

Fulton County Schools 2022-2023

Math 7 Enhanced (7B/8) Curriculum Map

Semester 1

Click on the link in the table to view a video that shows instructional strategies for teaching each standard.

Unit 1		Unit 2		Unit 3		Unit 4		Unit 5A	
Geometry		Inferences		Probability		Transformations, Congruence and Similarity		Exponents and Equations: A	
16 days		16 days		11 days		16 days		22 days	
Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard
MGSE7.G.2		MGSE7.SP.1	MGSE6.SP.1 MGSE6.SP.2	MGSE7.SP.5		MGSE8.G.1		MGSE8.EE.1	
MGSE7.G.3		MGSE7.SP.2		MGSE7.SP.6	MGSE7.RP.3	MGSE8.G.2		MGSE8.EE.2 (evaluating)	MGSE7.NS.3
MGSE7.G.4	MGSE6.G.1	MGSE7.SP.3	MGSE6.NS.1 MGSE6.SP.2*	MGSE7.SP.7 MGSE7.SP.7a MGSE7.SP.7b	MGSE7.RP.3*	MGSE8.G.3		MGSE8.EE.3	
MGSE7.G.5		MGSE7.SP.4		MGSE7.SP.8a MGSE7.SP.8b MGSE7.SP.8c	MGSE7.RP.3*	MGSE8.G.4		MGSE8.EE.4	MGSE7.EE.3
MGSE7.G.6	MGSE6.G.1* MGSE6.G.2 MGSE6.G.4					MGSE8.G.5		MGSE8.NS.1	MGSE7.NS.2
								MGSE8.NS.2	

These units were written to build upon concepts from prior units, so later units contain tasks that depend upon the concepts addressed in earlier units.

All units will include the Mathematical Practices and indicate skills to maintain.

Prioritized standards in **RED**

Prerequisite standards in **BLUE**

Prerequisite prioritized standards in **BOLD BLUE**

Prerequisite standards already addressed are denoted with *

Underlined standards link to STATE IMPLEMENTATION VIDEOS

NOTE: Mathematical standards are interwoven and should be addressed throughout the year in as many different units and tasks as possible in order to stress the natural connections that exist among mathematical topics.

Grades 6-8 Key: NS = The Number System F = Functions EE = Expressions and Equations G = Geometry SP = Statistics and Probability

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Math 7 Enhanced (7B/8) Curriculum Map

Semester 2

Click on the link in the table to view a video that shows instructional strategies for teaching each standard.

Unit 5B		Unit 6		Unit 7		Unit 8		Unit 9	
Exponents and Equations: B		Geometric Applications of Exponents		Functions and Linear Functions		Linear Models and Tables and GMAS Review		Solving Systems of Equations	
11 days		16 days		22 days		Linear Models 16 days GMAS 5 days		22 days	
Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard	Grade Level Standard	Direct Prerequisite Standard
MGSE8.EE.7 MGSE8.EE.7a MGSE8.EE.7b	MGSE7.EE.4 MGSE7.EE.1	MGSE8.G.6		MGSE8.F.1	MGSE7.RP.2	MGSE8.F.4	MGSE7.RP.2*	MGSE8.EE.8	MGSE7.EE.4*
		MGSE8.G.7		<u>MGSE8.F.2</u>	MGSE7.RP.2*	<u>MGSE8.F.5</u>		MGSE8.EE.8a	
		MGSE8.G.8		MGSE8.EE.5	MGSE7.RP.2*	MGSE8.SP.1		MGSE8.EE.8b	
		MGSE8.G.9		MGSE8.EE.6	MGSE7.RP.2* MGSE7.G.1	MGSE8.SP.2		MGSE8.EE.8c	
		MGSE8.EE.2 (equations)		MGSE8.F.3		MGSE8.SP.3			
						MGSE8.SP.4			

