Name:

SAN JUAN DEL SUR DAY SCHOOL
GRADE 6 MATH LEARNING OUTCOMES STUDENT CHECKLIST

UNIT CONCEPT	LESSON TOPIC	LEARNING GOAL
Numeration and Place Value *"I am learning to count and write numbers, recognize value of digits, compare, round, and order numbers."*	**Numbers to 1 Trillion - Representing Numbers (using base 10 models)**	☐ I can recognize the digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left ☐ I can explain the powers of ten ☐ I can count forward and backwards in powers of 10 from any given number up to one trillion
	Naming, Comparing, and Ordering Numbers	☐ I can read and write decimals to ten thousandths to trillions using numerals, number names, and expanded form
	Rounding and Estimation	☐ I can round numbers to any place
Numerical Expressions and Order of Operations *"I am learning to explain and apply the order of operations to write and interpret numerical expressions with symbols."*	**Expressions and Equations**	☐ I can evaluate simple algebraic expressions ☐ I can use variables to represent an unknown value or number
	Exponents	☐ I can write products in exponential form
	Order of Operations without Parentheses	☐ I can evaluate an expression using the order of operations ☐ I can correctly write number sentences using mathematical symbols and the order of operations correctly

	Order of Operations with Parentheses	☐ I can evaluate an expression using the order of operations
		☐ I can use parentheses, brackets, and/or braces in algebraic expressions
		☐ I can use the order of operations to solve:
		    ☐ 2 operation problems
		    ☐ 3 operation problems
		    ☐ 4 operation problems
		    ☐ 4 operation problems with brackets

	Word Problems	☐ I can evaluate algebraic expressions with parentheses, brackets, and/or braces ☐ I can solve positive integer problems in which n objects are connected to m objects (Correspondence problems) ☐ I can solve multi-step word problems involving all four operations
Factors and Multiples *"I am learning to solve problems using multiples and factors."*	**Factors and Multiples**	☐ I can find the factors of any given number ☐ I can list at least 5 multiples of any given number ☐ I can find the LCM of any two numbers using factor trees, or by comparing their multiples ☐ I can find the GCF of any two numbers using factor trees, or by comparing their factors
	Prime Factorization	☐ I can factor a composite number into prime numbers ☐ I can differentiate between prime and composite numbers. ☐ I can make and use factor trees to find the prime factorization of numbers.
	Properties of Multiplication	☐ I can relate factors and multiples to multiplication and division ☐ I can multiply 4 digit by 2 digit numbers ☐ I can multiply 4 digit by decimals in the hundredths
	Mental Multiplication	☐ I can calculate mixed operations mentally
	Properties of Division	☐ I can relate factors and multiples to multiplication and division ☐ I can divide 4 digit by 2 digit numbers ☐ I can divide 4 digit by decimals in the hundredths ☐ I can demonstrate remainders as whole numbers or fractions
	Mental Division	☐ I can calculate mixed operations mentally
Multiplying and Dividing Fractions *"I am learning to apply and extend previous understandings of multiplication and division to multiply and divide fractions."*	**Multiplication of a Proper Fraction by a Whole Number**	☐ I can multiply simple pairs of proper fractions writing the answer in the simplest form (2/3X4/5= 8/15)
	Multiplication of a Proper Fraction by a Fraction	☐ I can multiply simple pairs of proper fractions writing the answer in the simplest form (2/3X4/5= 8/15)
	Multiplication of an Improper Fraction or a Mixed Number by a Whole Number or Fraction	☐ I can multiply mixed numbers by whole numbers using materials and diagrams ☐ I can convert between mixed numbers and improper fractions
	Division of a Whole Number by a Fraction	☐ I can divide whole numbers by fractions
	Division of a Fraction by a Whole Number	☐ I can divide proper fractions by whole numbers (e.g. 1/3 divided 4= 1/12x4=1/3)
	Division of a Fraction by a Fraction	☐ I can divide any two fractions fluently by finding the reciprocal and multiplying
	Word Problems	☐ I can solve 2 step problems in context deciding which operation(s) and method(s) to use ☐ I can relate the strategies I use to multiply and fractions to a written problem and explain why I chose the strategies to help me solve the problem

