

Cartersville Middle School Curriculum Map			7 <sup>th</sup> Grade 1 <sup>st</sup> Semester	
Unit	Essential Standard(s)	Learning Targets for Essential Standards	Supporting Standards	Learning Targets for Supporting Standards
<p><b>Unit 1:</b> Rational Numbers</p> <p><b>Estimated Teaching Time:</b> 30 Days</p>	<p><b>MGSE7.NS.1</b> Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p> <p><b>MGSE7.NS.2</b> Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> <p><b>MGSE7.NS.3</b> Solve real-world and mathematical problems involving the four operations with rational numbers.</p>	<p>I can add and subtract rational numbers on a horizontal and vertical line.</p> <p>I can add, subtract, multiply, and divide rational numbers</p> <p>I can solve real world problems with rational numbers.</p>	<p><b>MGSE7.NS.1a</b> Show that a number and its opposite have a sum of zero.</p> <p><b>MGSE7.NS.1b</b> Understand <math>p + q</math> as the number located a distance from <math>p</math>, in the positive or negative direction depending on whether <math>q</math> is positive or negative. Interpret sums of rational numbers by describing real world contexts.</p> <p><b>MGSE7.NS.1c</b> Understand subtraction of rational numbers as adding the additive inverse, <math>p - q = p + (-q)</math>. Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in real-world contexts.</p> <p><b>MGSE7.NS.1d</b> Apply properties of operations as strategies to add and subtract rational numbers.</p> <p><b>MGSE7.NS.2a</b> Understand that multiplication is extended from fractions to rational numbers by</p>	<p>I can explain what a rational number is and write it as a decimal and fraction.</p> <p>I understand that a number and its opposite are additive inverses, are the same distance from 0, and have a sum of 0.</p> <p>I can subtract integers by adding the additive inverse.</p> <p>I can apply my integers rules to multiplying and dividing rational numbers.</p>

			<p>requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p> <p><b>MGSE7.NS.2b</b> Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If <math>p</math> and <math>q</math> are integers, then <math>-(p/q) = (-p)/q = p/(-q)</math>. Interpret quotients of rational numbers by describing real-world contexts.</p> <p><b>MGSE7.NS.2c</b> Apply properties of operations as strategies to multiply and divide rational numbers.</p> <p><b>MGSE7.NS.2d</b> Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p>	
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<p><b>Unit 2:</b> Expressions and Equations</p> <p><b>Estimated Teaching Time:</b> 30 Days</p>	<p><b>MGSE7.EE.1</b> Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p><b>MGSE7.EE.3</b> Solve multistep real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals) by applying properties of operations as strategies to calculate with numbers, converting between forms as appropriate, and assessing the reasonableness of answers using mental computation and estimation strategies.</p> <p><b>MGSE7.EE.4</b> Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p>	<p>I can evaluate expressions.</p> <p>I can add, subtract, factor, and expand linear expressions.</p> <p>I can write and solve multi-step equations.</p> <p>I can write, solve and graph multi-step inequalities.</p>	<p><b>MGSE7.EE.2</b> Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related.</p> <p><b>MGSE7.EE.4a</b> Solve word problems leading to equations of the form <math>px + q = r</math> and <math>p(x + q) = r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic</p> <p><b>MGSE7.EE.4b</b> Solve word problems leading to inequalities of the form: <math>px + q &gt; r</math> or <math>px + q &lt; r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.</p> <p><b>MGSE7.EE.4c</b> Solve real-world and mathematical problems by writing and solving equations of the form <math>x + p = q</math> and <math>px = q</math> in which <math>p</math> and <math>q</math> are rational numbers</p>	<p>I can rewrite expressions in different forms.</p> <p>I can translate verbal phrases into expression and equations.</p> <p>I understand that adding a 5% increase is the same as multiplying by 1.05: <math>x + x(0.05) = 1.05x</math></p> <p>I understand that subtracting a 5% discount is the same as multiplying by 0.95: <math>x - x(0.05) = 0.95x</math></p> <p>I can explain what solutions to equations and inequalities mean in context.</p>
<p><b>Unit 3:</b> Ratios and Proportions</p> <p><b>Estimated Teaching Time:</b> 25 Days</p>	<p><b>MGSE7.RP.1</b> Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a</p>	<p>I can solve problems involving ratios of fractions and their associated rates.</p> <p>I can write ratios to represent practical problems.</p>	<p><b>MGSE7.RP.2a</b> Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the</p>	<p>I can understand that a proportional relationship can be represented in a table or the coordinate plane by a line that includes the origin, or a collection of points that lie on such a line.</p>

