

Math Curriculum Unit
Gasconade County R-2 School District

Standard Highlights Key	
Highlight	Meaning
Red	We'll Fix (Essential to know to go to OHS, picked by OHS teachers, use RTI to make sure all students know how to do this)
Yellow	I'll Fix (Important to know, address in class)
Green	Drip (Something that repeated exposure will fix)

Grade Level: 8th Grade

Subject: Math

Month	Mathematics Missouri Learning Standards	Key Mathematics and Academic Vocabulary	MathLinks to New MLS	Essential Questions
August - September	<p style="background-color: #fff28b;">8.EE1.A.1</p> <p style="background-color: #c6e0b4;">8.EE1.A.2b</p> <p style="background-color: #c6e0b4;">8.EE1.A.2a</p> <p style="background-color: #c6e0b4;">8.EE1.A.2c</p> <p style="background-color: #c6e0b4;">8.NS.A.2</p>	<p>Perfect Square: the product of an integer times itself.</p> <p>Square root of x: a number that when multiplied by itself is equal to x.</p> <p>Cube root of x: a number that when raised to the third power is equal to x.</p> <p>Perfect cube: the product of an integer used as a factor 3 times.</p> <p>Irrational number: a number that cannot be</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC</p>	<p>I can know and apply the properties of integer exponents to generate equivalent expressions.</p> <p>I can investigate concepts of square and cube roots solving equations in the form of $X^2=p$ and $x^3=p$, where p is a positive rational number.</p> <p>I can investigate concepts of square and cube roots, evaluate square roots of perfect squares less than or equal to 625 and cube roots of perfect cubes less than or equal to 1000.</p> <p>I can recognize that square roots of non-perfect squares are irrational.</p> <p>I can estimate the value and compare the size of irrational numbers and approximate their locations on a number line.</p> <p>I can convert decimals which repeat into fractions, and fractions into repeating decimals.</p>

	<p>8.NS.A.1a</p> <p>8.NS.A.1b</p> <p>8.NS.A.1c</p> <p>8.NS.A.1d</p>	<p>expressed as a quotient of two integers, terminating decimal, or repeating decimal.</p> <p>Real Numbers: all rational and irrational numbers.</p> <p>Rational Number: a number that can be expressed as a quotient of two integers, a repeating decimal, or a terminating decimal.</p>	<p>Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level Blueprints</p>	<p>I can understand that all rational numbers have a decimal expansion that terminates or repeats.</p> <p>I can know the difference between rational and irrational numbers</p> <p>I can generate equivalent representations of rational numbers.</p>
October	<p>8.EE1.A3</p> <p>8.EE1.A.4a</p> <p>8.EE1.A.4b</p> <p>8.F.A.1</p> <p>8.F.A.1c</p> <p>8.F.A.2</p> <p>8.F.A.3a</p> <p>8.F.A.3b</p>	<p>Scientific Notation: numbers written in the form $n \times 10^a$, where $1 \leq n < 10$ and a is an integer.</p> <p>Function: a relationship between an independent variable, x, and a dependent variable, y, where each value of x (input) has one and only one value of y (output).</p> <p>Rate of change: the ratio of vertical change (change in y) to horizontal change (change in x) in a function; the rate at which the quantity represented by y increases or decreases with respect to a change in the quantity represented by x.</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level</p>	<p>I can express very large and very small quantities in scientific notation and approximate how many times larger one is than the other.</p> <p>I can perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.</p> <p>I can use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.</p> <p>I can understand that a function assigns to each input exactly one output.</p> <p>I can determine if a relation is a function.</p> <p>I can graph a function.</p> <p>I can compare characteristics of two functions each represented in a different way.</p> <p>I can interpret the equation $y = mx + b$ as defining a linear function, whose parameters are the slope (m) and the y-intercept (b).</p> <p>I can recognize that the graph of a linear function has a constant rate of change.</p>

