



Grade 6 Math

Louisiana Student Standards	Louisiana Connectors (LC)
<p>6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”</i></p>	<p>LC.6.RP.A.1a Write or select a ratio to match a given statement and representation. LC.6.RP.A.1b Select or make a statement to interpret a given ratio. LC.6.RP.A.1c Describe the ratio relationship between two quantities for a given situation. LC.6.RP.A.1d Complete a statement that describes the ratio relationship between two quantities. LC.6.RP.A.1e Write or select a ratio to match a given statement and representation.</p>
<p>6.RP.A.2 Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”</i></p>	<p>LC.6.RP.A.2 Determine the unit rate in a variety of contextual situations.</p>



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<p>6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <ul style="list-style-type: none"> a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what unit rate were lawns being mowed?</i> c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. 	<p>LC.6.RP.A.3a Use ratios and reasoning to solve real-world mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).</p> <p>LC.6.RP.A.3b Find a missing value (representations, whole numbers, common fractions, decimals to hundredths place, percent) for a given ratio.</p> <p>LC.6.RP.A.3c Solve unit rate problems involving unit pricing.</p> <p>LC.6.RP.A.3d Solve one step real world measurement problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours).</p> <p>LC.6.RP.A.3e Calculate a percent of a quantity as rate per 100.</p> <p>LC.6.RP.A.3f Complete a conversion table for length, mass, time, volume.</p> <p>LC.6.RP.A.3g Analyze a table of equivalent ratios to answer questions.</p> <p>LC.6.RP.A.3h Solve word problems involving ratios.</p>
<p>6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, create a story context for $(\frac{2}{3}) \div (\frac{3}{4})$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(\frac{2}{3}) \div (\frac{3}{4}) = \frac{8}{9}$ because $\frac{3}{4}$ of $\frac{8}{9}$ is $\frac{2}{3}$. (In general, $(\frac{a}{b}) \div (\frac{c}{d}) = \frac{ad}{bc}$.) How much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally? How many $\frac{3}{4}$-cup servings are in $\frac{2}{3}$ of a cup of yogurt? How wide is a rectangular strip of land with length $\frac{3}{4}$ mi and area $\frac{1}{2}$ square mi?</i></p>	<p>LC.6.NS.A.1 Solve one step problems involving division of fractions by fractions.</p>



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<p>6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.</p>	<p>LC.6.NS.B.2 Divide multi-digit whole numbers.</p>
<p>6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	<p>LC.6.NS.B.3 Solve one step, addition, subtraction, multiplication, or division problems with fractions or decimals.</p>
<p>6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. 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. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i></p>	<p>LC.6.NS.B.4 Find the greatest common multiple of two whole numbers less than or equal 25 and the least common multiple of two whole numbers less than or equal to 8.</p>
<p>6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.</p>	<p>LC.6.NS.C.5 Select the appropriate meaning of a negative number in a real world situation.</p>



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<p>6.NS.C.6 Understand a rational number as a point on the number line. 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.</p> <ul style="list-style-type: none"> a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. 	<p>LC.6.NS.C.6a Find given points between -10 and 10 on both axes of a coordinate plane.</p> <p>LC.6.NS.C.6b Label points between -10 and 10 on both axes of a coordinate plane.</p> <p>LC.6.NS.C.6c Identify numbers as positive or negative.</p> <p>LC.6.NS.C.6d Locate positive and negative numbers on a number line.</p> <p>LC.6.NS.C.6e Plot positive and negative numbers on a number line.</p>



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<p>6.NS.C.7 Understand ordering and absolute value of rational numbers.</p> <p>a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. <i>For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.</i></p> <p>b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. <i>For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C.</i></p> <p>c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. <i>For example, for an account balance of -30 dollars, write $-30 = 30$ to describe the size of the debt in dollars.</i></p> <p>d. Distinguish comparisons of absolute value from statements about order. <i>For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.</i></p>	<p>LC.6.NS.C.7a Compare two numbers on a number line (e.g., $-2 > -9$).</p> <p>LC.6.NS.C.7b Determine the meaning of absolute value.</p>
<p>6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p>	<p>LC.6.NS.C.8 Use coordinates and absolute value to find the distance between two coordinates with the same first coordinate or the same second coordinate.</p>
<p>6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.</p>	<p>LC.6.EE.A.1a Identify what an exponent represents (e.g., $8^3 = 8 \times 8 \times 8$).</p> <p>LC.6.EE.A.1b Solve numerical expressions involving whole number exponents.</p>



