Sutter Peak
CHARTER ACADEMY

A PACIFIC CHARTER INSTITUTE SCHOOL

Mathematics Arts State Standards
Grade 6

Standards for Mathematical Practice – "HOW"
My student can:

- ☐ make sense of problems, persevere in solving them, and check the reasonableness of answers.
- ☐ reason with and flexibly use math symbols, numbers, and operations.
- ☐ construct mathematical arguments (using stated assumptions, definitions, previously established results, and logical
- ☐ progressions) and critique the math reasoning of others.
- ☐ recognize math in everyday life and use math to solve real problems.
- ☐ use tools (e.g., protractor, calculator) strategically to solve problems and deepen understanding.
- ☐ calculate accurately, use precise math definitions and vocabulary, and express math ideas clearly.
- ☐ look for and make use of patterns and structure in math.
- ☐ discern when calculations are repeated and look both for general methods and for shortcuts.

Math Content Standards – "WHAT" Ratios and Proportional Relationships
My student can:

- ☐ understand ratios and use ratio language to describe the relationship
- ☐ between two amounts. 6.RP.1
- ☐ understand how to find a rate when given a specific ratio. For example, "We paid $75 for 15 hamburgers, which is a rate
- ☐ of $5 per hamburger. 6.RP.2
- ☐ solve real-world and mathematical word problems related to ratios and rates. 6.RP.3
- ☐ make tables of equivalent ratios, find missing values in the tables, plot those values on a coordinate plane, and use the
- ☐ tables to compare ratios. 6.RP.3a
- ☐ solve unit rate problems including unit pricing & constant speed (e.g., If it took 7 hours to mow 4 lawns, then at that
- ☐ rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?). 6.RP.3b

- ☐ find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). 6.RP.3c
- ☐ solve problems to find the whole, given a part and the percent. 6.RP.3c
- ☐ use what is known about ratios to convert/manipulate units of measurement when multiplying & dividing. 6.RP.3d

The Number System

My student can:

- ☐ divide two fractions; solve word problems involving the division of fractions by fractions. 6.NS.1
- ☐ quickly and easily divide multi-digit numbers. 6.NS.2
- ☐ fluently add, subtract, multiply and divide multi-digit numbers involving decimals. 6.NS.3
- ☐ find the greatest common factor of two whole numbers less than or equal to 100. 6.NS.4
- ☐ find the least common multiple of two whole numbers less than or equal to 12. 6.NS.4
- ☐ use the distributive property to show the sum of two whole numbers 1-100 with a common factor as a multiple of a
- ☐ sum. For example, show 36 + 8 as 4 (9+2). 6.NS.4
- ☐ understand that positive & negative numbers are used to describe amounts having opposite values or directions. 6.NS.5
- ☐ use positive and negative numbers to represent amounts in real-world situations; explain the meaning of 0 in each
- ☐ situation. 6.NS.5
- ☐ understand that a rational number is a point on a number line. 6.NS.6
- ☐ extend number line diagrams and axes to show positive and negative numbers on the line and in the plane. 6.NS.6
- ☐ recognize opposite signs of numbers as showing points on opposite sides of 0 on the number line. 6.NS.6a
- ☐ understand signs of numbers in ordered pairs as showing locations in quadrants of the coordinate plane; recognize that
- ☐ when two ordered pairs differ only by signs, the points are related by reflections across one or both axes. 6.NS.6b
- ☐ place integers and other rational numbers on a horizontal or vertical number line diagram. 6.NS.6c
- ☐ place ordered pairs of integers on a coordinate plane. 6.NS.6c
- ☐ order positive and negative numbers; understand absolute value of rational numbers. 6.NS.7
- ☐ interpret statements of inequality as statements about the relative position of two numbers (positive or negative) on a
- ☐ number line (e.g., interpret -3 > -7 to mean that -3 is located to the right of -7 on a horizontal number line). 6.NS.7a

- ☐ write and explain statements that show the order of rational numbers in real-world situations (e.g., write -3 °C > -7°C to
- ☐ show that -3 °C is warmer than -7°C). 6.NS.7b
- ☐ understand the absolute value of a rational number as the number's distance from 0 on the number line. 6.NS.7c
- ☐ understand absolute values as they apply to real-world situations (e.g., for an account balance of -30 dollars, write
- ☐ |-30| = 30 to describe the size of the debt in dollars). 6.NC.7c
- ☐ tell the difference between comparing absolute values and ordering positive and negative numbers. 6.NS.7d
- ☐ graph in all four quadrants of the coordinate plane to help solve real-world and mathematical problems. 6.NS.8
- ☐ find the distance between points with the same first coordinate or the same second coordinate. 6.NS.8

