Barrington School District	Haddon Heights School District	Lawnside School District	Merchantville School District

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Course Name: Mathematics
Grade: XX
<mark>Board Approved: DATE OF BOARD APPROVAL</mark>

*All curriculum is aligned with the NJSLS in accordance with the Department's curriculum implementation timeline and includes all required components (NJ.A.C.6A:8).

Key: Major Clusters | Supporting | Additional Clusters | * Benchmarked Standard

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Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 1 **Operations on Rational Numbers & Expressions**	● 7.NS.A.1 ● 7.NS.A.2 ● 7.NS.A.3 ● 7.EE.A.1 ● 7.EE.A.2	● Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers ● Use properties of operations to generate equivalent expressions	
Unit 1: *Suggested Open Educational Resources*	7.NS.A.1 Comparing Freezing Points 7.NS.A.1b-c Differences of Integers 7.NS.A.2 Why is a Negative Times a Negative Always Positive 7.NS.A.2d Equivalent fractions approach to non-repeating decimals 7.NS.A.2d Repeating decimal as approximation 7.EE.A.1 Writing Expressions 7.EE.A.2 Ticket to Ride		MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics.

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Unit 2 **Equations and Ratio & Proportion**	• 7.EE.B.3 • 7.EE.B.4* • 7.RP.A.1 • 7.RP.A.2 • 7.RP.A.3* • 7.G.A.1	• Solve real-life and mathematical problems using numerical and algebraic expressions and equations • Analyze proportional relationships and use them to solve real-world and mathematical problems • Draw, construct, and describe geometrical figures and describe the relationships between them	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.
Unit 2: *Suggested Open Educational Resources*	7.EE.B.3 Discounted Books 7.EE.B.3 Shrinking 7.EE.B.4 Fishing Adventures 2 7.EE.B.4, 7.NS.A.1 Bookstore Account 7.EE.B.4b Sports Equipment Set 7.RP.A.1 Cooking with the Whole Cup 7.RP.A.2 Sore Throats, Variation 1 7.RP.A.2 Buying Coffee 7.RP.A.2c Gym Membership Plans 7.G.A.1 Floor Plan 7.G.A.1 Map distance		MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.

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| Unit 3

Drawing Inferences about Populations

& Probability Models	● 7.SP.A.1 ● 7.SP.A.2 ● 7.SP.B.3 ● 7.SP.B.4 ● 7.SP.C.5 ● 7.SP.C.6 ● 7.SP.C.7 ● 7.SP.C.8	● Use random sampling to draw inferences about a population ● Draw informal comparative inferences about two populations ● Investigate chance processes and develop, use, and evaluate probability models	
Unit 3:

Suggested Open Educational Resources | 7.SP.A.1 Mr. Briggs Class Likes Math

7.SP.A.2 Valentine Marbles

7.SP.B.3,4 College Athletes

7.SP.B.3,4 Offensive Linemen

7.SP.C.6 Heads or Tails

7.SP.C.7, 6 Rolling Dice

7.SP.C.7a How Many Buttons

7.SP.C.8 Tetrahedral Dice

7.SP.C.8 Waiting Times | | MP.1 Make sense of problems and persevere in solving them.

MP.2 Reason abstractly and quantitatively.

MP.3 Construct viable arguments & critique the reasoning of others.

MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically. |

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Unit 4 **Problem Solving with Geometry**	● 7.G.B.4 ● 7.G.B.5 ● 7.G.B.6 ● 7.G.A.2 ● 7.G.A.3 ● 7.EE.B.4* ● 7.RP.A.3*	● Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. ● Draw, construct, and describe geometrical figures and describe the relationships between them. ● Solve real-life and mathematical problems using numerical and algebraic expressions and equations	MP.6 Attend to precision.
Unit 4: *Sample Open Educational Resources*	7.G.B.4 Wedges of a Circle 7.G.B.4 Eight Circles 7.G.B.6, 7.RP.A.3 Sand under the Swing Set 7.G.A.2 A task related to 7.G.A.2 7.G.A.3 Cube Ninjas! 7.RP, 7.EE, 7.NS Drill Rig 7.RP.A.3, 7.EE.B.3,4 Gotham City Taxis		MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.

Unit 1 Grade 7		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**

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• 7.NS.A.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.
 	
    7.NS.A.1a. Describe situations in which opposite quantities combine to make 0. *For example, In the first round of a game, Maria scored 20 points. In the second round of the same game, she lost 20 points. What is her score at the end of the second round?*
 	
    7.NS.A.1b. Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
 	
    7.NS.A.1c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance
	MP.2 Reason abstractly and quantitatively.
	
	MP.3 Construct viable arguments & critique the reasoning of others.
	
	MP.5 Use appropriate tools strategically.
	
	MP.7 Look for and make use of structure.
		Concept(s):
		
		• Opposite quantities combine to make 0 (additive inverses).
		• $p + q$ is the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative.
		• Subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$
		• The product of two whole numbers is the total number of objects in a number of equal groups.
		
		Students are able to:
		
		• represent addition and subtraction on a horizontal number line.
		• represent addition and subtraction on a vertical number line.
		• interpret sums of rational numbers in real-world situations.
		• show that the distance between two rational numbers on the number line is the absolute value of their difference.
		
		Learning Goal 1: Describe real-world situations in which (positive and negative) rational numbers are combined, emphasizing rational numbers that combine to make 0. Represent sums of rational numbers ($p + q$) on horizontal and vertical number lines, showing that the distance along the number line is $|q|$ and including situations in which q is negative and positive.
		Learning Goal 2: Add and subtract (positive and negative) rational numbers, showing that the distance between two points on a number line is the absolute value of their difference and representing subtraction using an additive inverse.

