Math Teachers Press, Inc.
4850 Park Glen Road, Minneapolis, MN 55416
phone (800) 852-2435 fax (952) 546-7502

Georgia's K-12 Mathematics Standards Correlated to *Moving with Math Extensions* Grade 8

		Student Book Part A	Skill Builders Part A	Student Book Part B	Skill Builders Part B
	NUMERICAL REASONING – rational and irrational numbers, decimal expansion, integer exponents, square and cube roots, scientific notation				
8.NR.1:	**Solve problems involving irrational numbers and rational approximations of irrational numbers to explain realistic applications.**				
8.NR.1.1	Distinguish between rational and irrational numbers using decimal expansion. Convert a decimal expansion which repeats eventually into a rational number.				20-2, 20-3
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.			78	20-4
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 phenomena**				
8.NR.2.1	Apply the properties of integer exponents to generate equivalent numerical expressions.		6-6		
8.NR.2.2	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 $\lvert x\rvert \leq 25$) has two solutions and $x^3 = p$ (where p is a negative or positive rational number and $\lvert x\rvert \leq 10$) has one solution. Evaluate square roots of perfect squares ≤ 625 and cube roots of perfect cubes ≥ -1000 and ≤ 1000.	3	6-3, 6-4		
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.	4	6-1, 6-7		
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).		6-8		

		Student Book Part A	Skill Builders Part A	Student Book Part B	Skill Builders Part B
	PATTERNING & ALGEBRAIC REASONING – expressions, linear equations, and inequalities				
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.**				
8.PAR.3.1	Interpret expressions and parts of an expression, in context, by utilizing formulas or expressions with multiple terms and/or factors.	54, 55	50-2, 50-3		
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).		50-8		
8.PAR.3.3	Create and solve linear equations and inequalities in one variable within a relevant application.				
8.PAR.3.4	Using algebraic properties and the properties of real numbers, justify the steps of a one-solution equation or inequality.		51-1, 51-3		
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.	54-57, 60-63	50-1 to 50-7, 51-1 to 51-3		
8.PAR.3.6	Use algebraic reasoning to fluently manipulate linear and literal equations expressed in various forms to solve relevant, mathematical problems.	54-57, 60	50-1 to 50-7		
8.PAR.4:	**Show and explain the connections between proportional and non-proportional relationships, lines, and linear equations; create and interpret graphical mathematical models and use the graphical, mathematical model to explain real phenomena represented in the graph.**				
8.PAR.4.1	Use the equation y = mx (proportional) for a line through the origin to derive the equation y = m*x* + b (non-proportional) for a line intersecting the vertical axis at b.			66	52-2
8.PAR.4.2	Show and explain that the graph of an equation representing an applicable situation in two variables is the set of all its solutions plotted in the coordinate plane.			64, 65	52-1
	FUNCTIONAL & GRAPHICAL REASONING –relate domain to linear functions, rate of change, linear vs. nonlinear relationships, graphing linear functions, systems of linear equations, parallel and perpendicular lines				

		Student Book Part A	Skill Builders Part A	Student Book Part B	Skill Builders Part B
8.FGR.5:	**Describe the properties of functions to define, evaluate, and compare relationships, and use functions and graphs of functions to model and explain real phenomena.**				
8.FGR.5.1	Show and explain that a function is a rule that assigns to each input exactly one output			82	42-1, 57-1
8.FGR.5.2	Within realistic situations, identify and describe examples of functions that are linear or nonlinear. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.			83, 84	57-2
8.FGR.5.3	Relate the domain of a linear function to its graph and where applicable to the quantitative relationship it describes.			82, 83	
8.FGR.5.4	Compare properties (rate of change and initial value) of two functions used to model an authentic situation each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).			84	57-3
8.FGR.5.5	Write and explain the equations y = mx + b (slope-intercept form), Ax + By = C (standard form), and (y - y1) = m(x-x1) (point-slope form) as defining a linear function whose graph is a straight line to reveal and explain different properties of the function.			87, 88	58-2, 58-3
8.FGR.5.6	Write a linear function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.				
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.			86, 89	58-1, 58-5, 58-6
8.FGR.5.8	Explain the meaning of 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.			86	58-5
8.FGR.5.9	Graph and analyze linear functions expressed in various algebraic forms and show key characteristics of the graph to describe applicable situations.			87	58-3
8.FGR.6:	**Solve practical, linear problems involving situations using bivariate quantitative 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.			94, 95	60-1
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.			96	60-2

		Student Book Part A	Skill Builders Part A	Student Book Part B	Skill Builders Part B
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.			96	60-2
8.FGR.6.4	Use appropriate graphical displays from data distributions involving lines of best fit to draw informal inferences and answer the statistical investigative question posed in an unbiased statistical study.			96	60-2
8.FGR.7:	**Justify and use various strategies to solve systems of linear equations to model and explain realistic phenomena.**				
8.FGR.7.1	Interpret and solve relevant mathematical problems leading to two linear equations in two variables.			90, 93	59-1, 59-5
8.FGR.7.2	Show and explain that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because the points of intersection satisfy both equations simultaneously			90	59-1
8.FGR.7.3	Approximate solutions of two linear equations in two variables by graphing the equations and solving simple cases by inspection.			90	59-1
8.FGR.7.4	Analyze and solve systems of two linear equations in two variables algebraically to find exact solutions.			91-93	59-2 to 59-5
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.				
	GEOMETRIC & SPATIAL REASONING – Pythagorean theorem and volume of triangles, rectangles, cones, cylinders, and spheres				
8.GSR.8:	**Solve geometric problems involving the Pythagorean Theorem and the volume of geometric figures to explain real phenomena**				
8.GSR.8.1	Explain a proof of the Pythagorean Theorem and its converse using visual models.			79	
8.GSR.8.2	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles within authentic, mathematical problems in two and three dimensions.			80	56-1, 56-3
8.GSR.8.3	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system in practical, mathematical problems.			81	56-2
8.GSR.8.4	Apply the formulas for the volume of cones, cylinders, and spheres and use them to solve in relevant problems.	45, 46	41-1, 41-3, 41-4		