2024/2025 Cartersville Middle School Curriculum Map **Grade Level/Subject Area: 8th Math**

	Essential Standards	Essential Standard (s) Learning Targets	Supporting Standards	Supporting Standard (s) Learning Targets
Unit 1 (25 Days) **Investigating Linear Expressions, Equations, and Inequalities in One Variable**	8.PAR.3: Create and interpret expressions within relevant situations. Create, interpret, and solve linear equations and linear inequalities in one variable to model and explain real phenomena.	Understand equations and inequalities.	8.PAR.3.1 Interpret expressions and parts of an expression, in context, by utilizing formulas or expressions with multiple terms and/or factors. 8.PAR.3.2 Describe and solve linear equations in one variable with one solution (x = a), infinitely many solutions (a = a), or no solutions (a = b). Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers). 8.PAR.3.3 Create and solve linear equations and inequalities in one variable within a relevant, real-life application. 8.PAR.3.4 Using algebraic properties and the properties of real numbers, justify the steps of a one-solution equation or inequality. 8.PAR.3.5 Solve linear equations and inequalities in one variable with coefficients represented by letters and explain the solution based on the contextual, mathematical situation. 8.PAR.3.6 Use algebraic reasoning to fluently manipulate linear and literal equations expressed in various forms to solve relevant, mathematical problems.	I can compare and order rational and irrational numbers. I can find square roots and cube roots of rational numbers. I can solve equations including squares or cubes.

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	MGSE8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	I know and can apply the properties of integer exponents to solve problems. • Product • Quotient • Power to Power • Negative • Zero	**MGSE8.EE.3** Use numbers expressed in scientific notation to estimate very large or very small quantities, and to express how many times as much one is than the other. **MGSE8.EE.4** Add, subtract, multiply and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Understand scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology (e.g. calculators).	I can use scientific notation to write very large or very small numbers. I can perform operations with numbers in scientific notation. • Add • Subtract • Multiply • Divide
Unit 2 (30 Days) **Modeling Linear Relationships and Functions**	**8.FGR.5.7** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. **8.FGR.5.4** Compare properties (rate of change and initial value) of two functions used to model an authentic situation each	Unit 2A: I can identify slope (ROC) from a graph, two points, a table, an equation and from context. I can identify the y-intercept (initial value) from a graph, two points, a table, an equation and from context. I can write equations to describe linear relationships using the slope (ROC) and y-intercept (initial value). Unit 2B: I can compare properties of two linear functions represented in		I can use multi-step equations to model and solve real-life problems. I can determine the number of solutions an equation has. I can understand the slope of a line. I can find the y-intercept of a graph and explain what it means.

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	represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). **8.FGR.5.1** Show and explain that a function is a rule that assigns to each input exactly one output.	different ways (algebraically, graphically, numerically, or verbally.) Unit 2C: Ican tell whether a relation is a function.		I can derive the equation y = mx + b. I can graph a linear function. I can compare linear and nonlinear functions. I can describe the behavior of a function and write a description to go with its graph.
Unit 3 (20 Days) **Investigating Data and Statistical Reasoning**	**8.FGR.6.2** Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercepts. **8.FGR.6.**3 Explain the meaning of the predicted slope (rate of change) and the predicted intercept (constant term) of a linear model in the context of the data.	I can use scatter plots to describe relationships between data.	**8.FGR.6.1** Show that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, visually fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line of best fit. **8.FGR.6.4** Use appropriate graphical displays from data distributions involving lines of best fit to	I can construct a scatter plot and use it to understand the relationship between paired data. I can use a line to represent the relationship between the paired data. I can find an equation of a line of best fit. I can make a prediction by using the equation of a line that closely fits a set of data.
Unit 4 (20 Days) **Analyze and Solve Systems of Linear Equations**	**8.FGR.7** Justify and use various strategies to solve systems of linear equations to model and explain real-life phenomena	I can understand systems of linear equations. I can analyze and solve a system of equations by using the best method. ☺ graphing, ☺ substitution ☺ elimination.	**8.FGR.7.1** Interpret and solve relevant mathematical problems leading to two linear equations in two variables. **8.FGR.7.2** Show and explain that solutions to a system of two linear equations in two	■ I can identify a linear equation. ■ I can describe a system of linear equations. ■ I can solve a system of linear equations.

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			variables correspond to points of intersection of their graphs, because the points of intersection satisfy both equations simultaneously. **8.FGR.7.3** Approximate solutions of two linear equations in two variables by graphing the equations and solving simple cases by inspection. **8.FGR.7.4** Analyze and solve systems of two linear equations in two variables algebraically to find exact solutions. **8.FGR.7.5** Create and compare the equations of two lines that are either parallel to each other, perpendicular to each other, or neither parallel nor perpendicular.	■ I can model solving systems with different numbers of solutions.
Unit 5 (15Days) Exploring Irrational Numbers, Integer Exponents, and Scientific Notation	**8.NR.1** Solve problems involving irrational numbers and rational approximations of irrational numbers to explain real-life applications **8.NR.2** Solve problems involving radicals and integer exponents including relevant application situations; apply place value understanding with scientific notation and use scientific notation to explain real-life phenomena **MGSE8.SP.1** Construct and interpret scatter plots for	I can understand exponents and scientific notation. I can use scatter plots to describe relationships between data.	**8.NR.1.1** Distinguish between rational and irrational numbers using decimal expansion. Convert a decimal expansion which repeats eventually into a rational number. **8.NR.1.2** Approximate irrational numbers to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions. **8.NR.2.1** Apply the properties of integer exponents to generate equivalent numerical expressions **8.NR.2.2** Use square root and cube root symbols to represent solutions to equations. Recognize that x2 = p (where p is a positive	I can write products using exponents. I can describe the value of powers. I can evaluate expressions. I can compare quantities using scientific notation. I can construct a scatter plot and use it to understand the relationship between paired data.

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	bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.		rational number and $\|x\| \leq 25$) has two solutions and x3 = p (where p is a negative or positive rational number and $\|x\| \leq 10$) has one solution. Evaluate square roots of perfect squares ≤ 625 and cube roots of perfect cubes ≥ -1000 and ≤ 1000. **8.NR.2.3** Use numbers expressed in scientific notation to estimate very large or very small quantities, and to express how many times as much one is than the other. **8.NR.2.4** Add, subtract, multiply and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology (e.g., calculators or online technology tools). **MGSE8.SP.2** Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. **MGSE8.SP.3** Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. **MGSE8.SP.4** Understand that patterns of association can also be	I can use a line to represent the relationship between the paired data. I can find an equation of a line of best fit. I can make a prediction by using the equation of a line that closely fits a set of data.

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			seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. a. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. b. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	
Unit 6 (Days) **Exploring Geometric Relationships**	**MGSE8.G.7** Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensional.	I can use the Pythagorean Theorem to find unknown sides of triangles. I can use the Pythagorean Theorem to solve 2D and 3D problems.	**MGSE8.G.6** Explain a proof of the Pythagorean Theorem and its converse. **MGSE8.G.8** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system **MGSE8.G.9** Apply the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	I can use the Converse of the Pythagorean Theorem to identify right triangles. I can use the Converse of the Pythagorean Theorem to identify right triangles.

- GMAS Review 10-15 Days
- GMAS 6 Days
- Final Exams 2 Days