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Operations with Decimals *"I am learning to convert and compute numbers into decimal notation."*	**Addition and Subtraction of Decimals**	☐ I can add and subtract numbers in the decimal places with: 　☐ similar decimals (2.16+ 3.67) 　☐ unlike decimals (24.1+3.67) ☐ I can solve 2 step problems in context deciding what operation and method to use
	Decimal Forms of Fractions and Mixed Numbers	☐ I can write fractions as terminating or repeating decimals ☐ I can convert between mixed numbers or fractions and decimals
	Multiplication of Decimals	☐ I can associate a fraction with multiplication and calculate decimal fraction equivalents (e.g. 0.375) for the simplest form ☐ I can multiply whole numbers by: 　☐ 10 given answers up to three decimal places 　☐ 100 given answers up to three decimal places 　☐ 1,000 given answers up to three decimal place
	Division of Decimals	☐ I can associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for the simplest form ☐ I can divide whole numbers by: 　☐ 10 given answers up to three decimal places 　☐ 100 given answers up to three decimal places 　☐ 1,000 given answers up to three decimal places\
	Metric Measurements and Decimals	☐ I can change and convert large numbers into decimal notation (e.g. 1.8 million = 1,800,000)
	Word Problems	☐ I can solve 2 step problems in context deciding which operation(s) and method(s) to use ☐ I can relate the strategies I use to multiply and divide decimals to hundredths to a written problem and explain why I chose the strategies to help me solve the problem ☐ I can fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation with speed and accuracy, without math tools (i.e., calculator)
Negative Numbers *"I am learning to apply and extend previous understandings of numbers into the system of rational numbers."*	**Positive and Negative Numbers**	☐ I can read and write integers ☐ I can count using negative numbers in context (e.g. temperature and money)
	Comparing Positive and Negative Numbers	☐ I can compare and order integers ☐ I can explain where zero fits into a situation represented by integers ☐ I can interpret statements of inequality as statements about relative position of two numbers on a number line diagram
	The Number Line	☐ I can identify and correct errors in the ordering of integers on a number line ☐ I can identify a rational number as a point in the number line ☐ I can reason that a double negative, e.g., -(-2) is the opposite of that number itself
	Absolute Value	☐ I can find the absolute value of an integer ☐ I can interpret absolute value as magnitude for a positive or negative quantity in a real world situation ☐ I can distinguish comparisons of absolute value from statements about order and apply to real world contexts
	Word Problems	☐ I can solve 2-step problems in context deciding what operation and method to use ☐ I can write, interpret, and explain statements of order for rational numbers in real-world contexts
Ratios, Rate, and Percents *"I am learning to use ratio and proportion to solve problems."*	**Finding Ratios**	☐ I can solve problems involving the relative sizes of 2 quantities where missing values can be found using multiplication and division. (2:1 is equal to 2:?)
	Equivalent Ratios	☐ I can find missing terms in equivalent ratios ☐ I can interpret a:b and a:b:c and write equivalent ratios ☐ I can write ratios as fractions and determine whether two ratios are equivalent
	Unit Rate	☐ I can understand unit rate ☐ I can use unit rate to compare a quantity to another quantity
	Speed - Distance, Rate, and Time	☐ I can solve unit rate problems, including those involving unit pricing and constant speed
	Meaning of Percent	☐ I can recognize the percent symbol (%) and understand it represents parts per hundred ☐ I can write percentages as a fraction with denominator 100, and as a decimal ☐ I can write percents greater than 100 & less than 1 as fractions and decimals
	Percentage of a Quantity	☐ I can calculate percentages of a number (e.g.15% of 360) ☐ I can solve problems which require knowing percentage and decimal equivalents of ½, 1/4, 1/5, 2/5, 4/5 and fractions with denominators which are multiples of 10 and 25
	Word Problems	☐ I can solve word problems/real-life situations involving rates and unit rates ☐ I can solve multi-step word problems involving average, rate, percentage, speed, and average speed ☐ I can use models and pictures to relate concepts of ratio and percent