	<p>person walks <math>\frac{1}{2}</math> mile in each <math>\frac{1}{4}</math> hour, compute the unit rate as the complex fraction <math>(\frac{1}{2})/(\frac{1}{4})</math> miles per hour, equivalently 2 miles per hour.</p> <p><b>MGSE7.RP.3</b> Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, and fees.</p>	<p>I can compute unit rates in the real-world problems that involve complex fractions.</p> <p>I can compare unit rates with ratios of fractions.</p> <p>I can solve multi-step ratio and percent problems.</p> <p>I can solve problems involving percent error and percent increase/decrease.</p> <p>I can use the structure of percent error and percent increase/decrease problems to explain how the formulas for these concepts are similar.</p> <p>I can use proportional relationships within the contexts where percentages show up in life: tip, gratuity, commission, interest, markup, discount, tax.</p>	<p>graph is a straight line through the origin.</p> <p><b>MGSE7.RP.2b</b> Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p><b>MGSE7.RP.2d.</b> Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math> where <math>r</math> is the unit rate.</p> <p><b>MGSE7.RP.2</b> Recognize and represent proportional relationships between quantities.</p> <p><b>MGSE7.RP.2c</b> Represent proportional relationships by equations.</p>	<p>I can determine whether a relationship is proportional using a table.</p> <p>I can decide whether a relationship is proportional using a graph and a quotient.</p> <p>I can compute the constant of proportionality for a proportional relationship represented by a table.</p> <p>I can recognize that proportional relationships have two constants of proportionality that are reciprocals.</p> <p>I can represent a proportional relationship between <math>x</math> and <math>y</math> as both <math>y=kx</math> and <math>x=(\frac{1}{k})y</math>.</p> <p>I can translate a proportional relationship from a verbal description to a diagram and explain in writing how the diagram shows a proportional relationship.</p> <p>I can explain the meaning of a point on a graph.</p> <p>I can find the constant of proportionality and interpret it in context when given the graph of a proportional relationship.</p>
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Cartersville Middle School		7 <sup>th</sup> Grade Math 2 <sup>nd</sup> Semester		
Unit	Essential Standard(s)	Learning Targets for Essential Standards	Supporting Standards	Learning Targets for Supporting Standards
<b>Unit 4:</b> Inferences  <b>Estimated Teaching Time:</b>  20 Days	<p><b>MGSE7.SP.1</b> Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.</p> <p><b>MGSE7.SP.4</b> - Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</p>	<p>I can identify populations and samples and describe the differences between the two.</p> <p>I understand that a sample needs to be representative of the population to make a valid inference.</p> <p>I can identify and describe representative and non-representative samples.</p> <p>I can use measures of center and variation to draw conclusions about two populations.</p> <p>I can calculate and compare the measure of center for two populations.</p> <p>I can calculate and compare the variability for two populations.</p>	<p><b>MGSE7.SP.2</b> Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.</p> <p><b>MGSE7.SP.3</b> Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the medians by expressing it as a multiple of the interquartile range.</p>	<p>I can explain multiple ways to make random samples from the same population.</p> <p>I can compare variability between two samples by looking at graphs.</p> <p>I can use the mean, median, mode, range, and IQR to describe variability between samples.</p>
<b>Unit 5:</b> Probability  <b>Estimated Teaching Time:</b>  20 Days	<p><b>MGSE7.SP.5</b> Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an</p>	<p>I can identify the probability of an event as a number between zero and one, written as a fraction, decimal, or percent.</p> <p>I can express the probability of events as likely, unlikely, or as</p>	<p><b>MGSE7.SP.6</b> Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency. Predict the approximate relative frequency</p>	<p>I can use theoretical probability to make predictions.</p> <p>I can determine the possible outcomes using the Counting Principle.</p>

	<p>unlikely event, a probability around <math>\frac{1}{2}</math> indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.</p> <p><b>MGSE7.SP.7</b> Develop a probability model and use it to find probabilities of events. Compare experimental and theoretical probabilities of events. If the probabilities are not close, explain possible sources of the discrepancy.</p>	<p>likely as not and use the benchmarks of 0, <math>\frac{1}{2}</math>, and 1</p> <p>I can conduct simple experiments and calculate probabilities.</p> <p>I can describe and compare uniform and non-uniform probability models.</p> <p>I can compare theoretical and experimental probability.</p>	<p>given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</p> <p><b>MGSE7.SP.8</b> Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p>	<p>I can represent sample space using organized lists, tables, and tree diagrams.</p> <p>I can design and use simulations to predict compound probabilities.</p>
<p><b>Unit 6:</b> Geometry</p> <p><b>Estimated Teaching Time:</b>  25 Days</p>	<p><b>MGSE7.G.2</b> Explore various geometric shapes with given conditions. Focus on creating triangles from three measures of angles and/or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.</p> <p><b>MGSE7.G.5</b> Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p> <p><b>MGSE7.G.6</b> Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles,</p>	<p>I can describe conditions that will make one, none, or more than one triangle.</p> <p>I can identify and describe supplementary, complementary, adjacent, and vertical angles.</p> <p>I can use facts about different types of angles to write and solve equations for missing measures in a diagram.</p> <p>I can calculate the surface area and volume of three-dimensional figures.</p>	<p><b>MGSE7.G.1</b> Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.</p> <p><b>MGSE7.G.3</b> Describe the two-dimensional figures (cross sections) that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms, right rectangular pyramids, cones, cylinders, and spheres.</p> <p><b>MGSE7.G.4</b> Given the formulas for the area and circumference of a circle, use them to solve</p>	<p>I can use proportions to solve problems with scale factors.</p> <p>I can describe the two-dimensional cross-section formed by slicing a three-dimensional figure.</p> <p>I can calculate the circumference and area of a circle.</p>

	quadrilaterals, polygons, cubes, and right prisms.		problems; give an informal derivation of the relationship between the circumference and area of a circle.	
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