



Math - Grade 4

Course Description:

The Indian Community School cultivates an enduring cultural identity and critical thinking by weaving indigenous teachings with a distinguished learning environment. The curriculum for this course is developed from the [Common Core State Standards for Mathematics](#) and the framework of the [ICS Our Ways Cultural Calendar](#). In this course, three critical areas will be addressed: (1) developing understanding and fluency with multi-digit multiplication, and developing an understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

Enduring Understandings:

- Problems are solved using multiple strategies in order to explore a variety of solutions and apply the most efficient methods.
- Abstract representations of problems are connected to the correct equation by using concrete examples.
- Words and symbols are used to clarify thinking and refine mathematical communications.
- Mathematical situations are represented with numbers, words, sketches, actions, charts, graphs, equations, arrays, and ratio tables in order to explain connections among these models.
- Particular mathematical problems or tasks can be solved by selecting the most useful and appropriate tools.
- Increased precision and proficiency in mathematical communication in both writing and discussion is gained by choosing the correct language to describe operations and symbols.
- Problems are solved by seeking out patterns and noticing structure.
- Models of repetition can be used to explain and generate algorithms.

OPERATIONS AND ALGEBRAIC THINKING

- I can interpret a multiplication equation as a comparison. (4.OA.A.1)
- I can write equations to show multiplicative comparisons. (4.OA.A.1)
- I solve multiplicative word problems by multiplying or dividing. (4.OA.A.2)
- I can explain the difference between multiplicative comparison and additive comparison. (4.OA.A.2)
- I can solve multistep word problems with whole numbers using the four operations. (4.OA.A.3)
- I can interpret a remainder when needed. (4.OA.A.3)
- I can write an equation with a letter that stands for an unknown quantity. (4.OA.A.3)
- I can determine if the solution to a multistep problem is reasonable using estimation strategies. (4.OA.A.3)
- I can find factor pairs for any whole numbers 1-100. (4.OA.B.4)
- I can find multiples of a number 1-100. (4.OA.B.4)
- I can determine if a whole number 1-100 is prime or composite. (4.OA.B.4)



OPERATIONS AND ALGEBRAIC THINKING (continued)

- I can create a number or shape pattern that follows a given rule. (4.OA.C.5)
- I can extend a pattern that follows a given rule. (4.OA.C.5)

NUMBER AND OPERATIONS IN BASE TEN

- I can demonstrate understanding that in a multi-digit whole number, a digit in the one place represents ten times what it represents in the place to the right. (4.NBT.A.1)
- I can read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. (4.NBT.A.2)
- I can compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. (4.NBT.A.2)
- I can apply place value understanding to round multi-digit whole numbers in any place. (4.NBT.A.3)
- I can fluently add and subtract multi-digit whole numbers using the standard algorithm. (4.NBT.B.4)
- I can multiply a whole number of up to four digits by a one-digit whole number. (4.NBT.B.5)
- I can multiply two two-digit numbers, using strategies based on place value and the properties of operations. (4.NBT.B.5)
- I can illustrate and explain a calculation by using equations, rectangular arrays, and/or area models. (4.NBT.B.5)
- I can find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors. (4.NBT.B.6)
- I can apply strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. (4.NBT.B.6)
- I can illustrate and explain a calculation by using equations, rectangular arrays, and/or area models. (4.NBT.B.6)

NUMBER AND OPERATIONS - FRACTIONS

- I can explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. (4.NF.A.1)
- I can use visual fraction models to recognize and generate equivalent fractions. (4.NF.A.1)
- I can compare two fractions with different numerators and different denominators. (4.NF.A.2)
- I can explain that comparisons are valid only when the two fractions refer to the same whole. (4.NF.A.2)
- I can record the results of comparisons with symbols $>$, $=$, $<$ and justify the conclusions. (4.NF.A.2)
- I can express a fraction a/b with $a > 1$ as a sum of fractions $1/b$. (4.NF.B.3)
- I can demonstrate the addition and subtraction of fractions as joining and separating parts referring to the same whole. (NF.B.3.A)



NUMBER AND OPERATIONS - FRACTIONS (continued)

- I can decompose a fraction into a sum of fractions with the same denominator in more than one way. (4.NF.B.3.B)
- I can justify decompositions. (4.NF.B.3.B)
- I can add and subtract mixed numbers with like denominators. (4.NF.B.3.C)
- I can solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. (4.NF.B.3.D)
- I can use visual fraction models and equations to represent the problem. (4.NF.B.3.D)
- I can express a fraction a/b as a multiple of $1/b$. (4.NF.B.4.A)
- I can express a multiple of a/b as a multiple of $1/b$. (4.NF.B.4.B)
- I can multiply a fraction by a whole number. (4.NF.B.4.B)
- I can solve word problems involving multiplication of a fraction by a whole number. (4.NF.B.4.C)
- I can use visual fraction models and equations to represent the problem. (4.NF.B.4.C)
- I can express a fraction with denominator 10 as an equivalent fraction with denominator 100. (4.NF.C.5)
- I can add two fractions with respective denominators 10 and 100. (4.NF.C.5)
- I can use decimal notation for fractions with denominators 10 or 100. (4.NF.C.6)
- I can compare two decimals to hundredths by reasoning about their size. (4.NF.C.7)
- I can explain that comparisons are valid only when the two decimals refer to the same whole. (4.NF.C.7)
- I can record the results of comparisons with the symbols $>$, $=$, $<$, and justify the conclusions. (4.NF.C.7)

MEASUREMENT AND DATA

- I can provide relative sizes of measurement units within one system of units. (4.MD.A.1)
- I can express measurements in a larger unit in terms of a smaller unit within a single system of measurement. (4.MD.A.1)
- I can record measurement equivalents in a two-column table. (4.MD.A.1)
- I can solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money. (4.MD.A.2)
- I can solve problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. (4.MD.A.2)
- I can represent measurement quantities using diagrams that feature a measurement scale. (4.MD.A.2)
- I can apply the area and perimeter formulas for rectangles in real world and mathematical problems. (4.MD.A.3)



MEASUREMENT AND DATA (continued)

- I can make a line plot to display a data set of measurements in fractions of a unit. (4.MD.B.4)
- I can solve problems involving addition and subtraction of fractions by using information presented in line plots. (4.MD.B.4)
- I can identify angles as geometric shapes that share a common endpoint. (4.MD.C.5)
- I can explain that an angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. (4.MD.C.5.A)
- I can show that an angle that turns through n one-degree angles is said to have an angle measure of n degrees. (4.MD.C.5.B)
- I can measure angles in whole-number degrees using a protractor. (4.MD.C.6)
- I can sketch angles of specified measure. (4.MD.C.6)
- I can demonstrate understanding of angle measures as additive. (4.MD.C.7)
- I can explain that the angle measure of the whole is the sum of the angle measures of the parts. (4.MD.C.7)
- I can solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems. (4.MD.C.7)

GEOMETRY

- I can draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. (4.G.A.1)
- I can identify points, lines, line segments, ray, angles, and perpendicular and parallel lines in two-dimensional figures. (4.G.A.1)
- I can classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. (4.G.A.2)
- I can represent right triangles as a category, and identify right triangles. (4.G.A.2)
- I can represent a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. (4.G.A.3)
- I can identify line-symmetric figures and draw lines of symmetry. (4.G.A.3)