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between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. 7.NS.A.1d. Apply properties of operations as strategies to add and subtract rational numbers.		
● 7.NS.A.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 　7.NS.A.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. 　7.NS.A.2b. Understand that integers can be divided, provided that the divisor is	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concept(s): ● Every quotient of integers (with non-zero divisor) is a rational number. ● Decimal form of a rational number terminates in 0s or eventually repeats. ● Integers can be divided, provided that the divisor is not zero. ● If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Students are able to: ● multiply and divide signed numbers. ● use long division to convert a rational number to a decimal. Learning Goal 3: Multiply and divide signed numbers, including rational numbers, and interpret the products and quotients using real-world contexts. Learning Goal 4: Convert a rational number to a decimal using long division and explain why the decimal is either a terminating or repeating decimal.

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not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. 2c. Interpret quotients of rational numbers by describing real world contexts. 7.NS.A.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.		
● 7.NS.A.3. Solve real-world and mathematical problems involving the four operations with rational numbers. ● 7.NS.A.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 7.NS.A.2c. Apply properties of operations as strategies to multiply and divide rational numbers.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): ● The process for multiplying and dividing fractions extends to multiplying and dividing rational numbers. Students are able to: ● add and subtract rational numbers. ● multiply and divide rational numbers using the properties of operations. ● apply the convention of order of operations to add, subtract, multiply and divide rational numbers. ● solve real world problems involving the four operations with rational numbers. Learning Goal 5: Apply properties of operations as strategies to add, subtract, multiply, and divide rational numbers. Learning Goal 6: Solve mathematical and real-world problems involving addition, subtraction, multiplication, and division of signed rational numbers.

● 7.EE.A.1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. ● 7.EE.A.2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05.".*	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): ● Rewriting an expression in different forms in a problem context can shed light on the problem. Students are able to: ● add and subtract linear expressions having rational coefficients, using properties of operations. ● factor and expand linear expressions having rational coefficients, using properties of operations. ● write expressions in equivalent forms to shed light on the problem and interpret the relationship between the quantities in the context of the problem. Learning Goal 7: Apply the properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. Learning Goal 8: Rewrite algebraic expressions in equivalent forms to highlight how the quantities in it are related.

Unit 1 Grade 7 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Exit Slips *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes* *Proficiency Scales* Performance Tasks: Suggested performance tasks, but not limited to: Glencoe Math Course 2 - Common Core Performance Task text ● DVD Deals page 181 - complete Scoring Rubric can be found on page PT2 ● Weather Report page	*MAP Assessment* *Link it Testing* *End of Unit Assessment* *Through quizzes, tests, academic prompts, observations, homework, journals, and benchmarks testing students will demonstrate achievements. Students will reflect on errors and make corrections*

255 - complete Scoring Rubric with answers can be found on page PT3 ● Managing Money page 339- complete Scoring Rubric with answers can be found on page PT4 25% Sale Task 25% Sale Rubric 25% Sale Sample

Focus Mathematical Concepts
Districts should consider listing prerequisites skills. Concepts that include a focus on relationships and representation might be listed as grade level appropriate.   *Prerequisite skills: Addition, subtraction, multiplication, and division to all rational numbers. Maintain the properties of operations and the relationships between addition/ subtraction, and multiplication/division. Viewing negative numbers in terms of everyday contexts (i.e. amounts owed or temperatures below zero), explaining the rules for adding, subtracting, multiplying and dividing with negative numbers. Use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.*   *Common Misconceptions: Use of number sense as an intuitive feel for numbers and a common sense approach to using them. Understanding how different types of numbers, such as fractions and decimals, are related to each other and how each can best be used to describe a particular situation. Understanding that subtracting a negative should yield a higher number because subtracting is taking away.*

District/School Tasks	District/School Primary and Supplementary Resources
Number/Pattern talks Which One Doesn't Belong Exit Tickets Questioning (specific questions, anticipated responses both correct and incorrect) Warm-ups Error Analysis Performance Tasks 3-ACT tasks Launch – Explore – Summarize Tasks Reteach Worksheets *https://www.engageny.org/resource/grade-7-mathematics-module-2/file/113666* *Provides example problems using each Mathematical Practice Standard (pages 8-9).* *https://www.engageny.org/resource/grade-7-mathematics-module-4/file/117471* *Provides example problems using each Mathematical Practice Standard (pages 7-9).*	*Glencoe Math Course 2 Glencoe Math Course 2* *Power Up for the PARCC Assessment Glencoe Math Course 2* *Common Core Performance Tasks Various websites* *●http://www.state.nj.us/education/modelcurriculum/math/7u1.shtml User Name: model Password: curriculum ● https://www.insidmathematics.org/performance-assessment-tasks ● www.mathplayground.com ● www.teacherspayteachers.com ● www.kahnacademy.org ● www.xpmath.com ● www.illustrativemathematics.org ● www.mathbitsnotebook.com ● http://map.mathshell.org/ ● https://parcc.pearson.com/practice-tests/math/ ● https://www.engageny.org/resource/mathematics-fluency-support-grades-6-8/file/133021 Provides fluency exercises along with recommended use ●* *https://www.engageny.org/resource/grade-7-mathematics-module-2 Engage NY - Grade 7: Rational Numbers ● Teacher materials ● Student materials ● Copy ready materials ● Module overview ● Assessments ●* *https://www.engageny.org/resource/grade-7-mathematics-module-4 Engage NY - Grade 7: Percent and Proportional Relationships ● Teacher materials ● Student materials ● Copy ready materials ● Module overview ● Assessments*

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Go Math; my.hrw.com (Lawnside and Haddon Heights)
Big Ideas Math bigideasmath.com/ (Merchantville)

