Sutter Peak
CHARTER ACADEMY

A PACIFIC CHARTER INSTITUTE SCHOOL

Mathematics Arts State Standards
Grade 5

Fifth grade students add and subtract fractions with unlike denominators. They divide with two-digit divisors and use the four operations with decimals. Students understand volume as an attribute of three-dimensional space. Fifth graders analyze patterns in operations, graph ordered pairs on a coordinate plane, and apply previous understandings of multiplication and division to multiply and divide fractions.

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

- ☐ explain a math problem, create & use a plan to solve it, and check if the answer makes sense.
- ☐ make sense of and flexibly use math symbols, numbers, and operations. use objects, drawings, diagrams, actions and words to explain his/her approach to a math problem and decide if others' strategies make sense.
- ☐ recognize math in everyday life and use math to solve real problems. use tools (e.g., ruler, concrete models, paper/pencil) to solve problems and deepen understanding.
- ☐ calculate accurately, use precise math vocabulary, and explain problems/solutions clearly.
- ☐ describe how numbers and shapes are organized as parts and wholes. notice when calculations are repeated and look for general "rules" and shortcuts.

Math Content Standards – "WHAT" Operations and Algebraic Thinking
My student can:

- ☐ use parentheses, brackets, or braces in numerical expressions. 5.OA.1
- ☐ write numerical expressions using mathematical symbols and the order of operations. For example, write "add 8 and 7, then multiply by 2" as (8 + 7) x 2. 5.OA.2
- ☐ express a whole number between 2-50 as a product of its prime factors. OA.2
- ☐ create patterns using numerical rules in order to form ordered pairs; graph the ordered pairs on a coordinate plane. 5.OA.3

Number Sense and Place Value (Number and Operations in Base Ten)
My student can:

- ☐ understand the value of digits; recognize that a digit in one place represents 10 times as much as it does in the place to its right and 1/10 of what it

represents in the place to its left. 5.NBT.1

- ☐ explain patterns when multiplying a number by powers of 10. 5.NBT.2
- ☐ explain patterns when a decimal is multiplied or divided by a power of 10. NBT.2
- ☐ use whole-number exponents to show powers of 10. 5.NBT.2
- ☐ read and write decimals to thousandths using base-ten numerals, number names and expanded form (347.392 = 300 + 40 + 7 + 3/10 + 9/100 + 2/1000). 5.NBT.3
- ☐ compare two decimals to the thousandths using <, =, and > symbols to record the comparison. 5.NBT.3
- ☐ use place value understanding to round decimals to any place. 5.NBT.4
- ☐ easily and quickly multiply multi-digit whole numbers. 5.NBT.5
- ☐ divide up to four-digit dividends by two-digit divisors using varied strategies. 5.NBT.6
- ☐ illustrate and explain a division problem by using equations, arrays and/or models. 5.NBT.6
- ☐ add, subtract, multiply, and divide decimals to hundredths using varied strategies; use concrete models, drawings and writing to explain the method/strategy. 5.NBT.7

Fractions (Number and Operations)

My student can:

- ☐ add and subtract fractions (including mixed numbers) with unlike denominators. 5.NF.1
- ☐ solve word problems that involve addition and subtraction of fractions. NF.2
- ☐ use benchmark fractions and number sense to estimate and assess the reasonableness of answers (e.g., recognize an incorrect result 2/5 + 1/2 = 3/7 by observing that 3/7 < 1/2). 5.NF.2
- ☐ understand that fractions are the division of a numerator by the denominator. 5.NF.3
- ☐ solve word problems involving division of whole numbers that result in answers that are fractions or mixed numbers. 5.NF.3
- ☐ use models or a story context to multiply a fraction or a whole number by a fraction. 5.NF.4
- ☐ think of multiplication as scaling or resizing; compare the size of a product to the size of one factor on the basis of the size of the other factor. 5.NF.5
- ☐ solve real world problems by multiplying fractions and mixed numbers using visual models. 5.NF.6
- ☐ divide fractions by whole numbers and whole numbers by fractions using visual models. 5.NF.7
- ☐ solve real world problems with division of or by fractions using visual models and equations. 5.NF.7

Measurement and Data

My student can:

- ☐ convert measurements within the same measuring system (e.g., convert
- ☐ 5 cm to .05 m). 5.MD.1
- ☐ use measurement conversions to solve multi-step, real-world problems. 5.MD.1
- ☐ make a line plot to display data sets of measurements in fractions. 5.MD.2
- ☐ use information on a line plot to solve problems involving fraction operations. 5.MD.2
- ☐ recognize volume as an attribute of three-dimensional figures. 5.MD.3
- ☐ understand concepts related to measuring volume. 5.MD.3
- ☐ measure volumes by counting "unit cubes" using cubic centimeters, cubic inches, and cubic feet. 5.MD.4
- ☐ solve real world and mathematical problems involving volume. 5.MD.5
- ☐ find the volume of rectangular prisms using the formulas V = l x w x h and V = b x h. 5.MD.5
- ☐ understand that volume is additive; find the volumes of solid figures composed of two non-overlapping rectangular prisms by adding the volumes of the non-overlapping parts. 5.MD.5

Geometry

My student can:

- ☐ understand the meaning of the first and second number in an ordered pair of coordinates. 5.G.1
- ☐ understand the placement of the x-axis and the y-axis in a coordinate plane. 5.G.1
- ☐ graph and interpret the coordinate values of points in the first quadrant of a coordinate plane. 5.G.2
- ☐ represent and solve real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane. 5.G.2
- ☐ understand that attributes of a category of two-dimensional shapes also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. 5.G.3
- ☐ classify two-dimensional shapes in a hierarchy based on properties. 5.G.4