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

Course Name: Mathematics
Grade: 6
Board Approved: DATE OF BOARD APPROVAL

*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).
**Resource and activity lists are compiled from all four districts and may not necessarily be reflected in each district or school.

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Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 1 **Operations and Reasoning about Ratios**	• 6.NS.A.1 • 6.NS.B.2 • 6.RP.A.1 • 6.RP.A.2 • 6.RP.A.3* • 6.NS.B.3 • 6.NS.B.4	• Apply and extend previous understandings of multiplication and division to divide fractions by fractions • Compute fluently with multi-digit numbers and find common factors and multiples • Understand ratio concepts and use ratio reasoning to solve problems	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.
Unit 1: ***Suggested Open Educational Resources***	6.NS.A.1 Traffic Jam 6.RP.A.1 Games at Recess 6.RP.A.2 Price per pound and pounds per dollar 6.RP.A.3 Voting for Three, Variation 1 6.RP.A.3c Shirt Sale 6.NS.B.3 Reasoning about Multiplication and Division and Place Value, Part 1		

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

	6.NS.B.4 Factors and Common Factors 6.NS.B.4 Multiples and Common Multiples		MP.4 Model with mathematics.
Unit 2 **Expressions and 3-D Geometry**	• 6.EE.A.1 • 6.EE.A.2 • 6.EE.A.3 • 6.EE.A.4 • 6.EE.B.6 • 6.G.A.2 • 6.G.A.4	• Apply and extend previous understandings of arithmetic to algebraic expressions • Reason about and solve one-variable equations and inequalities • Solve real-world and mathematical problems involving area, surface area, and volume	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.
Unit 2: ***Suggested Open Educational Resources***	6.EE.A.1 The Djinni's Offer 6.EE.A.2 Rectangle Perimeter 1 6.EE.A.4 Rectangle Perimeter 2 6.EE.A.4 Equivalent Expressions 6.G.A.2 Volumes with Fractional Edge Lengths 6.G.A.4 Nets for Pyramids and Prisms		MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.

Unit 3 **Equations, The Rational Number System and** **2-D Geometry**	• 6.EE.B.5 • 6.EE.B.7 • 6.NS.C.5 • 6.NS.C.6 • 6.NS.C.7 • 6.EE.B.8 • 6.NS.C.8* • 6.G.A.3 • 6.G.A.1	• Reason about and solve one-variable equations and inequalities • Apply and extend previous understandings of numbers to the system of rational numbers • Solve real-world and mathematical problems involving area, surface area, and volume	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.
Unit 3: *Suggested Open Educational Resources*	6.EE.B.5 Make Use of Structure 6.EE.B.7 Morning Walk 6.NS.C.5 Warmer in Miami 6.NS.C.6 Mile High 6.NS.C.7 Jumping Flea 6.NS.C.7a Fractions on the Number Line 6.NS.C.7b Comparing Temperatures 6.EE.B.8 Fishing Adventures 1 6.NS.C.8 Nome, Alaska 6.G.A.1, 6.G.A.3 Polygons in the Coordinate Plane		

Unit 4 Variability, Distributions, and Relationships between Quantities	• 6.EE.C.9 • 6.SP.A.1 • 6.SP.A.2 • 6.SP.A.3 • 6.SP.B.4 • 6.SP.B.5 • 6.RP.A.3* • 6.NS.C.8*	• Represent and analyze quantitative relationships between dependent and independent variables • Develop understanding of statistical variability • Summarize and describe distributions • Understand ratio concepts and use ratio reasoning to solve problems • Apply and extend previous understandings of numbers to the system of rational numbers	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.
Unit 4: *Suggested Open Educational Resources*	6.EE.C.9 Families of Triangles 6.SP.A.1 Identifying Statistical Questions 6.SP.A.2, 6.SP.B.4 Puppy Weights 6.SP.A.3 Is It Center or Is It Variability? 6.SP.B.5c Number of Siblings 6.SP.B.5d Mean or Median?		MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.