Instructional Best Practices and Exemplars

● *W-Student learning map* ● *H- Real World Link* ● *E-Vocabulary activities* ● *R- Redo-knows and corrections* ● *E-students analyze progress throughout unit* ● *T-Scaffold activities to meet individual student needs* ● *O- encourage students to keep an organized binder*

Key Vocabulary and Terms: discount, gratuity, markdown, markup, percent equation, percent error, percent of change, percent of decrease, percent of increase, percent proportion, principle, sales tax, selling price, simple interest, tip, absolute value, additive inverse, graph, integer, negative integer, opposites, positive integer, zero pair, bar notation, common denominator, least common denominator, like fractions, rational numbers, repeating decimal, terminating decimal, unlike fractions

Interdisciplinary Connections

ELA	Social Studies	Science
LA.7.W.7.1 - Write arguments to support claims with clear reasons and relevant evidence. SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	6.1.8.C.5.a- Assess the human and material costs of the Civil War in the North and South.	Science - MS - PS 3-4 - Plan an investigation to determine the relationships among energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of a sample. SCI.7-8.5.3.8.C.1- Model the effect of positive and negative changes in population size on a symbiotic pairing.

21st Century Skills/Career Education	Technology	
CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP8. Utilize critical thinking to make sense of problems and persevere in solving 9.1.8B1 9.2.8A1 9.2.8E2	**8.1.8.A.3 - Use and/or develop a simulation that provides an environment to solve a real world problem or theory.**	

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9.2.8E3 9.2.8E4		

Modifications and Accommodations		
Special Education Students	**English Language Learners**	**Students at Risk of School Failure**
small group/intentional grouping	small group/intentional grouping	small group/intentional grouping
preferred seating	preferred seating	preferred seating
direct instruction	direct instruction	direct instruction
provide background knowledge	provide background knowledge	provide background knowledge
provide individual/small group assistance	provide individual/small group assistance	provide individual/small group assistance
provide student friendly definitions for vocabulary	provide student friendly definitions for vocabulary	provide student friendly definitions for vocabulary
modified assignments (reduce/revise)	modified assignments (reduce/revise)	modified assignments (reduce/revise)
provide notes/study guides	provide notes/study guides	provide notes/study guides
restate/rephrase	restate/rephrase	restate/rephrase
graphic organizers, labels, word banks	graphic organizers, labels, word banks	graphic organizers, labels, word banks
visuals	visuals	visuals
chunking	chunking	chunking
leveled text	leveled text	leveled text
read text, use audio when available	read text, use audio when available	read text, use audio when available
kinesthetic activities	kinesthetic activities	kinesthetic activities
extended time	extended time	extended time
breaks	breaks	breaks
check-in/check-out system	check-in/check-out system	check-in/check-out system
	TPR Total Physical Response	
Gifted and Talented	**Students with 504 Plans**	
extension project	small group/intentional grouping	
leveled text	preferred seating	
leadership roles	direct instruction	
intentional grouping	provide background knowledge	
targeted learning from assessment	provide individual/small group assistance	
DOK higher order questions	provide student friendly definitions for vocabulary	
Blooms - analyze, evaluate, create	modified assignments (reduce/revise)	
	provide notes/study guides	
	restate/rephrase	
	graphic organizers, labels, word banks	
	visuals	
	chunking	
	leveled text	

<table>
<tr>
<td rowspan="2"></td>
<td>read text, use audio when available
kinesthetic activities
extended time
breaks
check-in/check-out system</td>
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Unit Duration: Instructional Days
How long will the unit take to complete? 42 days

Unit 2 Grade 7		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 7.EE.B.3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess 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. 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*	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): ● Rational numbers can take different forms. Students are able to: ● solve multi-step real-life problems using rational numbers in any form. ● solve multi-step mathematical problems using rational numbers in any form. ● convert between decimals and fractions and apply properties of operations when calculating with rational numbers. ● estimate to determine the reasonableness of answers. Learning Goal 1: Solve multi-step real life and mathematical problems with rational numbers in any form (fractions, decimals) by applying properties of operations and converting rational numbers between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies.

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from each edge; this estimate can be used as a check on the exact computation.		
● 7.EE.B.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 . 7.EE.B.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?* 7.EE.B.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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● compare an arithmetic solution to a word problem to the algebraic solution of the word problem, identifying the sequence of operations in each solution. ● write an equation of the form $px + q = r$ or $p(x + q)=r$ in order to solve a word problem. ● fluently solve equations of the form $px + q = r$ and $p(x + q)= r$. ● write an inequality of the form $px + q > r$, $px + q < r$, $px + q \geq r$ or $px + q \leq r$ to solve a word problem. ● graph the solution set of the inequality. ● interpret the solution to an inequality in the context of the problem. Learning Goal 2: Use variables to represent quantities in a real-world or mathematical problem by constructing simple equations and inequalities to represent problems. Learning Goal 3: Fluently solve equations; solve inequalities, graph the solution set of the inequality and interpret the solutions in the context of the problem (*Equations of the form px + q = r and p(x + q) = r and inequalities of the form px + q > r, px + q ≥r, px+ q ≤ r, or px + q < r, where p, q, and r are specific rational numbers*).

