



## Math - Grade 6

### **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, students will focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative number; (3) writing, interpreting and using expressions and equations; and (4) developing understanding of statistical thinking.

### **Enduring Understandings:**

- The order of operations is used to evaluate numerical expressions.
- The concept of a variable is used in mathematical expressions to read, write and solve expressions and equations.
- Knowledge of ratios will be applied to determine rate, solve proportions and convert measurements.
- Previous understandings of numbers are applied and extended in order to work with systems of rational numbers
- Properties of operations and the idea of maintaining the equality of both sides of an equation are used to solve simple one and two-step problems.
- Expressions are evaluated by using formulas to solve problems such as area, volume and surface area.
- A set of data is organized and summarized in various ways in order to interpret and make conclusions about the data.
- The outcomes of an event are used to determine probability which will be represented as a fraction or decimal to determine the likelihood of its occurrence.

### **RATIOS AND PROPORTIONAL RELATIONSHIPS**

- I can define the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (6.RP.A.1)
- I can demonstrate the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  and use rate language in the context of a ratio relationship. (6.RP.A.2)
- I can use ratio and rate reasoning to solve real-world and mathematical problems. (6.RP.A.3)
- I can find missing values in a ratio table. (6.RP.A.3.A)
- I can plot pairs of values on the coordinate plane. (6.RP.A.3.A)
- I can use tables to compare ratios. (6.RP.A.3.A)
- I can solve unit rate problems including those involving unit pricing and constant speed. (6.RP.A.3.B)
- I can solve problems in involving finding the whole, given a part and the percent as a rate per 100. (6.RP.A.3.C)
- I can manipulate and transform units appropriately to convert measurements. (6.RP.A.3.D)



## THE NUMBER SYSTEM

- I can interpret and compute quotients of fractions using visual models. (6.NS.A.1)
- I can fluently divide multi-digit numbers using the standard algorithm. (6.NS.B.2)
- I can fluently add multi-digit decimals using the standard algorithm. (6.NS.B.3)
- I can fluently subtract multi-digit decimals using the standard algorithm. (6.NS.B.3)
- I can fluently multiply multi-digit decimals using the standard algorithm. (6.NS.B.3)
- I can fluently divide multi-digit decimals using the standard algorithm. (6.NS.B.3)
- I can find the greatest common factor of two whole numbers less than or equal to 100. (6.NS.B.4)
- I can find the least common multiple of two whole numbers less than or equal to 12. (6.NS.B.4)
- I can use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. (6.NS.B.4)
- I can use positive and negative numbers to represent quantities in real-world contexts, explaining of 0 in each situation. (6.NS.C.5)
- I can extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. (6.NS.C.6)
- I can recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. (6.NS.C.6.A)
- I can demonstrate understanding of signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. (6.NS.C.6.B)
- I can recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. (6.NS.C.6.B)
- I can find and position pairs of integers and other rational numbers on a coordinate plane. (6.NS.C.6.C)
- I can demonstrate understanding of ordering and absolute value of rational numbers. (6.NS.C.7)
- I can interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. (6.NS.C.7.A)
- I can write, interpret, and explain statements of order for rational numbers in real-world contexts. (6.NS.C.7.B)
- I can distinguish comparisons of absolute value from statements about order in real-world situations. (6.NS.C.7.C)
- I can distinguish comparisons of absolute value from statements about order. (6.NS.C.7.D)
- I can solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. (6.NS.C.8)
- I can include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (6.NS.C.8)



## EXPRESSIONS AND EQUATIONS

- I can write and evaluate numerical expressions involving whole-number exponents. (6.EE.A.1)
- I can write, read and evaluate expressions in which letters stand for numbers. (6.EE.A.2)
- I can identify parts of an expression using mathematical terms. (6.EE.A.2.B)
- I can include expressions that arise from formulas used in real-world problems. (6.EE.A.2.C)
- I can apply properties to generate equivalent expressions. (6.EE.A.3)
- I can identify when two expressions are equivalent. (6.EE.A.4)
- I can demonstrate understanding of solving an equation or inequality as a process of answering a question. (6.EE.B.5)
- I can use substitution to determine whether a given number in a specified set makes an equation or inequality true. (6.EE.B.5)
- I can use variables to represent numbers and write expressions when solving a real-world or mathematical problem. (6.EE.B.6)
- I can solve real-world and mathematical problems by writing and solving equations of the form  $x+p=q$  and  $px=q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers. (6.EE.B.7)
- 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. (6.EE.B.8)
- I can recognize that inequalities of the form  $x>c$  or  $x<c$  have infinitely many solutions as identified on a number line. (6.EE.B.8)
- I can write an equation with variables to express one quantity using dependent and independent variables in a real-world problem. (6.EE.C.9)
- I can analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (6.EE.C.9)

## GEOMETRY

- I can find the area of triangles. (6.G.A.1)
- I can find the area of special quadrilaterals and polygons. (6.G.A.1)
- I can apply techniques of finding area in the context of solving mathematical problems in real-world situations. (6.G.A.1)
- I can find the volume of a right rectangular prism with fractional edge lengths. (6.G.A.2)
- I can apply the formulas  $v = lwh$  and  $v=bh$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. (6.G.A.2)
- I can use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. (6.G.A.3)
- I can apply techniques with drawing polygons in the coordinate plane to solve real-world and mathematical problems. (6.G.A.3)



## GEOMETRY (continued)

- I can represent three-dimensional figures using nets made up of rectangles and triangles. (6.G.A.4)
- I can use nets to find the surface area of figures in real-world and mathematical problems. (6.G.A.4)

## STATISTICS AND PROBABILITY

- I can recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. (6.SP.A.1)
- I can demonstrate understanding that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (6.SP.A.2)
- I can recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. (6.SP.A.3)
- I can display numerical data in plots on a number line. (6.SP.B.4)
- I can display numerical data on a dot plot. (6.SP.B.4)
- I can display numerical data on a histogram. (6.SP.B.4)
- I can display numerical data on a box plot. (6.SP.B.4)
- I can summarize numerical data sets in relation to their context such as by reporting the number of observations. (6.SP.B.5.A)
- I can summarize numerical data sets in relation to their context such as by describing the nature of the attribute under investigation. (6.SP.B.5.B)
- I can summarize numerical data sets in relation to their context by giving quantitative measures of variability (interquartile range and/or mean absolute deviation). (6.SP.B.5.C)
- I can describe the overall pattern of numerical data sets with reference to the context of how data was gathered. (6.SP.B.5.C)
- I can relate the choice of measures of center and variability to the shape of the data distribution. (6.SP.B.5.D)