

Georgia Curriculum Matrix for Mathematics

Georgia Mathematics Performance Standards Grade 8	Common Core Mathematics Domains/Standards Grade 8	National Essential Skills Study (NESS) National Rankings Rank		NESS	CRCT	Priority
<p>M8G1. Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence.</p> <p>a. Investigate characteristics of parallel and perpendicular lines both algebraically and geometrically.</p> <p>b. Apply properties of angle pairs formed by parallel lines cut by a transversal.</p> <p>c. Understand the properties of the ratio of segments of parallel lines cut by one or more transversals.</p> <p>d. Understand the meaning of congruence: that all corresponding angles are congruent and all corresponding sides are congruent.</p>	<p><u>Geometry</u> Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>1. Verify experimentally the properties of rotations, reflections, and translations:</p> <p>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>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. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i></p>	M3	Use proportional reasoning to solve real-world problems.	H	M	H
		M4	Understand the properties of and apply parallel, perpendicular, and intersecting lines in problem-solving situations.			
		M15	Classify angles by measure (acute, right, obtuse, and straight) and understand angle relationships (supplementary, complementary, and vertical).			
		M34	Understand the properties and classification of polygons (triangles, the family of quadrilaterals, pentagon, hexagon, etc.) and apply knowledge of angle and side relationships of geometric shapes in problem-solving situations.			
		M54	Apply transformations (reflection, rotation, translation, and dilation) of 2-dimensional figures graphically to interpret, analyze, and illustrate the concepts of congruency, similarity, and symmetry.			
		M11	Apply variables in expressions and equations to solve problems (i.e., write mathematical equations for given situation, create a mathematical model to understand the relationships between variables, or make connections between the structures of mathematically abstract concepts and the real world).			
		M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).			

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<p>M8A2. Students will understand and graph inequalities in one variable.</p> <p>a. Represent a given situation using an inequality in one variable.</p> <p>b. Use the properties of inequality to solve inequalities.</p> <p>c. Graph the solution of an inequality on a number line.</p> <p>d. Interpret solutions in problem contexts.</p>	<p><i>There is no Georgia Mathematics Performance Standard-Common Core alignment.</i></p>	M27	Find the solution of linear equations and inequalities where the variable appears on either or both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x + 2(x - 3) = -4x + 5$ for x).	M	H	H
		M45	Solve linear inequalities and graph the solution set on a number line.			
<p>M8A5. Students will understand systems of linear equations and inequalities and use them to solve problems.</p> <p>a. Given a problem context, write an appropriate system of linear equations or inequalities.</p> <p>b. Solve systems of equations graphically and algebraically, using technology as appropriate.</p> <p>c. Graph the solution set of a system of linear inequalities in two variables.</p> <p>d. Interpret solutions in problem contexts.</p>	<p><u>Expressions & Equations</u></p> <p>Analyze and solve linear equations and pairs of simultaneous linear equations.</p> <p>8. Analyze and solve pairs of simultaneous linear equations.</p> <p>a. 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>b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. <i>For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.</i></p> <p>c. Solve real-world and mathematical problems leading to two linear equations in two variables. <i>For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.</i></p>	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.	H	H	H
		M40	Solve systems of linear equations algebraically or graphically.			
		M65	Find the graphic solution of systems of linear inequalities (i.e., graph the solution set or region of the coordinate plane common to both inequalities).			

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M8D1. Students will apply basic concepts of set theory. a. Demonstrate relationships among sets through use of Venn diagrams. b. Determine subsets, complements, intersection, and union of sets. c. Use set notation to denote elements of a set.	<i>There is no Georgia Mathematics Performance Standard-Common Core alignment.</i>	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	H	H
M8D2. Students will determine the number of outcomes related to a given event. a. Use tree diagrams to find the number of outcomes. b. Apply the addition and multiplication principles of counting.	<i>There is no Georgia Mathematics Performance Standard-Common Core alignment.</i>	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H
		M32	Determine the probability of single and compound events and use the Counting Principle to determine the probability of independent events occurring jointly.			
M8D3. Students will use the basic laws of probability. a. Find the probability of simple independent events. b. Find the probability of compound independent events.	<i>There is no Georgia Mathematics Performance Standard-Common Core alignment.</i>	M5	Examine problem-solving situations involving simple probability and use probabilistic reasoning to compare and communicate the theoretical or empirical likelihood of events.	H	H	H