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<p>6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.</p> <ul style="list-style-type: none"> a. Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation “Subtract y from 5” as $5 - y$.</i> b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. <i>For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.</i> c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). <i>For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.</i> 	<p>LC.6.EE.A.2 Evaluate expressions from formulas containing exponents for specific values of their variables.</p>
<p>6.EE.A.3 Apply the properties of operations to generate equivalent expressions. <i>For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.</i></p>	<p>LC.6.EE.A.3 Use properties to produce equivalent expressions.</p>



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<p>6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). <i>For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.</i></p>	<p>LC.6.EE.A.4 Evaluate whether or not both sides of an equation are equal.</p>
<p>6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p>	<p>LC.6.EE.B.5 Use substitute to determine which values from a specified set make an equation or inequality true.</p>
<p>6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.</p>	<p>LC.6.EE.B.6 Use variable to represent numbers and write expressions when solving real world problems.</p>
<p>6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations and inequalities of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. Inequalities will include $<$, $>$, \leq, and \geq.</p>	<p>LC.6.EE.B.7a Solve problems or word problems using up to three digit numbers and any of the four operations. LC.6.EE.B.7b Solve real world, single step linear equations.</p>
<p>6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p>	<p>LC.6.EE.B.8 Given a real world problem, write an inequality.</p>



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<p>6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. <i>For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</i></p>	<p>LC.6.EE.C.9a Use variables to represent two quantities in a real-world problem that change in relationship to one another. LC.6.EE.C.9b Analyze the relationships between the dependent and independent variables using graphs and tables, and relate to the equation.</p>
<p>6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>LC.6.G.A.1a Apply the formula to find the area of triangles. LC.6.G.A.1b Decompose complex shapes (polygon, trapezoid, pentagon) into simple shapes (rectangles, squares, triangles) to measure area. LC.6.G.A.1c Find area of quadrilaterals. LC.6.G.A.1d Find area of triangles</p>
<p>6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. 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.</p>	<p>LC.6.G.A.2 Identify the appropriate formula (i.e., perimeter, area, volume) to use when measuring for different purposes in a real life context.</p>
<p>6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>LC.6.G.A.3a Use coordinate points to draw polygons. LC.6.G.A.3b Use coordinate points to find the side lengths of polygons that are horizontal or vertical.</p>



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<p>6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>LC.6.G.A.4 Find the surface area of three dimensional figures using nets of rectangles or triangles.</p>
<p>6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. <i>For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.</i></p>	<p>LC.6.SP.A.1 Identify statistical questions and make a plan for data collection.</p>
<p>6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape.</p>	<p>LC.6.SP.A.2a Find the range of a given data set. LC.6.SP.A.2b Explain or identify what the mode represents in a set of data.</p>
<p>6.SP.A.3 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.</p>	<p>LC.6.SP.A.3 Explain or identify what the mean represents in a set of data.</p>
<p>6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p>	<p>LC.6.SP.B.4 Collect and graph data: bar graph, line plots, dot plots, histograms.</p>



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<p>6.SP.B.5 Summarize numerical data sets in relation to their context, such as by:</p> <ul style="list-style-type: none"> a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. 	<p>LC.6.SP.B.5a Select an appropriate statement about the range of the data for a given graph (bar graph, line plot) (i.e., range of data) up to 10 points.</p> <p>LC.6.SP.B.5b Use measures of central tendency to interpret data including overall patterns in the data.</p> <p>LC.6.SP.B.5c Solve for mean of a given data set.</p> <p>LC.6.SP.B.5d Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for a given data set.</p> <p>LC.6.SP.B.5e Explain or identify what the median represents in a set of data.</p> <p>LC.6.SP.B.5f Use measures of central tendency to interpret data including overall patterns in the data.</p> <p>LC.6.SP.B.5g Solve for the median of a given data set.</p> <p>LC.6.SP.B.5h Identify outliers, range, mean, median, and mode.</p>