	<p>8.F.A.3c</p>	<p>Initial value: the starting output value of a function.</p> <p>Linear function: a function with a graph that is a non-vertical straight line, which can be represented by a linear equation in the form $y = mx + b$</p>	<p>Blueprints</p>	<p>I can give examples of nonlinear functions.</p>
<p>November</p>	<p>8.F.B.4a</p> <p>8.F.B.4b</p> <p>8.F.B.4c</p> <p>8.F.B.5</p>	<p>Slope: the rate of change of a linear function; for any two points on the graph, rise/run or change in y-value/change in x-value; in the equation $y = mx + b$, the value of m.</p> <p>Y-intercept: the initial value of a linear function; the y-coordinate for the point where the graph crosses the y-axis; in the equation $y = mx + b$, the value of b.</p> <p>Qualitative graph: a graph that represents a function visually, not with numbers</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level</p>	<p>I can determine the x-intercept of a linear function.</p> <p>I can determine the parameters of a linear function.</p> <p>I can explain the parameters of a linear function based on the context of a problem.</p> <p>I can determine the parameters of a linear function.</p> <p>I can determine the x-intercept of a linear function.</p> <p>I can describe the functional relationship between two quantities from a graph or a verbal description.</p>

			Blueprints	
December	<p>8.EE1.B.5a</p> <p>8.EE1.B.5b</p> <p>8.EE1.B.6a</p> <p>8.EE1.B.6b</p> <p>8.EE1.C.7a</p> <p>8.EE1.C.7b</p> <p>8.EE1.C.8c</p>	<p>Slope: the ratio of the vertical change to the horizontal change.</p> <p>Y-intercept: the y-coordinate of the point where a line crosses the y-axis</p> <p>Proportional Relationship: the relationship among a group of the rates that are equivalent.</p> <p>Unit Rate: the part of the rate that is being compared to 1</p> <p>Constant of Proportionality: the unit rate in a proportional relationship.</p> <p>Similar Triangles: triangles that are scale drawings of another---they have the same shape but may have a different size.</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level Blueprints</p>	<p>I can interpret the unit rate as the slope of the graph.</p> <p>I can compare two different proportional relationships.</p> <p>I can explain why the slope (m) is the same between any two distinct points on a non-vertical line is the Cartesian coordinate plane.</p> <p>I can derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.</p> <p>I can create and identify linear equations with one solution, infinitely many solutions or no solutions.</p> <p>I can solve linear equations and inequalities in one variable.</p> <p>I can solve linear equations and inequalities with rational number coefficients, including equations and inequalities whose solutions require expanding expressions using the distributive property and combining like terms.</p> <p>I can explain why systems of linear equations can have one solution, no solution or infinitely many solutions.</p>
January	<p>8.EE1.C.8a</p> <p>8.EE1.C.8b</p> <p>8.EE1.C.8d</p>	<p>System of Linear equations: a group of two or more linear equations that share two or more variables.</p> <p>Slope-intercept form: $y = mx + b$, where m is the slope and b is the y-intercept</p> <p>Substitution: A strategy</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p>	<p>I can graph systems of linear equations and recognize the intersection as the solution to the system.</p> <p>I can explain why solution(s) to a system of two linear equations in two variables correspond to point(s) of intersection of the graphs.</p> <p>I can solve systems of two linear equations.</p>

		<p>for solving systems of equations that include solving for one variable and using that solution to find the other variable.</p> <p>Elimination: A strategy for solving systems of equations by transforming the system such that one variable "cancels out"</p>	<p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level Blueprints</p>	
February	<p>8.GM.A.1a</p> <p>8.GM.A.1b</p> <p>8.GM.A.2a</p> <p>8.GM.A.3</p> <p>8.GM.A.4a</p>	<p>Transformation: a change in position or size of a figure</p> <p>Translation: a transformation that moves each point of a figure the same distance and in the same direction</p> <p>Reflection: a transformation that flips a figure over a line of reflection</p> <p>Line of Reflections: a line across which a figure is reflected</p> <p>Rotation: a transformation that turns a figure around a fixed point</p> <p>Center of Rotation: a fixed point around which a figure is rotated</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level</p>	<p>I can verify that angle measure, betweenness, collinearity and distance are preserved under rigid transformations.</p> <p>I can investigate if orientation is preserved under rigid transformations.</p> <p>I can describe a possible sequence of rigid transformations between two congruent figures.</p> <p>I can describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.</p> <p>I can understand that two-dimensional figures are similar if a series of transformations (rotations, reflections, translations and dilations) can be performed to map the pre-image to the image.</p> <p>I can describe a possible sequence of transformations between two similar figures.</p>

