notation for fractions & compare decimal fractions by expressing a fraction with denominator 10 as an equivalent fraction with denominator 100; by using decimal notation for fractions with denominators 10 or 100; and, by comparing two decimals to hundredths by reasoning about their size. (CCSS NBT.A & B; NF.A & B)

Grade 5
Understand the place value system by recognizing that in a multi-digit numbers, a digit in one place represents 1/10 of what it represents to its left; by explaining patterns in the number of zeros in the product & in the placement of the decimal point when a decimal is multiplied or divided by a power of 10; by reading, writing & comparing decimals to the thousandths

Use equivalent fractions as a strategy to add & subtract fractions; and, solve word problems involving addition & subtraction of fractions referring to the same whole, including cases of unlike denominators. (CCSS NBT A; NF. A &B)

Grade 6
Understand ratio concepts & use ratio reasoning to solve problems; apply & extend previous understandings if multiplication & division to divide fractions by fractions; apply & extend previous understandings of numbers to the system of rational numbers. (CCSS RP.A; NS.A & C)

Grade 7
Analyze proportional relationships & use them to solve real-world & mathematical problems; Apply & extend previous understandings of operations with fractions to add, subtract, multiply & divide rational numbers. (CCSS RP.A, NS.A)

Grade 8
N/A

__ALGEBRA__
Interpret, represent, create & solve algebraic expressions.

Grade K
N/A

Grade 1
Represent & solve problems involving addition & subtraction within 20 to solve word problems involving situation of adding to, taking from, putting together, taking apart & comparing, with unknowns in all positions; and, solve word problems that call for addition of three whole numbers whose sum in less than or equal to 20. (CCSS OA.A-C)

Grade 2
Represent & solve problems involving addition & subtraction within 100 to solve one and two-step word problems involving situation of adding to, taking from, putting together, taking apart & comparing, with unknowns in all positions; add & subtract within 20 using mental strategies; and, work with equal groups of objects to gain foundation for multiplication. (CCSS OA.A-C)

Grade 3
Represent & solve problems involving multiplication & division; understand properties of multiplication & the relationship between multiplication & division; multiply & divide within 100; and, solve problems involving the four operations, & identify & explain pattern in arithmetic. (CCSS OA.A-D)

Grade 4
Use the four operations with whole numbers to solve multistep word problems; gain familiarity with factors & multiples by finding factor pairs for whole numbers in the range 1-100; and, generate & analyze patterns that follow a given rule.
(CCSS OA.A-C)

Grade 5
Write & interpret numerical expression using parentheses, brackets, or braces & evaluate expression with these symbols; write simple expression that record calculations with numbers & interpret numerical expression without evaluating them; and, analyze patterns & relationships by generating two numerical patterns using two given rules. (CCSSOA.A & B)

Grade 6
Apply & extend previous understandings of arithmetic to algebraic expressions; represent & analyze quantitative relationships between dependent & independent variables. (CCSS EE.A & C)

Grade 7
Use properties of operations to generate equivalent expressions; solve real-life & mathematical problems using numerical & algebraic expressions & equations.
(CCSS EE.A & B)

Grade 8
Work with radicals & integer exponents; analyze & solve linear equations & pairs of simultaneous linear equations; understand the connections between proportional relationships, lines, & linear equations. (CCSS EE A, B, & C)

**FUNCTIONS**
Interpret, Analyze, construct, & solve linear, quadratic, & trigonometric functions.

Grade K-7
N/A

Grade 8
Define, evaluate & compare functions; use functions to model relationships between quantities. (CCSS F.A & B)

GEOMETRY
Prove, understand, and model geometric concepts, theorems, and constructions to solve problems.