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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. *(benchmarked)		
● 7.RP.A.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 $\frac{1/2}{1/4}$ mph, equivalently 2 mph*.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.6 Attend to precision.	Concept(s): No new concept(s) introduced Students are able to: ● compute unit rates with ratios of fractions. ● compute unit rates with ratios of fractions representing measurement quantities. in both like and different units of measure. Learning Goal 4: Calculate and interpret unit rates of various quantities involving ratios of fractions that contain like and different units.
● 7.RP.A.2. Recognize and represent proportional relationships between quantities. 7.RP.A.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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): ● Proportions represent equality between two ratios. ● Constant of proportionality Students are able to: ● use tables and graphs to determine if two quantities are in a proportional relationship. ● identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. ● write equations representing proportional relationships. ● Interpret the origin and (1, r) on the graph of a proportional relationship in context. ● interpret a point on the graph of a proportional relationship in context.

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7.RP.A.2b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. 7.RP.A.2c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* 7.RP.A.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.	MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Learning Goal 5: Determine if a proportional relationship exists between two quantities e.g. by testing for equivalent ratios in a table or graph on the coordinate plane and observing whether the graph is a straight line through the origin. Learning Goal 6: Identify the constant of proportionality (unit rate) from tables, graphs, equations, diagrams, and verbal descriptions. Learning Goal 7: Write equations to model proportional relationships in real world problems. Learning Goal 8: Use the graph of a proportional relationship to interpret the meaning of any point (x, y) on the graph in terms of the situation - including the points (0, 0) and (1, r), recognizing that r is the unit rate.
● 7.RP.A.3. Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.* *(benchmarked)	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): ● Recognize percent as a ratio indicating the quantity *per one hundred*. Students are able to: ● use proportions to solve multistep percent problems including simple interest, tax, markups, discounts, gratuities, commissions, fees, percent increase, percent decrease, percent error. ● use proportions to solve multistep ratio problems.

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	MP.6 Attend to precision. MP.7 Look for and make use of structure.	Learning Goal 9: Solve multi-step ratio and percent problems using proportional relationships (*simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error*)
● 7.RP.A.3: Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.* ● 7.G.A.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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● Scale and proportion Students are able to: ● use ratios and proportions to create scale drawings. ● reproduce a scale drawing at a different scale. ● computing actual lengths and areas from a scale drawing. ● solve problems involving scale drawings using proportions. Learning Goal 10: Use ratio and proportion to solve problems involving scale drawings of geometric figures.

Unit 2 Grade 7 What This May Look Like	
District/ School Formative Assessment Plan	**District/School Summative Assessment Plan**
Exit Slips *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes* *Proficiency Scales*	*MAP Assessment* *Link It Testing* *End of Unit Assessment*

Glencoe Math Course 2 - Common Core Performance Task text ● Movie Time page 427-Complete Scoring Rubric with answers can be found on page PT1 ● Fall Reading page 525-Complete Scoring Rubric with answers can be found on page PT2

Focus Mathematical Concepts

Prerequisite Skills: Students should know what a ratio represents, how to write a ratio, find equivalent ratios, and solve ratio problems using reasoning. Students should know how to turn a percent into a decimal and vice versa. Students should understand what a variable represents, how identify and create equivalent expressions using combining like terms and the distributive property. Students should know how to find a common factor in order to factor an expression.

Common Misconceptions: Students will often rewrite percents into decimals inaccurately. For example, they may write 5% as .5, or if a percent already has a decimal that they don't need to rewrite it, such as assuming 3.5% is already written as a percent. Students may mistake when to take away a percent and when to add on a percent to find a total. Students may also distribute to only one part in the parenthesis instead of everything inside the parenthesis. When combining like terms, students may not realize that variables with exponents are different from variables without them. When combining and distributing students may not pay attention to the sign or operation in front of the number and miss a negative sign.

District/School Tasks	District/School Primary and Supplementary Resources
Number/Pattern talks Which One Doesn't Belong Exit Tickets Questioning (specific questions, anticipated responses both correct and incorrect) Warm-ups Error Analysis Performance Tasks 3-ACT tasks Launch – Explore – Summarize Tasks Reteach Worksheets	*Glencoe Math Course 2 Glencoe Math Course 2 - Power Up for the PARCC Assessment Glencoe Math Course 2 - Common Core Performance Tasks Various websites ●* *http://www.state.nj.us/education/modelcurriculum/math/7u2.shtml User Name: model Password: curriculum ●* *https://www.insidmathematics.org/performance-assessment-tasks ●* *www.mathplayground.com ● www.teacherspayteachers.com www.kahnacademy.org ●* *www.xpmath.com ● www.illustrativemathematics.org ● www.mathbitsnotebook.com ●* *http://map.mathshell.org/ ● https://parcc.pearson.com/practice-tests/math/ ●* *https://www.engageny.org/resource/mathematics-fluency-support-grades-6-8/file/133021 Provides fluency exercises along with recommended use ●* *https://www.engageny.org/resource/grade-7-mathematics-module-3 Engage NY - Grade 7: Expressions and Equations ● Teacher materials ● Student materials ● Copy ready materials ● Module overview ● Assessments* *Websites:* *http://www.mymathuniverse.com/digitsSNP*

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www.brainpop.com
www.illustractivemathematics.org
http://www.mathpickle.com Grade K to 12 math games and puzzles
www.illuminations.nctm.org
http://www.estimation180.com 180 days of estimation problems
www.commoncoresheets.com
Georgiastandards.org
https://njctl.org New Jersey Center for Teaching & Learning
www.achievethecore.com
http://www.khlanacademy.org/commoncore.com
http://www.mathtalks.net/ - number and pattern talks
http://www.diagnosticquestions.com– hinge questions
Curricular Framework Mathematics-Grade 7
https://tedd.org/mathematics/ - https://www.engageny.org/common-core-curriculum
Additional Resources:
Interactive Notebook
Common Core State Standards Flip Book

Go Math: my.hrw.com (Lawnside and Haddon Heights)
Big Ideas Math bigideasmath.com/ (Merchantville)

