Georgia
Standards of Excellence
Curriculum Map

Mathematics

Accelerated GSE 6/7A

Georgia Department of Education
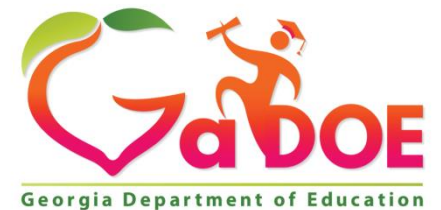
Richard Woods, Georgia's School Superintendent
"Educating Georgia's Future"

Accelerated GSE 6/7A Curriculum Map									
1st Semester					2nd Semester				
Click on the link in the table to view a video that shows instructional strategies for teaching each standard.									
Unit 1 *(3-4 weeks)*	Unit 2 *(2-3 weeks)*	Unit 3 *(3-4 weeks)*	Unit 4 *(3-4 weeks)*	Unit 5 *(3-4 weeks)*	Unit 6 *(3-4 weeks)*	Unit 7 *(2-3 weeks)*	Unit 8 *(3-4 weeks)*	Unit 9 *(3-4 weeks)*	Unit 10 *(3-4 weeks)*
Number System Fluency	Rate, Ratio and Proportional Reasoning Using Equivalent Fractions	Expressions	One-Step Equations and Inequalities	Area and Volume	Statistics	Rational Explorations: Numbers and their Opposites	Operations with Rational Numbers	Expressions and Equations	Ratios and Proportional Relationships
MGSE6.NS.1 MGSE6.NS.2 MGSE6.NS.3 MGSE6.NS.4	MGSE6.RP.1 MGSE6.RP.2 MSGE6.RP.3 MGSE6.RP.3a MGSE6.RP.3b MGSE6.RP.3c MGSE6.RP.3d	MGSE6.EE.1 MGSE6.EE.2 MGSE6.EE.2a MGSE6.EE.2b MGSE6.EE.2c MGSE6.EE.3 MGSE6.EE.4 MGSE6.NS.4	MGSE6.EE.5 MGSE6.EE.6 MGSE6.EE.7 MGSE6.EE.8 MGSE6.EE.9 MGSE6.RP.3 MGSE6.RP.3a MGSE6.RP.3b MGSE6.RP.3c MGSE6.RP.3d (equations)	MGSE6.G.1 MGSE6.G.2 MGSE6.G.4	MGSE6.SP.1 MGSE6.SP.2 MGSE6.SP.3 MGSE6.SP.4 MGSE6.SP.5	MGSE6.NS.5 MGSE6.NS.6 MGSE6.NS.6a MGSE6.NS.6b MGSE6.NS.6c MGSE6.NS.7 MGSE6.NS.7a MGSE6.NS.7b MGSE6.NS.7c MGSE6.NS.7d MGSE6.NS.8 MGSE6.G.3	MGSE7.NS.1 MGSE7.NS.1a MGSE7.NS.1b MGSE7.NS.1c MGSE7.NS.1d MGSE7.NS.2 MGSE7.NS.2a MGSE7.NS.2b MGSE7.NS.2c MGSE7.NS.2d MGSE7.NS.3	MGSE7.EE.1 MGSE7.EE.2 MGSE7.EE.3 MGSE7.EE.4 MGSE7.EE.4a MGSE7.EE.4b MGSE7.EE.4c	MGSE7.RP.1 MGSE7.RP.2 MGSE7.RP.2a MGSE7.RP.2b MGSE7.RP.2c MGSE7.RP.2d MGSE7.RP.3 MGSE7.G.1
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.									

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
RP = Ratios and Proportional Relationships
EE = Expressions and Equations
G = Geometry
SP = Statistics and Probability

Accelerated GSE 6/7A – Expanded Curriculum Map – 1st Semester

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.	**5** Use appropriate tools strategically.
2 Reason abstractly and quantitatively.	**6** Attend to precision.
3 Construct viable arguments and critique the reasoning of others.	**7** Look for and make use of structure.
4 Model with mathematics.	**8** Look for and express regularity in repeated reasoning.