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Grade 7 Enhanced

Math 7 Enhanced (7B/8) Expanded Curriculum Map				
Standards for Mathematical Practice				
<p>1 Make sense of problems and persevere in solving them.</p> <p>2 Reason abstractly and quantitatively.</p> <p>3 Construct viable arguments and critique the reasoning of others.</p> <p>4 Model with mathematics.</p>		<p>5 Use appropriate tools strategically.</p> <p>6 Attend to precision.</p> <p>7 Look for and make use of structure.</p> <p>8 Look for and express regularity in repeated reasoning.</p>		
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5A
Geometry	Inferences	Probability	Transformations, Congruence and Similarity	Exponents and Equations: A
<p><u>Draw, construct, and describe geometrical figures and describe the relationships between them.</u></p> <p>MGSE7.G.2 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>MGSE7.G.3 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><u>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</u></p> <p>MGSE6.G.1 Find area of right triangles, other triangles, 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</p>	<p><u>Use random sampling to draw inferences about a population.</u></p> <p>MGSE6.SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.</p> <p>MGSE6.SP.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.</p> <p>MGSE7.SP.1 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>MGSE7.SP.2 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><u>Investigate chance processes and develop, use, and evaluate probability models.</u></p> <p>MGSE7.SP.5 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 unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.</p> <p>MGSE7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, and fees.</p> <p>MGSE7.SP.6 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 given the probability. <i>For example, when rolling a number</i></p>	<p><u>Understand congruence and similarity using physical models, transparencies, or geometry software.</u></p> <p>MGSE8.G.1 Verify experimentally the congruence properties of rotations, reflections, and translations: lines are taken to lines and line segments to line segments of the same length; angles are taken to angles of the same measure; parallel lines are taken to parallel lines.</p> <p>MGSE8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.</p> <p>MGSE8.G.3 Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.</p> <p>MGSE8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a</p>	<p><u>Work with radicals and integer exponents.</u></p> <p>MGSE8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.</p> <p>MGSE7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.</p> <p>MGSE8.EE.2 Use square root and cube root symbols to represent solutions to equations. Recognize that $x^2 = p$ (where p is a positive rational number and $x < 25$) has 2 solutions and $x^3 = p$ (where p is a negative or positive rational number and $x < 10$) has one solution. Evaluate square roots of perfect squares < 625 and cube roots of perfect cubes > -1000 and < 1000.</p> <p>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. For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world</p>

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<p>mathematical problems. MGSE7.G.4 Given the formulas for the area and circumference of a circle, use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. MGSE7.G.5 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. MGSE6.G.1* MGSE6.G.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 ($\frac{1}{2}$ u), and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = (\text{length}) \times (\text{width}) \times (\text{height})$ and $V = (\text{area of base}) \times (\text{height})$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. MGSE6.G.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. MGSE7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.-</p>	<p><u>Draw informal comparative inferences about two populations.</u> MGSE6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, including reasoning strategies such as using visual fraction models and equations to represent the problem. <i>For example:</i></p> <ul style="list-style-type: none"> • <i>Create a story context for $(\frac{2}{3}) \div (\frac{3}{4})$ and use a visual fraction model to show the quotient;</i> • <i>Use the relationship between multiplication and division to explain that $(\frac{2}{3}) \div (\frac{3}{4}) = \frac{8}{9}$ because $3 \frac{3}{4}$ of $\frac{8}{9}$ is $\frac{2}{3}$. (In general, $(\frac{a}{b}) \div (\frac{c}{d}) = \frac{ad}{bc}$.)</i> • <i>How much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally?</i> • <i>How many $\frac{3}{4}$-cup servings are in $\frac{2}{3}$ of a cup of yogurt?</i> • <i>How wide is a rectangular strip of land with length $\frac{3}{4}$ mi and area $\frac{1}{2}$ square mi?</i> <p>MGSE6.SP.2* MGSE7.SP.3 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. MGSE7.SP.4 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>cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.</i> MGSE7.RP.3* MGSE7.SP.7 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. MGSE7.SP.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events MGSE7.SP.7b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. <i>For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?</i> MGSE7.RP.3* MGSE7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. MGSE7.SP.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. MGSE7.SP.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose</p>	<p>sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. MGSE8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.</p>	<p>population is more than 20 times larger. MGSE7.EE.3 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. <i>For example:</i></p> <ul style="list-style-type: none"> • <i>If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50.</i> • <i>If you want to place a towel bar $9 \frac{3}{4}$ inches long in the center of a door that is 27 $\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.</i> <p>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 (e.g. use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology (e.g. calculators). <u>Analyze and solve linear equations and pairs of simultaneous linear equations.</u> MGSE7.EE.4 Use variables to represent quantities in a real-</p>
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		<p>the event. MGSE7.SP.8c Explain ways to set up a simulation and use the simulation to generate frequencies for compound events. <i>For example, if 40% of donors have type A blood, create a simulation to predict the probability that it will take at least 4 donors to find one with type A blood?</i></p>	<p>world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. MGSE7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. <u>Know that there are numbers that are not rational, and approximate them by rational numbers.</u> MGSE7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. MGSE8.NS.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. MGSE8.NS.2 Use rational approximation of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions (e.g., estimate π^2 to the nearest tenth). <i>For example, by truncating the decimal expansion of $\sqrt{2}$ (square root of 2), show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i></p>
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Grade 7 Enhanced