Instructional Best Practices and Exemplars

● W-Student learning map ● H- Real World Link ● E-Vocabulary activities ● R- Redo-knows and corrections ● E-students analyze progress throughout unit ● T-Scaffold activities to meet individual student needs ● O- encourage students to keep an organized binder

Key Vocabulary and Terms: Additive Identity Property, algebra, algebraic expression, arithmetic sequence, Associative Property, coefficient, Commutative Property, constant, counterexample, define a variable, Distributive Property, equivalent expressions, factor, factored form, like terms, linear expressions, monomial, Multiplicative Identity Property, Multiplicative Property of Zero, property, sequence, simplest form, term, variable, Addition Property of Equality, Addition Property of Inequality, coefficient, Division Property of Equality, Division Property of Inequality, equation, equivalent equation, inequality, Multiplication Property of Equality, Multiplication of Inequality, solution, Subtraction Property of Equality, Subtraction Property of Inequality, twostep equation, two-step inequality

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Interdisciplinary Connections		
ELA	**Social Studies**	**Science**
LA.7.W.7.1 - Write arguments to support claims with clear reasons and relevant evidence. SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	6.1.8.B.3.c -Use maps and other geographic tools 6.1.8.C.3.a Explain how taxes and government regulation can affect economic opportunities, and assess the impact of these on relations between Britain and its North American colonies. 6.1.8.C.3.b Summarize the effect of inflation and debt on the American people	SCI.7-8.8.2.8.E.1-Calculate the speed of an object given distance and time. SCI.7-8.5.4.8.A.c Gravitation is a universal attractive force by which objects with mass attract one another. The gravitational force between two objects is proportional to their masses and inversely proportional to the square of the distance between the object.

21st Century Skills/Career Education	**Technology**	
CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP8. Utilize critical thinking to make sense of problems and persevere in solving 9.1.8B1 9.2.8A1 9.2.8E2 9.2.8E3 9.2.8E4	**8.1.8.A.3 - Use and/or develop a simulation that provides an environment to solve a real world problem or theory.**	

Modifications and Accommodations		
Special Education Students	**English Language Learners**	**Students at Risk of School Failure**
small group/intentional grouping preferred seating direct instruction provide background knowledge provide individual/small group assistance provide student friendly definitions for vocabulary modified assignments (reduce/revise) provide notes/study guides restate/rephrase	small group/intentional grouping preferred seating direct instruction provide background knowledge provide individual/small group assistance provide student friendly definitions for vocabulary modified assignments (reduce/revise) provide notes/study guides restate/rephrase	small group/intentional grouping preferred seating direct instruction provide background knowledge provide individual/small group assistance provide student friendly definitions for vocabulary modified assignments (reduce/revise) provide notes/study guides restate/rephrase

graphic organizers, labels, word banks visuals chunking leveled text read text, use audio when available kinesthetic activities extended time breaks check-in/check-out system	graphic organizers, labels, word banks visuals chunking leveled text read text, use audio when available kinesthetic activities extended time breaks check-in/check-out system TPR Total Physical Response	graphic organizers, labels, word banks visuals chunking leveled text read text, use audio when available kinesthetic activities extended time breaks check-in/check-out system
Gifted and Talented extension project leveled text leadership roles intentional grouping targeted learning from assessment DOK higher order questions Blooms - analyze, evaluate, create	**Students with 504 Plans** small group/intentional grouping preferred seating direct instruction provide background knowledge provide individual/small group assistance provide student friendly definitions for vocabulary modified assignments (reduce/revise) provide notes/study guides restate/rephrase graphic organizers, labels, word banks visuals chunking leveled text read text, use audio when available kinesthetic activities extended time breaks check-in/check-out system	

Unit 3 Grade 7		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 7.SP.A.1. Understand that statistics can be used to gain	MP.3 Construct viable arguments &	Concept(s) ● Statistics can be used to gain information about a population by examining a

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.	critique the reasoning of others. MP.6 Attend to precision.	sample of the population. ● Generalizations about a population from a sample are valid only if the sample is representative of that population. ● Random sampling tends to produce representative samples. Students are able to: ● analyze and distinguish between representative and non-representative samples of a population. Learning Goal 1: Distinguish between representative and non-representative samples of a population (*e.g. if the class had 50% girls and the sample had 10% girls, then that sample was not representative of the population*).
● 7.SP.A.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. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be*.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.6 Attend to precision.	Concept(s): ● Inferences can be drawn from random sampling. Students are able to: ● analyze data from a sample to draw inferences about the population. ● generate multiple random samples of the same size. ● analyze the variation in multiple random samples of the same size. Learning Goal 2: Use random sampling to produce a representative sample. Learning Goal 3: Develop inferences about a population using data from a random sample and assess the variation in estimates after generating multiple samples of the same size.
● 7.SP.B.3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability*	MP.3 Construct viable arguments & critique the reasoning of others. MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools	Concept(s): No new concepts introduced Students are able to: ● locate, approximately, the measure of center (mean or median) of a distribution ● visually assess, given a distribution, the measure of spread (mean absolute deviation or inter-quartile range). ● visually compare two numerical data distributions and describe the degree of overlap. ● measure or approximate the difference between the measures centers and express it as a multiple of a measure of variability.