1st Semester

Unit 1 **Number System Fluency**	Unit 2 **Rate, Ratio and Proportional Reasoning Using Equivalent Fractions**	Unit 3 **Expressions**	Unit 4 **One-Step Equations and Inequalities**	Unit 5 **Area and Volume**
Apply and extend previous understandings of multiplication and division to divide fractions by fractions. 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. *For example:* • *Create a story context for (2/3)÷(3/4)and use a visual fraction model to show the quotient;* • *Use the relationship between multiplication and division to explain that (2/3)÷(3/4)= 8/9 becaus3 3/4 of 8/9 is2/3. (In general, (a/b)÷(c/d) =ad/bc.)* • *How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally?* • *How many 3/4-cup servings are in 2/3 of a cup of yogurt?* • *How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?* **Compute fluently with multi-digit numbers and find common factors and multiples.** MGSE6.NS.2 Fluently divide multi-digit numbers using the standard algorithm. MGSE6.NS.3 Fluently add, subtract,	**Understand ratio concepts and use ratio reasoning to solve problems.** MGSE6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."* MGSE6.RP.2 Understand the concept of a unit rate a / b associated with a ratio a: b with b ≠ 0 (b not equal to zero), and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."* MGSE6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems utilizing strategies such as tables of equivalent ratios, tape diagrams (bar models), double number line diagrams, and/or equations. MGSE6.RP.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the	**Apply and extend previous understandings of arithmetic to algebraic expressions.** MGSE6.EE.1 Write and evaluate numerical expressions involving whole-number exponents. MGSE6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers. MGSE6.EE.2a Write expressions that record operations with numbers and with letters standing for numbers. MGSE6.EE.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. MGSE6.EE.2c Evaluate expressions at specific values for their variables. Include expressions that arise from formulas in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). MGSE6.EE.3 Apply the properties of operations to generate equivalent expressions. MGSE6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the	**Reason about and solve one-variable equations and inequalities.** MGSE6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. MGSE6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. MGSE6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. MGSE6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. **Represent and analyze quantitative relationships between dependent and independent variables.** MGSE6.EE.9 Use variables to represent two quantities in a real-world	**Solve real-world and mathematical problems involving area, surface area, and volume.** 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 mathematical problems. 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 (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 = (length) x (width) x (height) and V= (area of base) x (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

multiply, and divide multi-digit decimals using the standard algorithm for each operation. **MGSE6.NS.4** Find the common multiples of two whole numbers less than or equal to 12 and the common factors of two whole numbers less than or equal to 100.	coordinate plane. Use tables to compare ratios**.** **MGSE6.RP.3b** Solve unit rate problems including those involving unit pricing and constant speed. *For example, If it took 7 hours .* **MGSE6.RP.3c** Find a percent of a quantity as a rate per 100 (e.g. 30% of a quantity means 30/100 times the quantity); given a percent, solve problems involving finding the whole given a part and the part given the whole. **MGSE6.RP.3d** Given a conversion factor, use ratio reasoning to convert measurement units within one system of measurement and between two systems of measurements (customary and metric); manipulate and transform units appropriately when multiplying or dividing quantities. *For example, given 1 in. = 2.54 cm, how many centimeters are in 6 inches?*	same number regardless of which value is substituted into them). **MGSE6.NS.4** Find the common multiples of two whole numbers less than or equal to 12 and the common factors of two whole numbers less than or equal to 100. **a.** Find the greatest common factor of 2 whole numbers and use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factors. (GCF) Example: 36 + 8 = 4(9 + 2) **b.** Apply the least common multiple of two whole numbers less than or equal to 12 to solve real-world problems.	problem that change in relationship to one another. a. Write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. b. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d=65t to represent the relationship between distance and time.* **Understand ratio concepts and use ratio reasoning to solve problems.** **MGSE6.RP.3** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. **MGSE6.RP.3a** Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. **MGSE6.RP.3b** Solve unit rate problems including those involving unit pricing and constant speed. **MGSE6.RP.3c** Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole given a part and the percent. **MGSE6.RP.3d** Given a conversion factor, use ratio reasoning to convert measurement units within one system of measurement and between two systems of measurements (customary and metric); manipulate and transform units appropriately when multiplying or dividing quantities. *For example, given 1 in. = 2.54 cm, how many centimeters are in 6 inches?*	mathematical problems.