Unit 1 Grade 6		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**

● 6.NS.A.1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by 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 because 3/4 of 8/9 is 2/3. (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?*	MP.4 Model with mathematics.	Concept(s): No new concept(s) introduced Students are able to: ● divide a fraction by a fraction. ● represent division of fractions using visual models. ● interpret quotients of fractions in the context of the problem. ● compute quotients of fractions in order to solve word problems. ● write equations to solve word problems involving division of fraction by a fraction. ● use the relationship between multiplication and division to explain division of fractions. Learning Goal 1: Compute quotients of fractions. Learning Goal 2: Construct visual fraction models to represent quotients of fractions and use the relationship between multiplication and division to explain division of fractions. Learning Goal 3: Solve real-world problems involving quotients of fractions and interpret the solutions in the context given.
● 6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.		Concept(s): No new concept(s) introduced Students are able to: ● use the standard algorithm to divide multi-digit numbers with speed and accuracy. Learning Goal 4: Fluently divide multi-digit numbers using the standard algorithms.
● 6.RP.A.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*	MP.2 Reason abstractly and quantitatively.	Concept(s): ● A ratio shows relative sizes or values of two quantities.

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."		Students are able to: ● describe a ratio relationship between two quantities using ratio language. Learning Goal 5: Explain the relationship of two quantities in given ratio using ratio language.
● 6.RP.A.2. Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, 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."*	MP.2 Reason abstractly and quantitatively.	Concept(s): ● A rate is a ratio comparing two different types of quantities. Students will be able to: ● determine the unit rate given a ratio relationship. ● describe a unit rate relationship between two quantities using rate language. Learning Goal 6: Use rate language, in the context of the ratio relationship, to describe a unit rate.
● 6.RP.A.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. *(benchmarked) 6.RP.A.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. 6.RP.A.3b. Solve unit rate problems including those involving unit pricing and	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. MP.8 Look for and express regularity in repeated reasoning	Concept(s): No new concept(s) introduced Students are able to: ● use ratio and rate reasoning to create tables of equivalent ratios relating quantities with *whole number* measurements, find missing values in tables and plot pairs of values. ● compare ratios using tables of equivalent ratios. ● solve real world and mathematical problems involving unit rate (including unit price and constant speed). ● calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent. ● convert measurement units using ratio reasoning. ● transform units appropriately when multiplying and dividing quantities. Learning Goal 7*:* Create and complete tables of equivalent ratios to sole real world and mathematical problems using ratio and rate reasoning that include making tables

constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?* 6.RP.A.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. 6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.		of equivalent ratios, solving unit rate problems, finding percent of a quantity as a rate per 100. Learning Goal 8: Use ratio and rate reasoning to convert measurement units and to transform units appropriately when multiplying or dividing quantities.
● 6.NS.B.3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.		Concept(s): No new concept(s) introduced Students are able to: ● add and subtract multi-digit decimals with accuracy and efficiency. ● multiply and divide multi-digit decimals with accuracy and efficiency. Learning Goal 9: Fluently add, subtract, multiply and divide multi-digit decimals.
● 6.NS.B.4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.	MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● create lists of factors for two whole numbers less than or equal to 100; find the largest factor common to both lists. ● create lists of multiples for two whole numbers less than or equal to 12; find the smallest multiple common to both lists.

		Learning Goal 10: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two numbers less than or equal to 12.

Unit 1 Grade 6 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Sample tasks include but not limited to: *Students will find the unit rate to find the best value of an item. Students will use unit rate calculate the cost of trip. Students will calculate the exchange rate for the US dollar. Understanding will be judged using an extended- response rubric.* *Exit Slips* *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes*	*MAP Assessment* *Link It Testing* *End of Unit Assessments*

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: Add, subtract, multiply and divide integers; create equivalent fractions; multiplying and dividing fractions; rewrite mixed numbers into improper fractions; representing fractions by decimals; order rational numbers on a number line.* *Common Misconceptions: Some students think that ratios imply that the reverse ratio is true too; for example, a student may believe that $3 for 2 apples equals $2 for 3 apples. Fractions and ratios may represent different comparisons. Fractions always express a part-to-whole comparison, but ratios can express a part-to-whole comparison or a part-to-part comparison which can be written as: a to b, b a , or a:b. Some students think that addition creates equivalent proportions. Some students believe that unit rate can only be written in one way. This unit shows students how they can scale down either of the ratio components to one when writing a unit rate. Those unit rates are equivalent, but just in different forms. Some students have difficulty identifying the "whole" that the percent refers to. For example, confusing 60 with 60%. Some students think that you can multiply and divide fractions in the same way they add and subtract by multiplying the whole numbers and the fractions separately.*

District/School Tasks	**District/School Primary and Supplementary Resources**

Things to add throughout the year: 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 Build to the Common Core- Course 1 Glencoe Math- Power Up Glencoe Math Build to the Common Core Practice Masters www.engageny.org www.math.com www.coolmath.com www.interactivesites.weebly.com Reflex Math Go Math: my.hrw.com (Lawnside, Haddon Heights) Big Ideas Math https://www.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

Interdisciplinary Connections

ELA	**Social Studies**	**Science**
SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.6.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	6.1.8.C.5.a 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	8.1.8.A.3 - Use and/or develop a simulation that provides an environment to solve a real world problem or theory.	