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Algebraic Expressions *"I am learning to apply and extend previous understandings of arithmetic to algebraic expressions."*	**Writing Algebraic Expressions with Letters**	☐ I can write and evaluate numerical expressions involving whole-number exponents ☐ I can use numbers and variables to evaluate expressions ☐ I can translate written phrases into algebraic expressions ☐ I can translate algebraic expressions into written phrases
	Evaluating Algebraic Expressions	☐ I can identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient) ☐ I can express equations with numbers and letters (e.g. Subtract y from 5* as 5-y) ☐ I can interpret numerical expressions (e.g. "add 8 and 7, then multiply by 2" as 2x (8+7)
	Simplifying Algebraic Expressions	☐ I can simplify an algebraic expression ☐ I can substitute specific values for variables
	Word Problems	☐ I can evaluate and use algebraic expressions to explain word problems/real-life situations
Equations and Inequalities *"I am learning to reason about and solve one-variable equations and inequalities."*	**Algebraic Equations**	☐ I can create equivalent expressions using the properties of operations (e.g. distributive property, associative property, adding like terms with the addition property of equality, etc.) ☐ I can apply the properties of operations to create equivalent expressions I can use inverse operations to solve one step variable equations
	Balancing Equations	☐ I can apply operations to generate equivalent expressions. 6(4x + 3y) = 24x + 18y ☐ I can find pairs of numbers that satisfy an equation of 2 unknowns ☐ I can prove (using various strategies) that two expressions are equivalent no matter what number is substituted
	Algebraic Inequalities	☐ I can recognize solving an equation or inequality as a process of answering "which values from a specified set, if any, make the equation or inequality true?" ☐ I can write and solve inequalities ☐ I can use the solution to an equation or inequality to prove that the answer is correct ☐ I can identify the constraint or condition in a real-world or mathematical problem in order to set up an inequality ☐ I can recognize that inequalities of the form x>c or x<c have infinitely many solutions ☐ I can write an inequality of the form x>c or x<c to represent a constraint or condition in a real-world or mathematical problem ☐ I can represent solutions to inequalities or the form x>c or x<c, with infinitely many solutions, on the number line diagrams
	Solving Equations - Word Problems	☐ I can use inverse operations to solve one step variable equations ☐ I can apply rules of the form x + p = q and px = q, for cases in which p, q and x are all nonnegative rational numbers, to solve real world and mathematical problems. (There is only one unknown quantity) ☐ I can develop a rule for solving one-step equations using inverse operations with nonnegative rational coefficients ☐ I can solve and write equations for real-world mathematical problems containing one unknown
Coordinates and Graphs *"I am learning to apply geometric concepts to solve real-world and mathematical problems."*	**The Coordinate Plane**	☐ I can describe numbers in all four coordinates
	Distance Between Coordinate Pairs	☐ I can draw and translate shapes on the coordinate plane and reflect them in all axises
	Independent and Dependent Variables	☐ I can define independent and dependent variables ☐ I can use variables to represent two quantities in a real-world problem that change in relationship to one another
	Representing Relationships between Variables	☐ I can analyze the relationship between the dependent variable and independent variable using tables and graphs ☐ I can relate the data in a graph and table to the corresponding equation
	Observing Relations between Variables with Graphs	☐ I can organize and display data in tables and graphs ☐ I can graph linear equations using a function table and coordinate plane
Area and Perimeter of Plane Figures *"I am learning to solve real-world and mathematical problems involving area and perimeter."*	**Reviewing Area and Perimeter of Rectangles and Parallelograms**	☐ I can find unknown angles in a quadrilateral ☐ I can find unknown angles in a regular polygon
	Area of Triangles	☐ I can find unknown angles in a triangle ☐ I can calculate the area of a triangle
	Areas Involving Parallelograms and Triangles	☐ I can compare the area of a triangle to the area of the composed rectangle ☐ I can recognize and know how to compose and decompose polygons into triangles and rectangles ☐ I can discuss, develop and justify formulas for triangles and parallelograms
	Area of Trapezoids	☐ I can find the area of a trapezoid
	Circumference	☐ I can illustrate and name parts of a circle including radius, diameter, circumference ☐ I know that the diameter is twice the circumference of a circle ☐ I can calculate the circumference of circles, semi-circles, and quarter circles
	Area of Circles	☐ I can explain how the formula for the circumference and area of a circle is derived ☐ I can calculate the circumference and area of circles, semi-circles, and quarter circles
	Word Problems	☐ I can model the translation, rotation, or reflection of 2D shapes ☐ I can classify geometric shapes based on their properties and size ☐ I can apply the techniques of composing and/or decomposing to find the area of triangles, special quadrilaterals and polygons to solve mathematical and real world problems ☐ I can solve real-world problems involving the circumference and area of circles

