Creve Coeur School District 76   Mathematics

Grade 6

Mathematical Practices
Students will be able to demonstrate the following practices at the cognitive level of this grade:
- *Make sense of problems and persevere in solving them.*
- *Reason abstractly and quantitatively.*
- *Construct viable arguments and critique the reasoning of others.*
- *Model with mathematics.*
- *Use appropriate tools strategically.*
- *Attend to precision.*
- *Look for and make use of structure.*
- *Look for and express regularity in repeated reasoning.*

Ratios and Relationships

Content	District Code	Essential Skill	1	2	3	4
Ratio Concepts and Reasoning Ratios. ILS10 6.RP.1	6.RP.1	Write ratio notation (___:___, ___to___, ___/___).		M		
	6.RP.2	Write ratios in the proper order.		M		
	6.RP.3	Simplify ratios.		M		
	6.RP.4	Compare two quantities (same units or different units) using ratios - What is a ratio?		M		
	6.RP.5	Recognize that ratios appear in a variety of contexts (part-to-whole, part-to-part, and rates).		M		
	6.RP.6	Generalize that all ratios relate two quantities or measures within a given situation in a multiplicative relationship.		M		
	6.RP.7	Analyze content or text to determine which kind of ratio is represented within a real-world situation.		M		
Ratio Concepts and Reasoning Rates. ILS10 6.RP.2	6.RP.8	Identify and calculate a unit rate.		M		
	6.RP.9	Use appropriate math terminology as related to rate, for example "per", "for each", "for every."		M		
	6.RP.10	Analyze the relationship between a ratio a:b and a unit rate a/b where b≠0.		M		
Ratio Concepts and Reasoning Equivalent Ratios and Percents. ILS10 6.RP.3	6.RP.11	Make a table of equivalent ratios using whole numbers.		M		
	6.RP.12	Find the missing values in a table of equivalent ratios.		M		
	6.RP.13	Use tables to compare proportional quantities (equivalent ratios).		M		
	6.RP.14	Plot pairs of values that represent equivalent ratios on a coordinate plane.		M		
	6.RP.15	Define a percent as a ratio of a number out of 100.			M	
	6.RP.16	Find a percent of a number as a rate per 100.			M	
	6.RP.17	Solve real-world and mathematical problems involving ratios and rates, e.g. by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations (Singapore Models).			M	
	6.RP.18	Apply the concept of a unit rate to solve real-world problems involving unit price - What is the better buy? And constant speed.			M	
	6.RP.19	Solve real-world problems involving finding the whole, given a part and a percent.			M	
	6.RP.20	Apply ratio reasoning to convert measurement units in real-world and mathematical problems.			M	
Number Sense Division of Fractions. ILS10 6.NS.1	6.NS.1	Compute quotients of fractions divided by fractions (including mixed numbers).	M			
	6.NS.2	Interpret quotients of fractions.	M			

Note: Instructional Mastery indicates the quarter in which students are expected to have mastered the skill.

Creve Coeur School District 76   Mathematics

Content	District Code	Essential Skill	Instructional Mastery 1	2	3	4
	6.NS.3	Solve word problems involving division of fractions by fractions (e.g. using visual fraction models and equations to represent the problem).	M			
Number Sense Multi-digit Computation with Whole Numbers. ILS10 6.NS.2	6.NS.4	Make connections between models and the standard algorithm for division of fractions.	M			
	6.NS.5	Fluently divide multi-digit numbers using the standard algorithm with speed and accuracy.	I			M
Number Sense Multi-digit Computation with Decimals. ILS10 6.NS.3	6.NS.6	Make connections between models and the standard algorithms for decimal operations.	M			
	6.NS.7	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm with speed and accuracy.	I			M
Number Sense Factors and Multiples. ILS10 6.NS.4	6.NS.8	Identify the factors of two whole numbers less than or equal to 100 and determine the greatest common factor (using the listing method and/or prime factorization).	I	M		
	6.NS.9	Identify the multiples of two whole numbers less than or equal to twelve and determine the least common multiple (using the listing method and/or prime factorization).	I	M		
	6.NS.10	Apply the distributive property to rewrite addition problems by factoring out a common factor or the greatest common factor.	M			
Number Sense Integers. ILS10 6.NS.5	6.NS.11	Identify an integer and its opposite.			M	
	6.NS.12	Use integers to represent quantities in real-world situations (above/below sea level, above/below zero, credit/debt, etc.) and explain how zero fits into the situation.			M	
Number Sense Graphing Rational Numbers. ILS10 6.NS.6	6.NS.13	Reason that the opposite of the opposite of a number is the number itself			M	
	6.NS.14	Identify a rational number as a point on a number line.	I		M	
	6.NS.15	Identify the location of zero on a number line in relation to positive and negative numbers.	I		M	
	6.NS.16	Recognize opposite signs of numbers as locations on opposite sides of zero on a number line.			M	
	6.NS.17	Find and position integers and other rational numbers on a horizontal or vertical number line diagram.	I		M	
	6.NS.18	Find and position pairs of integers and other rational numbers on a coordinate plane.	I		M	
	6.NS.19	Recognize that the signs of both numbers in an ordered pair indicate in which quadrant of the coordinate plane the ordered pair will be located.			M	
	6.NS.20	Reason that when only the x value of ordered pairs are opposites it creates a reflection over the y axis; (x,y) and (-x,y) (points, not shapes).			M	
	6.NS.21	Reason that when only the y value of ordered pairs are opposites it creates a reflection over the x axis; (x,y) and (x, -y)			M	
	6.NS.22	Reason that when two ordered pairs differ only by signs, the locations of the points are related by reflections across both axes; (x,y) and (-x,-y).			M	
Number Sense Ordering Rational Numbers. ILS10 6.NS.7	6.NS.23	Order rational numbers on a number line.	I			M
	6.NS.24	Identify absolute value of rational numbers.	I			M
	6.NS.25	Interpret statements of inequality as statements about relative position of two numbers on a number line diagram.	I			M
	6.NS.26	Write, interpret, and explain statements of order for rational numbers in real-world contexts.	I			M
	6.NS.27	Interpret absolute value as magnitude for a positive or negative quantity in real-world situations.	I			M
	6.NS.28	Distinguish comparisons of absolute value from statements about order and apply to real-world contexts.	I			M
Number Sense Coordinate Plane. ILS10 6.NS.7 ILS10 6.NS.8	6.NS.29	Solve real-world problems by graphing points in all four quadrants of the coordinate plane.	I			M
	6.NS.30	Given only coordinates, calculate the distances between two points with the same first coordinate or the same second coordinate using absolute value.	I		M	