Expressions and Fractions

My student can:

- ☐ write and understand numerical expressions involving whole-number exponents. 6.EE.1
- ☐ write, read and evaluate expressions in which letters stand for numbers (e.g., express "subtract y from 5" as 5-y). 6.EE.2
- ☐ identify the parts of an expression using mathematical words (sum, term, product, factor, quotient, coefficient). 6.EE.2b
- ☐ view one or more parts of an expression as a single unit (e.g., describe 2(8 + 7) as a product of two factors; view (8 + 7)
- ☐ as a sum of two terms or as the single quantity 15). 6.EE.2b
- ☐ determine the answer to expressions when given the specific value of a variable. 6.EE.2c
- ☐ use "order of operations" to solve problems in the conventional order when there are no parentheses. 6.EE.2c
- ☐ use properties of operations to create equivalent expressions (e.g., apply properties to y+y+y to produce 3y). 6.EE.3
- ☐ identify when two expressions are equivalent (e.g., when two expressions name the same number regardless of the
- ☐ value substituted for the letter: y+y+y = 3y or 3(2+x) = 6+3x). 6.EE.4
- ☐ understand that solving an equation or inequality is like answering a question: which values makes the equation or
- ☐ inequality true? Use substitution to determine whether a given number makes an equation or inequality true. 6.EE.5
- ☐ use variables to represent numbers and write expressions when solving real-world problems. 6.EE.6
- ☐ understand that a variable can represent an unknown number or a number in a specified set. 6.EE.6

- ☐ write and solve equations in the form x+p=q and px=q when p, q, and x are all nonnegative rational numbers. 6.EE.7
- ☐ write an inequality in the form x>c or x<c; represent the infinite solutions of these inequalities on a number line. 6.EE.8
- ☐ write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent
- ☐ variable (e.g., write d=65t to represent the relationship between distance and time). 6.EE.9
- ☐ use graphs and tables to show the relationship between dependent and independent variables. 6.EE.9

Geometry

My student can:

- ☐ put together and take apart shapes to find the area of right triangles, other triangles, special quadrilaterals, and
- ☐ polygons; apply these techniques to solve real-world and mathematical problems. 6.G.1
- ☐ use unit cubes to find the volume of a right rectangular prism with fractional edge lengths; show that the volume is the
- ☐ same as found by multiplying the edge lengths of the prism. 6.G.2
- ☐ use the formulas V = l w h or V = b h to find volumes of right rectangular prisms in real-world problems. 6.G.2
- ☐ draw polygons in the coordinate plane when given the coordinates for the vertices. 6.G.3
- ☐ use coordinates to find the length of a polygon's side in a coordinate plane. 6.G.3
- ☐ show how three-dimensional figures can be represented with two- dimensional nets (a net is the pattern made when the
- ☐ surface of a three-dimensional figure is laid out flat) made of rectangles and triangles. 6.G.4
- ☐ figure out the surface area of 3-D shapes by using nets; apply this technique to real-world & math problems. 6.G.4

Statistics and Probability

My student can:

- ☐ understand that a statistical question expects responses/data to be varied (e.g., "How old are the students at the
- ☐ school?" is a statistical question because one anticipates variation in students' ages). 6.SP.1
- ☐ understand that a set of statistical data has a distribution that can be described by its center, spread, & shape. 6.SP.2
- ☐ understand that a set of numerical data has a "measure of center" (median and/or mode) that summarizes all of its
- ☐ values with one number. 6.SP.3

- ☐ understand that the measure of variation in a set of data describes with one number how values vary. 6.SP.3
- ☐ show numerical data in plots on a number line, including dot plots, histograms, and boxplots. 6.SP.4
- ☐ summarize numerical data sets by reporting the number of observations. 6.SP.5a
- ☐ summarize data by describing the attribute under investigation, including how it was measured. 6.SP.5b
- ☐ summarize data by giving numerical measures of center and variability as well as describing overall pattern. 6.SP.5c
- ☐ describe deviations from the overall pattern of a data set, referring to the context of data collection. 6.SP.5c
- ☐ describe the relationship between the measures of center & variability and the shape of the data distribution. 6.SP.5.d