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Volume and Surface Area of Solids *"I am learning to solve real-world and mathematical problems involving surface area and volume."*	**Volume of Rectangular Prisms**	☐ I can calculate the volume of a right rectangular prism ☐ I can apply volume formulas for right rectangular prisms to solve real-world and mathematical problems involving rectangular prisms with fractional edge lengths ☐ I can model the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths
	Volume of Liquids	☐ I can use a graduated cylinder to find the volume of liquids
	Surface Area of Rectangular Prisms, Cubes, and Cuboids	☐ I can recognize, describe and build 3D shapes, including nets (cube, cuboid) ☐ I can recognize that 3D figures can be represented by nets ☐ I can represent three-dimensional figures using nets made up of rectangles and triangles ☐ I can apply knowledge of calculating the area of rectangles and triangles to a net
	Surface Area of Triangular Prisms	☐ I can represent three-dimensional figures using nets made up of rectangles and triangles ☐ I can apply knowledge of calculating the area of rectangles and triangles to a net ☐ I can combine the areas for rectangles and triangles in the net to find the surface area of a 3-dimensional figure
	Word Problems	☐ I can solve real-world and mathematical problems involving surface area using nets ☐ I can solve real-world and mathematical problems involving area, volume and surface area
Displaying and Comparing Data *"I am learning to collect, organize, summarize, and analyze data in various ways."*	**Statistical Variability**	☐ I can recognize that data has variability
	Statistical Questions	☐ I can recognize a statistical question (examples versus non-examples)
	Measures of Center	☐ I can calculate quantitative measures of center, e.g., mean, median, mode ☐ I can identify that a set of data has distribution ☐ I can describe a set of data by its center, e.g., mean and median ☐ I can recognize there are measures of central tendency for a data set, e.g., mean, median, mode ☐ I can recognize that measure of central tendency for a data set summarizes the data with a single number ☐ I can choose the appropriate measure of central tendency to represent the data
	Displaying Numerical Data	☐ I can describe a set of data by its spread and overall shape, e.g. by identifying data clusters, peaks, gaps and symmetry ☐ I can report the number of observations in a data set or display ☐ I can identify outliers
	Dot Plots	☐ I can identify the components of dot plots ☐ I can display numerical data in plots on a number line, including dot plots ☐ I can create a dot plot to display a set of numerical data ☐ I can find the measures of central tendency mean, median, and mode
	Histograms	☐ I can identify the components of histograms ☐ I can display numerical data in plots on a number line, including histograms ☐ I can create a histogram to display a set of numerical data
	Measures of Variability - Range and Mean Absolute Value	☐ I can recognize that measures of variation for a data set describe how its values vary with a single number ☐ I can analyze a set of data to determine its variance ☐ I can recognize there are measures of variances for a data set , e.g., range, interquartile range, mean absolute deviation ☐ I can calculate measures of variance, e.g., range interquartile range, mean absolute deviation
	Measures of Variability - Interquartile Range	☐ I can plot upper and lower extremes of data, medians, and divide the data into four equal parts ☐ I can find the median, quartile and interquartile range of a set of data ☐ I can determine the effect of outliers on quantitative measures of a set of data, e.g., mean, median, mode, range, interquartile range, mean absolute deviation.
	Box Plots	☐ I can identify the components of box plots ☐ I can find the median, quartile and interquartile range of a set of data ☐ I can create a box plot to display a set of numerical data