9.1.8B1 9.2.8A1 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 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	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 TPR Total Physical Response	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
Gifted and Talented	**Students with 504 Plans**	
extension project leveled text leadership roles intentional grouping targeted learning from assessment DOK higher order questions Blooms - analyze, evaluate, create	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 Duration: Instructional Days
How long will the unit take to complete? 42 days

Unit 2 Grade 6		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 6.EE.A.1. Write and evaluate numerical expressions involving whole-number exponents	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● write numerical expressions (involving whole number exponents) from verbal descriptions. ● evaluate numerical expressions involving whole number exponents. Learning Goal 1: Write and evaluate numerical expressions involving whole number exponents.
● 6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers 6.EE.A.2a. Write expressions that record operations with numbers and with letters standing for	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● write algebraic expressions from verbal descriptions. ● use mathematical terms (sum, term, product, factor, quotient, coefficient) to

numbers. *For example, express the calculation "Subtract y from 5" as 5 - y.* 6.EE.A.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. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms* 6.EE.A.2c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used 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). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = ½*		identify the parts of an expression. ● evaluate algebraic expressions and formulas, including those involving exponents. Learning Goal 2: Use mathematical language to identify parts of an expression. Learning Goal 3: Write and evaluate algebraic expressions involving exponents (include evaluating formulas).
● 6.EE.A.3. Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of*	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): ● Properties of operations: distributive property, combining like terms Students are able to: ● combine like terms to generate an equivalent expression. ● factor to generate an equivalent expression. ● multiply (apply the distributive property) to generate an equivalent expression.

operations to y + y + y to produce the equivalent expression 3y ● 6.EE.A.4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for*		Learning Goal 4: Apply properties of operations (factor, distribute, and combine like terms) to generate equivalent expressions and to identify when two expressions are equivalent.
● 6.EE.B.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.	MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● A variable can represent an unknown number or any number in a set of numbers. Students are able to: ● write expressions for solving real-world problems. Learning Goal 5: Use variables to represent numbers and write expressions when solving real world or mathematical problems.
● 6.G.A.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, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\ w\ h$ and $V = B\ h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	MP. 2 Reason abstractly and quantitatively.	Concept(s): No new concept(s) introduced Students are able to: ● pack a right rectangular prism with fractional edge lengths with unit fraction cubes. ● show that the volume found by packing is the same as would be found by multiplying the edge lengths of the prism. ● apply volume formulas, $V = l\ w\ h$ and $V = b\ h$, to right rectangular prisms with fractional edge lengths. Learning Goal 6: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes and show that the volume is the same as it would be if found by multiplying the edge lengths; apply volume

		formulas to right rectangular prisms with fractional edge lengths.
• 6.G.A.4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically	Concept(s): No new concept(s) introduced Students are able to: • represent three dimensional objects with nets made up of rectangles and triangles. • find surface area of three-dimensional objects using nets. • solve real world and mathematical problems involving surface area using nets. Learning Goal 7: Represent three dimensional figures objects with nets made of rectangles and triangles, and use the nets to find the surface area of the figures in order to solve real world and mathematical problems.

Unit 2 Grade 6 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Students will find fractional amounts of money, food and land. Students will multiply and divide large amounts. Understanding will be judged using an extended- response rubric *Exit Slips* *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes*	*MAP Assessment* *Link it Testing* *End of Unit Tests* *Building a Cereal Box Project*
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: Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole*	