Georgia Department of Education

Accelerated GSE 6/7A – Expanded Curriculum Map – 2nd Semester

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.	**5** Use appropriate tools strategically.
2 Reason abstractly and quantitatively.	**6** Attend to precision.
3 Construct viable arguments and critique the reasoning of others.	**7** Look for and make use of structure.
4 Model with mathematics.	**8** Look for and express regularity in repeated reasoning.

2nd Semester

Unit 6 **Statistics**	Unit 7 **Rational Explorations: Numbers and their Opposites**	Unit 8 **Operations with Rational Numbers**	Unit 9 **Expressions & Equations**	Unit 10 **Ratios and Proportional Relationships**
Develop understanding of statistical variability. **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. **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. **MGSE6.SP.3** Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. **Summarize and describe distributions. MGSE6.SP.4** Display numerical data in plots on a number line, including dot plots, histograms, and box plots. **MGSE6.SP.5** Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range).	**Apply and extend previous understandings of numbers to the system of rational numbers.** **MGSE6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. **MGSE6.NS.6** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. **MGSE6.NS.6a** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. **MGSE6.NS.6b** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. **MGSE6.NS.6c** Find and position	**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.** **MGSE7.NS.1** 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. **MGSE7.NS.1a** Show that a number and its opposite have a sum of 0 (are additive inverses). Describe situations in which opposite quantities combine to make 0. *For example, your bank account balance is -$25.00. You deposit $25.00 into your account. The net balance is $0.00.* **MGSE7.NS.1b** Understand p + q as the number located a distance from p, in the positive or negative direction depending on whether q is positive or negative. Interpret sums of rational numbers by describing real world contexts. **MGSE7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (– q). 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. **MGSE7.NS.1d** Apply properties of operations as strategies to add and	**Use properties of operations to generate equivalent expressions.** **MGSE7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **MGSE7.EE.2** Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related. *For example a + 0.05a = 1.05a means that adding a 5% tax to a total is the same as multiplying the total by 1.05.* **Solve real-life and mathematical problems using numerical and algebraic expressions and equations.** **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. *For example:* • *If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50.*	**Analyze proportional relationships and use them to solve real-world and mathematical problems.** **MGSE7.RP.1** 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 person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour.* **MGSE7.RP.2** Recognize and represent proportional relationships between quantities. **MGSE7.RP.2a** 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 graph is a straight line through the origin. **MGSE7.RP.2b** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **MGSE7.RP.2c** Represent proportional relationships by equations. **MGSE7.RP.2d**.Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,r) where r is the unit rate. **MGSE7.RP.3** Use proportional relationships to solve multistep ratio and percent problems. Examples:

d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data was gathered.	integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. **MGSE6.NS.7** Understand ordering and absolute value of rational numbers. **MGSE6.NS.7a** Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. **MGSE6.NS.7b** Write, interpret, and explain statements of order for rational numbers in real-world contexts. **MGSE6.NS.7c** Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. **MGSE6.NS.7d** Distinguish comparisons of absolute value from statements about order. **MGSE6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. **<u>Solve real-world and mathematical problems involving area, surface area, and volume.</u>** **MGSE6.G.3** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	subtract rational numbers. **MGSE7.NS.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **MGSE7.NS.2a** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts **MGSE7.NS.2b** 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 p and q are integers then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. **MGSE7.NS.2c** Apply properties of operations as strategies to multiply and divide rational numbers. **MGSE7.NS.2d** 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. **MGSE7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers.	• *If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 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.* **MGSE7.EE.4** 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. **MGSE7.EE.4a** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?* **MGSE7.EE.4b** Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where *p, q,* and *r* are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example, as a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.* **MGSE7.EE.4c** Solve real-world and mathematical problems by writing and solving equations of the form $x+p = q$ and $px = q$ in which p and q are rational numbers.	simple interest, tax, markups and markdowns, gratuities and commissions, and fees. **<u>Draw, construct, and describe geometrical figures and</u> <u>describe the relationships between them.</u>** **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.