Grade K
Identify & describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, & spheres); analyze, compare, create & compose shapes.
(CCSS G A & B)

Grade 1
Reason with shapes & their attributes; build & draw shapes to possess defining attributes. (CCSS G.A)

Grade 2
Recognize & draw shapes having specified attributes; identify triangles, quadrilaterals, pentagons, hexagons, & cubes. (CCSS G.A)

Grade 3
Understand that shapes in different categories may share attributes & that shared attributes can define a larger category; recognize rhombuses, rectangles and squares as quadrilaterals & draw examples. (CCSS G.A)

Grade 4
Draw Points, lines, line segments, rays, angles, and perpendicular & parallel lines & identify them in two-dimensional figures.

Grade 5
Graph points on the coordinate plane to solve real-world and mathematical problems; classify two-dimensional figures into categories based on their properties. (CCSS G.A & B)

Grade 6
Solve real-world & mathematical problems involving area, surface area, volume & angle measure. (CCSS G.A)

Grade 7

Solve real-world & mathematical problems involving area, surface area, volume & angle measure; draw, construct, & describe geometrical figures & describe the relationships between them. (CCSS G.A & B)

Grade 8
Solve real-world & mathematical problems involving volume of cylinders, cones & spheres; understand congruence & similarity using physical models, transparencies, or geometry software; understand & apply the Pythagorean Theorem.
(CCSS G.A & B)

STATISTICS & PROBABILITY
Interpret, infer, & apply statistics & probability to analyze data & reach & justify conclusions.

Grade K
Describe measurable attributes of objects such as length or weight & describe several measurable attributes of a single object; Classify objects into given categories & count the numbers of objects in each category & sort the categories by count. (CCSS MD.A & B)

Grade 1
Measure lengths indirectly & by iterating length units; tell & write time in hours and half-hours using analog & digital clocks; organize & interpret data with up to three categories & ask & answer questions about the total number of data points.
(CCSS MD.A-C)

Grade 2
Measure & estimate lengths in standards units; relate addition & subtraction to length; tell & write time from analog and digital clocks to the nearest 5 minutes using am & pm; generate measurement data by measuring lengths of several objects to the nearest whole unit; draw a picture graph & a bar graph to represent a data category with up to four categories. (CCSS MD.A-D)

Grade 3
Tell & write time to the nearest minute & measure time intervals in minutes; solve word problems involving addition & subtraction of time intervals in minutes; draw a scaled picture graph & a scaled bar graph to represent a data set with several categories; solve one and two step "how many more" and "how many less" problems using information presented in scaled bar graphs; generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch; understand concepts of area & volume & relate to multiplication & addition; recognize perimeter as an attribute of plane figures & distinguish between linear & area measurements. (CCSS MD.A-D)

Grade 4

Know relative sizes of measurement units within one system; record measurement equivalents in a two-column table; use the four operations to solve word problems; apply the area & perimeter formulas for rectangle in real world & mathematical problems; make a line plot to display a data set of measurements in fractions of a unit; solve problems involving addition & subtractions of fractions by using information presented in line plots; understand concepts of angle & measure angles. (CCSS MD.A-C)

Grade 5
Convert like measurement units within a given measurement system; make a line plot to display a data set of measurements in fractions of a unit; use operation on fractions to solve problems involving information presented in line plots; recognize volume as an attribute of solid figures & understand concepts of volume measurement; measure volumes by counting unit cubes using cubic CM, cubic in, cubic ft, and improvised units. (CCSS MD.A-C)

Grade 6
Recognize a statistical question as one that anticipates variability in data; understand that a set of data collected to answer a statistical question has a distribution described by center spread & overall shape; recognize that a measure of center for a numerical data set summarizes all of its values with a single number; display numerical data in plots on a number line, including dot plots, histograms, & box plots. (CCSS SP.A & B)

Grade 7
Assess the degree of visual overlap of two numerical data distributions with similar variabilities; use measures of center & measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. (CCSS SP.B & C)

Grade 8
Construct & interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities; use the equation of alinear model to solve problems in the context of bivariate measurement data, interpreting slope & intercept; understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies & relative frequencies in a two-way table. (CCSS SP.A)

For more detail on each Performance Indicator refer directly to the Common Core State Standards as indicated by the letter designations in parentheses.