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(mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.	strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Learning Goal 4: Visually compare the means of two distributions that have similar variability; express the difference between the centers as a multiple of a measure of variability.
● 7.SP.B.4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): No new concept(s) introduced Students are able to: ● using measures of center, draw informal inferences about two populations and compare the inferences. ● using measures of variability, draw informal inferences about two populations and compare the inferences. Learning Goal 5: Draw informal comparative inferences about two populations using their measures of center and measures of variability.
● 7.SP.C.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.	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● Probability of a chance event is a number between 0 and 1. ● Probability expresses the likelihood of the event occurring. ● Larger probability indicates greater likelihood. Students are able to: ● draw conclusions about the likelihood of events given their probability. Learning Goal 6: Interpret and express the likelihood of a chance event as a number between 0 and 1, relating that the probability of an unlikely event happening is near 0, a likely event is near 1, and 1/2 is neither likely nor

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		unlikely.
● 7.SP.C.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, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*	MP.2 Reason abstractly and quantitatively. MP.1 Make sense of problems and persevere in solving them. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): ● Relative frequency ● Experimental probability ● Theoretical probability Students are able to: ● collect data on chance processes, noting the long-run relative frequency. ● predict the approximate relative frequency given the theoretical probability. Learning Goal 7: Approximate the probability of a chance event by collecting data and observing long-run relative frequency; predict the approximate relative frequency given the probability
● 7.SP.C.7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. 　7.SP.C.7a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.6 Attend to precision.	Concept(s): ● Uniform (equally likely) and non-uniform probability models *Students are able to:* ● develop a uniform probability model. ● use a uniform probability model to determine the probabilities of events. ● develop (non-uniform) probability models by observing frequencies in data that has been generated from a chance process. Learning Goal 8: Develop a uniform probability model by assigning equal probability to all outcomes; develop probability models by observing frequencies and use the models to determine probabilities of events; compare probabilities from a model to observed frequencies and explain sources of discrepancy when agreement is not good

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7.SP.C.7b. . Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *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?*		
● 7.SP.C.8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. 7.SP.C.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. 7.SP.C.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 the event. 7.SP.C.8c. Design and use a	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): ● Just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space. Students are able to: ● use organized lists, tables, and tree diagrams to represent sample spaces. ● given a description of an event using everyday language, identify the outcomes in a sample space that make up the described event. ● design simulations. ● use designed simulations to generate frequencies for compound events. Learning Goal 9: Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams, identifying the outcomes in the sample space which compose the event. Use the sample space to find the probability of a compound event. Learning Goal 10: Design and use a simulation to generate frequencies for compound events.

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simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*		

Unit 3 Grade 7 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Exit Slips *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes* *Proficiency Scales* *Suggested performance tasks, but not limited to: Glencoe Math Course 2 - Common Core Performance Task text ● p.93 Road Trip- Complete Scoring Rubric with answers can be found on PT1*	*MAP Assessment* *Link It Testing* *Unit Assessments* *Other Assessment Measures: Through quizzes, tests, academic prompts, observations, homework, journals, Star Renaissance, and benchmarks testing students will demonstrate achievements. Students will reflect on errors and make corrections. Performance Scales Learning goals and scales-Scales use an explicit set of criteria used for assessing progress toward a learning goal or target.*

Focus Mathematical Concepts
Prerequisites: Students should know how to find the measures of center (mean, median, mode) and variance (MAD, IQR) for a set of data. Students should also know how to create a box and whisker plot and find the IQR of a one data set. Students should understand how to represent an amount of a whole as a percent. **Misconceptions**: Students may not understand how one event impacts another's probability.

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District/School Tasks	District/School Primary and Supplementary Resources
Number/Pattern talks Which One Doesn't Belong Exit Tickets Questioning (specific questions, anticipated responses both correct and incorrect) Warm-ups Error Analysis Performance Tasks 3-ACT tasks Launch – Explore – Summarize Tasks Reteach Worksheets	Glencoe Math Course 2 Glencoe Math Course 2 - Power Up for the PARCC Assessment Glencoe Math Course 2 - Common Core Performance Tasks Various websites ● http://www.state.nj.us/education/modelcurriculum/math/7u3.shtml User Name: model Password: curriculum ● https://www.insidmathematics.org/performance-assessment-tasks ● www.mathplayground.com ● www.teacherspayteachers.com ● www.kahnacademy.org ● www.xpmath.com ● www.illustrativemathematics.org ● www.mathbitsnotebook.com ● http://map.mathshell.org/ ● https://parcc.pearson.com/practice-tests/math/ ● https://www.engageny.org/resource/mathematics-fluency-support-grades-6-8/file/133021 Provides fluency exercises along with recommended use ● https://www.engageny.org/resource/grade-7-mathematics-module-4 Engage NY - Grade 7: Percent and Proportional Relationships ● Teacher materials ● Student materials ● Copy ready materials ● Module overview ● Assessments Go Math my.hrw.com (Lawnside and Haddon Heights)

Instructional Best Practices and Exemplars
This is a place to capture examples of standards integration and instructional best practices. **● W-Student learning map ● H- Real World Link ● E-Vocabulary activities ● R- attend to precision and corrections ● E-students analyze progress throughout unit ● T-Scaffold activities to meet individual student needs ● O- encourage students to keep an organized ISN (Interactive Student Notebook) *D - The teacher will provide more guidance to struggling learners. The teacher will have higher-level learners generate their own comprehension questions. The teacher will provide modified levels of graphic organizers to use for various learners. The teacher will group students in the way they feel best suits the assigned discussion/task. See additional resources for additional general modifications.**

Interdisciplinary Connections		
ELA	**Social Studies**	**Science**
LA.7.W.7.1 - Write arguments to support claims with clear reasons and relevant evidence. SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	6.1.8.C.5.b Analyze the economic impact of Reconstruction on the South from different perspectives	SCI.7-8.8.2.8.E.1-Calculate the speed of an object given distance and time. SCI.7-8.5.4.8.A.c Gravitation is a universal attractive force by which objects with mass attract one another. The gravitational force between two objects is proportional to their masses and inversely proportional to the square of the distance between the object.