		<p>Congruent: exactly equal in size and shape</p> <p>Dilation: transformation in which the pre-image and the image are similar</p> <p>Scale Factor: the ratio of a pair of corresponding sides of similar figures</p> <p>Center: the point that is transformed to itself by a dilation</p>	Blueprints	
March	<p>8.GM.A.5a</p> <p>8.GM.A.5b</p> <p>8.GM.A.5c</p> <p>8.GM.A.5d</p>	<p>Transversal: a line that crosses two or more lines, which may be parallel</p> <p>Corresponding angles: a pair of angles in the same position relative to the parallel lines and the transversal.</p> <p>Alternate Interior Angles: a pair of angles between the parallel lines on opposite sides of the transversal</p> <p>Linear Pair: two angles that are adjacent and supplementary</p> <p>Same-side interior angle: a pair of angles on the same side of a transversal and</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p>	<p>I can derive the sum of the interior angles of a triangle.</p> <p>I can explore the relationship between the interior and exterior angles of a triangle.</p> <p>I can construct and explore the angles created when parallel lines are cut by a transversal.</p> <p>I can use the properties of similar figures to solve problems.</p>

		<p>between the lines cut by the transversal</p> <p>Exterior Angle: an angle formed by one side of a simple, closed polygon and a line extended from an adjacent angle</p>	<p>MAP Grade Level Blueprints</p>	
April	<p>8.GM.B.6</p> <p>8.GM.B.7</p> <p>8.GM.B.8</p> <p>8.GM.C.9a</p> <p>8.GM.C.9b</p>	<p>Theorem: a statement that has been proven on the basis of previously established and accepted statements</p> <p>Pythagorean Theorem: in any right triangle, the sum of the squares of the lengths of the legs a and b is equal to the square of the length of the hypotenuse, c: $a^2 + b^2 = c^2$</p> <p>Leg: a side of a right triangle that is adjacent to the right angle</p> <p>Hypotenuse: the side of a right triangle opposite the right angle</p> <p>Ordered Pair: an x-coordinate and a y-coordinate written in the format (x,y)</p> <p>Right Triangle: a triangle with one right angle</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level Blueprints</p>	<p>I can use models to demonstrate a proof of the Pythagorean Theorem and its converse.</p> <p>I can use the Pythagorean Theorem to determine unknown side lengths in right triangles for problems within two- and three-dimensional contexts.</p> <p>I can use the Pythagorean Theorem to find the distance between points in a Cartesian coordinate system.</p> <p>I can solve problems involving surface area and volume</p> <p>I can understand the concept of surface area and find surface area of pyramids.</p> <p>I can understand the concepts of volume and find the volume of pyramids, cones and spheres.</p>

		<p>Square: a number to the second power</p> <p>Cylinder: a solid geometric figure with straight parallel sides and a circular or oval cross section</p> <p>Cone: a solid or hollow object that tapers from a circular or roughly circular base to a point</p> <p>Sphere: a round solid figure, or its surface, with every point on its surface equidistant from its center</p> <p>Volume: the amount of space that a substance or object occupies, or that is enclosed within a container</p>		
May	<p>8.DSP.A.1</p> <p>8.DSP.A.2</p> <p>8.DSP.A.3</p> <p>8.DSP.A.4a</p> <p>8.DSP.A.4b</p>	<p>Scatter Plot: a graph of ordered pairs in the coordinate plane that represents the values of two variables</p> <p>Bivariate: involving two variables</p> <p>Outlier: a data value that is much greater or much less than most of the other values in the data set</p>	<p>Item Specification Reports</p> <p>K-5 Missouri Learning Standards</p> <p>6-12 Missouri Learning Standards</p> <p>K-6 Math Glossary</p> <p>7-12 Math</p>	<p>I can construct and interpret scatter plots of bivariate measurement data to investigate patterns of association between two quantities.</p> <p>I can generate and use a trend line for bivariate data, and informally assess the fit of the line.</p> <p>I can interpret the parameters of a linear model of bivariate measurement data to solve problems.</p> <p>I can construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.</p> <p>I can use relative frequencies calculated for rows or columns to describe possible association between the two variables.</p>

	<p>Association: the relationship between two variables</p> <p>Positive Association: when one variable increases with an increase in the second variable</p> <p>Negative Association: when one variable decreases with an increase in a second variable</p> <p>Linear: relating to a straight line</p> <p>Nonlinear: not relating to a straight line</p> <p>Residual: the vertical distance between a data point and a best-fit line in a scatter plot</p> <p>Best-fit line: a straight line that matches the pattern of a set of paired data as closely as possible</p> <p>Categorical Data: a data set that is divided into different categories</p>	<p>Glossary</p> <p>Missouri EOC Math Reference Sheet</p> <p>End of Course Blueprints</p> <p>MAP Grade Level Blueprints</p>	
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