Math 7 Enhanced (7B/8) Expanded Curriculum Map

Standards for Mathematical Practice

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Unit 5B	Unit 6	Unit 7	Unit 8	Unit 9
Exponents and Equations: B	Geometric Applications of Exponents	Functions and Linear Functions	Linear Models and Tables	Solving Systems of Equations
<p>MGSE8.EE.7 Solve linear equations in one variable.</p> <p>MGSE8.EE.7a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. 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).</p> <p>MGSE8.EE.7b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p>	<p>Understand and Apply the Pythagorean Theorem</p> <p>MGSE8.G.6 Explain a proof of the Pythagorean Theorem and its converse.</p> <p>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 dimensions.</p> <p>MGSE8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p> <p>Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.</p> <p>MGSE8.G.9 Apply the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p>Work with radicals and integer exponents.</p> <p>MGSE8.EE.2 Use square root and cube root symbols to represent solutions to equations. Recognize that $x^2 = p$ (where p is a positive rational number and $x < 25$) has 2 solutions and $x^3 = p$ (where p is a negative or positive rational number and $x < 10$) has one solution. Evaluate square roots of perfect squares < 625 and cube roots of perfect cubes > -1000</p>	<p>Define, evaluate, and compare functions.</p> <p>MGSE7.RP.2 Recognize and represent proportional relationships between quantities.</p> <p>MGSE8.F.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.</p> <p>MGSE7.RP.2*</p> <p>MGSE8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p> <p>Understand the connections between proportional relationships, lines, and linear equations.</p> <p>MGSE7.RP.2*</p> <p>MGSE8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.</p> <p>MGSE7.G.1 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>Use functions to model relationships between quantities.</p> <p>MGSE7.RP.2*</p> <p>MGSE8.F.4 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. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.</p> <p>MGSE8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.</p> <p>Investigate patterns of association in bivariate data.</p> <p>MGSE8.SP.1 Construct and interpret scatter plots for 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.</p>	<p>Analyze and solve linear equations and pairs of simultaneous linear equations.</p> <p>MGSE8.EE.4*</p> <p>MGSE8.EE.8 Analyze and solve pairs of simultaneous linear equations (systems of linear equations).</p> <p>MGSE8.EE.8a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.</p> <p>MGSE8.EE.8b Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.</p> <p>MGSE8.EE.8c Solve real-world and mathematical problems leading to two linear equations in two variables.</p>

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	<p>and < 1000.</p>	<p>MGSE7.RP.2*</p> <p>MGSE8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; 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><u>Define, evaluate, and compare functions.</u></p> <p>MGSE8.F.3 Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points $(1,1)$, $(2,4)$ and $(3,9)$, which are not on a straight line.</p>	<p>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.</p> <p>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.</p> <p>MGSE8.SP.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table.</p> <ol style="list-style-type: none"> 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. <i>For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?</i>
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