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21st Century Skills/Career Education	Technology	
CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP8. Utilize critical thinking to make sense of problems and persevere in solving 9.1.8B1 9.2.8A1 9.2.8E2 9.2.8E3 9.2.8E4	**8.1.8.A.3 - Use and/or develop a simulation that provides an environment to solve a real world problem or theory.**	

Modifications and Accommodations		
Special Education Students	**English Language Learners**	**Students at Risk of School Failure**
small group/intentional grouping	small group/intentional grouping	small group/intentional grouping
preferred seating	preferred seating	preferred seating
direct instruction	direct instruction	direct instruction
provide background knowledge	provide background knowledge	provide background knowledge
provide individual/small group assistance	provide individual/small group assistance	provide individual/small group assistance
provide student friendly definitions for vocabulary	provide student friendly definitions for vocabulary	provide student friendly definitions for vocabulary
modified assignments (reduce/revise)	modified assignments (reduce/revise)	modified assignments (reduce/revise)
provide notes/study guides	provide notes/study guides	provide notes/study guides
restate/rephrase	restate/rephrase	restate/rephrase
graphic organizers, labels, word banks	graphic organizers, labels, word banks	graphic organizers, labels, word banks
visuals	visuals	visuals
chunking	chunking	chunking
leveled text	leveled text	leveled text
read text, use audio when available	read text, use audio when available	read text, use audio when available
kinesthetic activities	kinesthetic activities	kinesthetic activities
extended time	extended time	extended time
breaks	breaks	breaks
check-in/check-out system	check-in/check-out system	check-in/check-out system
	TPR Total Physical Response	
Gifted and Talented	**Students with 504 Plans**	
extension project	small group/intentional grouping	
leveled text	preferred seating	

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leadership roles intentional grouping targeted learning from assessment DOK higher order questions Blooms - analyze, evaluate, create	direct instruction provide background knowledge provide individual/small group assistance provide student friendly definitions for vocabulary modified assignments (reduce/revise) provide notes/study guides restate/rephrase graphic organizers, labels, word banks visuals chunking leveled text read text, use audio when available kinesthetic activities extended time breaks check-in/check-out system	

Unit 4 Grade 7		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 7.G.B.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): ● Circumference Students are able to: ● solve problems by finding the area and circumference of circles. ● show that the area of a circle can be derived from the circumference. Learning Goal 1: Know the formulas for the area and circumference of a circle and use them to solve problems. Give an informal derivation of the relationship between the circumference and area of a circle.

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	MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	
● 7.G.B.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. ● 7.EE.B.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. 　　7.EE.B.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.	MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: 　● use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations. 　● solve mathematical problems by writing and solving simple algebraic equations based on the relationships between and properties of angles (supplementary, complementary, vertical, and adjacent. Learning Goal 2: Write and solve *simple* multi-step algebraic equations involving supplementary, complementary, vertical, and adjacent angles.
● 7.G.B.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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others.	Concept(s): No new concept(s) introduced Students are able to: 　● solve real-world and mathematical problems involving area of two dimensional objects composed of triangles, quadrilaterals, and polygons. 　● solve real-world and mathematical problems involving volume of three dimensional objects composed of cubes and right prisms. 　● solve real-world and mathematical problems involving surface area of three-dimensional objects composed of cubes and right prisms.

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	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Learning Goal 3: 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.
● 7.G.A.2. Draw (with technology, with ruler and protractor as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle	MP.3 Construct viable arguments & critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● Conditions for unique triangles, more than one triangle, and no triangle. Students are able to: ● draw geometric shapes with given conditions, including constructing triangles from three measures of angles or sides. ● recognize conditions determining a unique triangle, more than one triangle, or no triangle. Learning Goal 4: Use freehand, mechanical (i.e. ruler, protractor) and technological tools to draw geometric shapes with given conditions (e.g. scale factor), focusing on constructing triangles.
● 7.G.A.3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● Cross-sections of three-dimensional objects Students are able to: ● analyze three dimensional shapes (right rectangular pyramids and prisms) by examining and describing all of the 2-dimensional figures that result from slicing it at various angles. Learning Goal 5: Describe all of the 2-dimensional figures that result when a 3-dimemsional figures are sliced from multiple angles.

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● 7.EE.B.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.
 	
    7.EE.B.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?*
 	
(benchmarked)
	MP.2 Reason abstractly and quantitatively.
	
	MP.4 Model with mathematics.
	
	MP.6 Attend to precision.
	
	MP.7 Look for and make use of structure.
		Concept(s): No new concept(s) introduced
		
		Students are able to:
		
		  ● write an equation of the form $px + q = r$ or $p(x + q)=r$ in order to solve a word problem.
		  ● fluently solve equations of the form $px + q = r$ and $p(x + q)= r$.
		
		Learning Goal 6: Fluently solve simple equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers.

● 7.RP.A.3. Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error*
 	
(benchmarked)
	MP.1 Make sense of problems and persevere in solving them.
	
	MP.2 Reason abstractly and quantitatively.
	MP.4 Model with mathematics.
	
	MP.5 Use appropriate tools strategically.
	
	MP.6 Attend to precision.
	
	MP.7 Look for and make use of
		Concept(s):
		  ● Recognize percent as a ratio indicating the quantity *per one hundred.*
		Students are able to:
		
		  ● use proportions to solve multistep percent problems including simple interest, tax, markups, discounts, gratuities, commissions, fees, percent increase, percent decrease, percent error.
		  ● use proportions to solve multistep ratio problems.
		
		Learning Goal 7: Solve multi-step ratio and percent problems using proportional relationships (*simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error*).