Note: Instructional Mastery indicates the quarter in which students are expected to have mastered the skill.

Creve Coeur School District 76   Mathematics

Content	District Code	Essential Skills	Instructional Mastery			
			1	2	3	4
Numerical Expressions Exponents. *ILS10 6.EE1*	6.EE.1	Write numerical expressions involving whole number exponents (e.g., 3^4 = 3x3x3x3).			M	
	6.EE.2	Evaluate numerical expressions involving whole number exponents (e.g., 3^4 = 3x3x3x3 = 81).			M	
	6.EE.3	Apply order of operations in expressions which contain exponents (with or without parentheses) (e.g., $3 + 2^2 - (2 + 3) = 2$).	I			M
Algebraic Expressions Using Variables. *ILS10 6.EE.2 ILS10 6.EE.3*	6.EE.4	Use a variable to represent an unknown quantity.	I		M	
	6.EE.5	Translate written phrases into algebraic expressions.	I		M	
	6.EE.6	Translate algebraic expressions into written phrases.				
	6.EE.7	Identify parts of an expression using mathematical terms (sum, difference, product, quotient, factor, variable, term, and coefficient, constant).	I		M	
	6.EE.8	View one or more parts of an expression as a single entity. (EX) Describe the expression 2(8+7) as a product of two factors; view (8+7) as both a	I	M		
	6.EE.9	single entity and a sum of two items.				
	6.EE.10	Write and evaluate algebraic expressions (using substitution), including those that arise from real-world problems.	I		M	
Algebraic Expressions Equivalent Expressions. *ILS10 6.EE.4*	6.EE.11	Generate equivalent expressions by applying the properties of operations. (e.g. distributive property, associative property, adding like terms with the addition property of equality, etc.).	I		M	
	6.EE.12	Demonstrate (using various strategies) that two expressions are equivalent no matter what number is substituted.	I		M	
Equations and Inequalities Evaluating. *ILS10 6.EE.5*	6.EE.13	Recognize solving an equation or inequality as a process of answering "which values from a specified set, if any, make the equation or inequality true?"				M
	6.EE.14	Use substitution to determine whether a given number in a specified set is the solution which makes an equation or inequality true.				M
Equations and Inequalities Using Variables. *ILS10 6.EE.6*	6.EE.15	Write equations to solve a real-world or mathematical problem.	I			M
Equations and Inequalities Inverse Operations. *ILS10 6.EE.7*	6.EE.16	Develop a rule for solving one-step equations with nonnegative rational coefficients.				M
	6.EE.17	Define inverse operation.		I		M
	6.EE.18	Identify the inverse operation that should be used to solve a one-variable equation.				M
	6.EE.19	Write and solve equations (using inverse operations) for real-world mathematical problems containing one unknown, where all quantities are nonnegative rational numbers.				M
Equations and Inequalities. *ILS10 6.EE.8*	6.EE.20	Identify the constraint or condition in a real-world or mathematical problem in order to set up an inequality.				M
	6.EE.21	Recognize that inequalities of the form x > c or x < c have infinitely many solutions.				M
	6.EE.22	Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem.				M
	6.EE.23	Represent solutions to inequalities or the form x > c or x < c, with infinitely many solutions, on number line diagrams.				M
Equations and Inequalities Dependent and Independent Variables. *ILS10 6.EE.9*	6.EE.24	Define independent and dependent variables.		M		
	6.EE.25	Use variables to represent two quantities in a real-world problem that change in relationship to one another.	I	M		
	6.EE.26	Write an equation to express one quantity (dependent) in terms of the other quantity (independent).	I	M		
	6.EE.27	Analyze the relationship between the dependent variable and independent variable using tables and graphs.	I	M		
	6.EE.28	Relate the data in a graph and table to the corresponding equation.	I	M		
Geometry Area. *ILS10 6.G.1*	6.G.1	Recognize and know how to compose and decompose polygons into triangles and rectangles.	I			M
	6.G.2	Compare the area of a triangle to the area of the composed rectangle. (Decomposition addressed in previous grade.)	I			M
	6.G.3	Apply the techniques of composing and/or decomposing to find the area of triangles, special quadrilaterals and polygons to solve mathematical and real world problems.	I			M
	6.G.4	Discuss, develop and justify formulas for triangles and special quadrilaterals, such as parallelograms (6th grade introduction).	I			M