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structure.	

Unit 4 Grade 7 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Exit Slips *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes* *Proficiency Scales*	*MAP Assessment* *Link It Testing* *End of Unit Assessment*

Focus Mathematical Concepts
Prerequisites: Students should know area of parallelograms, trapezoids, and triangles. Students should know obtuse, acute, right, and straight angles. Students should be familiar with the volume formula of right rectangular prism and know how to find surface area of a 3D object using nets. Students should know the difference between area and perimeter. Students should be familiar with using protractors and what an angle degree represents. Misconceptions: Students often confuse area and perimeter. Students may use the incorrect formula when finding area or circumference for a circle. When decomposing shapes they may select incorrect side lengths. Students may create incorrect equations for angle relationships presented.

District/School Tasks	**District/School Primary and Supplementary Resources**
Number/Pattern talks Which One Doesn't Belong Exit Tickets Questioning (specific questions, anticipated responses both correct and incorrect) Warm-ups Error Analysis Performance Tasks 3-ACT tasks	Glencoe Math Course 2 Glencoe Math Course 2 - Power Up for the PARCC Assessment Glencoe Math Course 2 - Common Core Performance Tasks Various websites ● http://www.state.nj.us/education/modelcurriculum/math/7u3.shtml User Name: model Password: curriculum ● https://www.insidmathematics.org/performance-assessment-tasks ● www.mathplayground.com ● www.teacherspayteachers.com ● www.kahnacademy.org ● www.xpmath.com ● www.illustrativemathematics.org ● www.mathbitsnotebook.com ● http://map.mathshell.org/ ● https://parcc.pearson.com/practice-tests/math/ ● https://www.engageny.org/resource/mathematics-fluency-support-grades-6-8/file/133021 Provides fluency exercises along with recommended use ●

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Launch – Explore – Summarize Tasks Reteach Worksheets *Glencoe Math Course 2 - Common Core Performance Task text ● p.787* *Carnival Prizes- Complete Scoring Rubric with answers can be found on PT5 ●* *p.851 Class Evaluation- Complete Scoring Rubric with answers can be found* *on PT6*	https://www.engageny.org/resource/grade-7-mathematics-module-4 Engage NY - Grade 7: Percent and Proportional Relationships ● Teacher materials ● Student materials ● Copy ready materials ● Module overview ● Assessments Go Math; my.hrw.com (Lawnside and Haddon Heights) Big Ideas Math bigideasmath.com/ (Merchantville)

Instructional Best Practices and Exemplars

● *W-Student learning map* ● *H- Real World Link* ● *E-Vocabulary activities* ● *R- attend to precision and corrections* ● *E-students analyze progress throughout unit* ● *T-Scaffold activities to meet individual student needs* ● *O- encourage students to keep an organized ISN (Interactive Student Notebook) D - The teacher will provide more guidance to struggling learners. The teacher will have higher-level learners generate their own comprehension questions. The teacher will provide modified levels of graphic organizers to use for various learners. The teacher will group students in the way they feel best suits the assigned discussion/task. See additional resources for additional general modifications.*

Interdisciplinary Connections

ELA	Social Studies	Science
LA.7.W.7.1 - Write arguments to support claims with clear reasons and relevant evidence. SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	6.1.8.B.1.b Analyze the world in spatial terms (e.g., longitude, latitude) using historical maps to determine what led to the exploration of new water and land routes.	SCI.7-8.5.1.8.D.a- Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and smallgroup work

21st Century Skills/Career Education	Technology	
CRP3. Attend to personal health and financial well-being. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP8. Utilize critical thinking to make sense of problems and persevere in solving 9.1.8B1 9.2.8A1	**8.1.8.A.3 - Use and/or develop a simulation that provides an environment to solve a real world problem or theory.**	

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9.2.8E2 9.2.8E3 9.2.8E4		

Modifications and Accommodations		
Special Education Students	**English Language Learners**	**Students at Risk of School Failure**
small group/intentional grouping	small group/intentional grouping	small group/intentional grouping
preferred seating	preferred seating	preferred seating
direct instruction	direct instruction	direct instruction
provide background knowledge	provide background knowledge	provide background knowledge
provide individual/small group assistance	provide individual/small group assistance	provide individual/small group assistance
provide student friendly definitions for vocabulary	provide student friendly definitions for vocabulary	provide student friendly definitions for vocabulary
modified assignments (reduce/revise)	modified assignments (reduce/revise)	modified assignments (reduce/revise)
provide notes/study guides	provide notes/study guides	provide notes/study guides
restate/rephrase	restate/rephrase	restate/rephrase
graphic organizers, labels, word banks	graphic organizers, labels, word banks	graphic organizers, labels, word banks
visuals	visuals	visuals
chunking	chunking	chunking
leveled text	leveled text	leveled text
read text, use audio when available	read text, use audio when available	read text, use audio when available
kinesthetic activities	kinesthetic activities	kinesthetic activities
extended time	extended time	extended time
breaks	breaks	breaks
check-in/check-out system	check-in/check-out system	check-in/check-out system
	TPR Total Physical Response	
Gifted and Talented	**Students with 504 Plans**	
extension project	small group/intentional grouping	
leveled text	preferred seating	
leadership roles	direct instruction	
intentional grouping	provide background knowledge	
targeted learning from assessment	provide individual/small group assistance	
DOK higher order questions	provide student friendly definitions for vocabulary	
Blooms - analyze, evaluate, create	modified assignments (reduce/revise)	
	provide notes/study guides	
	restate/rephrase	
	graphic organizers, labels, word banks	
	visuals	
	chunking	

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	leveled text read text, use audio when available kinesthetic activities extended time breaks check-in/check-out system	