Note: Instructional Mastery indicates the quarter in which students are expected to have mastered the skill.

Creve Coeur School District 76   Mathematics

Content	District Code	Essential Skills	Instructional Mastery 1	2	3	4
Geometry Volume. *ILS10 6.G.2*	6.G.5	Calculate the volume of a right rectangular prism and cube.	I			M
	6.G.6	Model the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of appropriate unit fraction edge lengths.	I			M
	6.G.7	Apply volume formulas for right rectangular prisms to solve real-world and mathematical problems involving rectangular prisms with fractional edge lengths and make the connection between the result of the formula and the result of packing it with unit cubes.	I			M
Geometry Coordinate Plane. *ILS10 6.G.3*	6.G.8	Draw polygons in the coordinate plane.	I			M
	6.G.9	Use coordinates (with the same x-coordinate or the same y-coordinate) to find the length of a side of a polygon.	I			M
	6.G.10	Apply the technique of using coordinates to find the length of a side of a polygon drawn in the coordinate plane to solve real-world and mathematical problems.	I			M
Geometry Surface Area. *CSS 6.G.4*	6.G.11	Match three-dimensional figures with their nets.	I			M
	6.G.12	Represent three-dimensional figures using nets made up of rectangles and triangles.	I			M
	6.G.13	Apply knowledge of calculating the area of rectangles and triangles in a net and combine representing the surface area of a three-dimensional figure.	I			M
	6.G.14	Solve real-world and mathematical problems involving surface area using nets.	I			M
Statistics Recognition. *ILS10 6.SP.1*	6.SP.1	Recognize that data can have variability.				M
	6.SP.2	Recognize and create a statistical question and a non-statistical question.				M
Statistics Distribution of Data. *ILS10 6.SP.2*	6.SP.3	Identify that a set of data has a distribution.				M
	6.SP.4	Describe a set of data by its center (e.g. mean and median).				M
	6.SP.5	Describe a set of data by its spread (range) and overall shape, e.g. by identifying data clusters, peaks, gaps and symmetry (ex. bell curve).				M
Statistics Measures of Central Tendency and Variance. *ILS10 6.SP.3*	6.SP.6	Recognize there are measures of central tendency for a data set, e.g., mean, median, mode.				M
	6.SP.7	Recognize there are measures of variances for a data set, e.g., range, interquartile range, mean absolute deviation.				M
	6.SP.8	Recognize that measures of central tendency for a data set summarize the data with a single number.				M
	6.SP.9	Recognize that measures of variation for a data set describe how its values vary with a single number.				M
Statistics Data Display. *ILS10 6.SP.4* *ILS10 6.SP.5*	6.SP.10	Identify the components of dot plots, histograms, and box plots.				M
	6.SP.11	Find the median, quartile and interquartile range of a set of data.				M
	6.SP.12	Create a box plot to display a set of numerical data.				M
	6.SP.13	Create a dot plot to display a set of numerical data.				M
	6.SP.14	Create a histogram to display a set of numerical data.				M
	6.SP.15	Analyze a set of data to determine its variance.				M
Statistics Analysis of Data and Data Displays. *ILS10 6.SP.4* *ILS10 6.SP.5*	6.SP.16	Organize and display data in tables and graphs.	I			M
	6.SP.17	Report the number of observations in a data set or display.				M
	6.SP.18	Describe the data being collected, including how it was measured and its units of measurement.				M
	6.SP.19	Calculate quantitative measures of center (e.g., mean, median, and mode).				M
	6.SP.20	Calculate quantitative measures of variance, e.g., range, interquartile range, mean absolute deviation.				M
	6.SP.21	Identify outliers.				M
	6.SP.22	Determine the effect of outliers on quantitative measures of a set of data, e.g. mean, median, mode, range, interquartile range, mean absolute deviation.				M
	6.SP.23	Analyze the shape of the data distribution and the context in which the data were gathered				M
	6.SP.24	Choose the appropriate measures of central tendency and variability to represent the data and justify why this measure is appropriate in terms of the context.				M

Note: Instructional Mastery indicates the quarter in which students are expected to have mastered the skill.