number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.
Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
Common Misconceptions:
The mnemonic PEMDAS can mislead students into thinking that addition must come before subtraction and multiplication must come before division.
Some students may think exponents mean multiplication (ex: 3^2 means 3 x 2). Some students may think that the P in pemdas only means parentheses where P refers to all grouping symbols. Some may choose to use GEMDAS.
Students fail to see juxtaposition (side by side) as indicating multiplication. For example, evaluating 3x as 35 when x = 5 instead of 3 times 5 = 15. Also, students may rewrite 8 – 2a as 6a.
Students also miss the understood "1" in front of a lone variable like a or x or p. For example, not realizing that 4a + a is 5a.
Many of the misconceptions when dealing with expressions stem from the misunderstanding/reading of the expression. For example, knowing the operations that are being referenced with notation like x^3, 4x, 3(x + 2y) is critical. The fact that x^3 means (x)(x)(x) which is x times x times x, not 3x or 3 times x; 4x means 4 times x or x + x + x + x, not forty-something.
Students may believe every shape has a unique formula to find its area, when actually area can always be found by decomposing the shape into non-overlapping areas. Students often struggle to find length measures that are not given, failing to recognize the equivalence of a longer side and two shorter sections. Students may believe that two triangles who have the same area will look exactly alike, when it is possible to have two triangles with the same area that are not congruent triangle

District/School Tasks	**District/School Primary and Supplementary Resources**
Things to add throughout the year: *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 Build to the Common Core- Course 1 Glencoe Math- Power Up Glencoe Math Build to the Common Core- Common Core Practice Masters www.engageny.org www.math.com www.coolmath.com www.interactivesites.weebly.com* *Reflex Math* *Go Math; my.hrw.com (Lawnside and Haddon Heights)* Big Ideas Math; http://bigideasmath.com/ (Merchantville)

Launch – Explore – Summarize Tasks *Reteach Worksheets*	

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

Interdisciplinary Connections

ELA	**Social Studies**	**Science**
SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.6.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	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 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 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	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 TPR Total Physical Response	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
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 Duration: Instructional Days
How long will the unit take to complete? 42 days

Unit 3 Grade 6		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 6.EE.B.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.	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): ● Solving an equation or inequality is a process of answering the question: determine which values from a specified set, if any, make the equation or inequality true. Students are able to: ● substitute a number into an equation to determine whether it makes an equation true. ● substitute a number into an inequality to determine whether it makes the inequality true. Learning Goal 1: Use substitution to determine whether a given number makes an equation or inequality true.
● 6.EE.B.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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● An equation is defined by two expressions that are equivalent to one another. Students will be able to: ● solve real world problems by writing and solving equations of the form $x + p = q$ (p, q, and x are non-negative and rational). ● solve real world problems by writing and solving equations of the form $px = q$ (p, q, and x are non-negative and rational).

		Learning Goal 2: Solve real world problems by writing and solving equations of the form $x + p = q$ and $px = q$ (p, q, and x are non-negative rational numbers).
● 6.NS.C.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, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically	Concept(s): ● Positive and negative numbers, used together, describe quantities having opposite directions or opposite values. Students are able to: ● represent quantities with positive and negative numbers in real-world contexts. ● interpret positive and negative numbers in real-world contexts. ● explain the meaning of zero, in context, in each real-world situation. Learning Goal 3: Use positive and negative numbers to represent quantities in real-world situations, explaining the meaning of zero in the context of the real-world situation.
● 6.NS.C.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. 6.NS.C.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. 6.NS.C.6b. Understand signs of numbers in ordered pairs as	MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): ● Opposite signs of numbers indicate locations on opposite sides of 0 on the number line. ● The opposite of the opposite of a number is the number itself (e.g. the opposite of three is -3. The opposite of the opposite of three, -(-3), is equal to the original number, 3). ● Signs of numbers in ordered pairs indicate their locations in quadrants of the coordinate plane. ● When two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Students are able to: ● position rational numbers on horizontal and vertical number lines. ● position pairs of rational numbers on a coordinate plane. ● explain the conditions for which pairs of points are reflections across an axes in

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. 6.NS.C.6c. Find and position 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.		the coordinate plane. ● locate numbers and their opposites on the number line and explain their relation to 0. Learning Goal 4: Locate rational numbers and their opposites on horizontal and vertical number line; explain their relation of the opposites to zero. Learning Goal 5: Plot pairs of positive and negative rational numbers in the coordinate plane; describe two ordered pairs that differ only by signs as reflections across one or both axes.
● 6.NS.C.7. Understand ordering and absolute value of rational numbers. 6.NS.C.7a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.* 6.NS.C.7b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 °C > –7 °C to express the fact that –3 °C is warmer than –7 °C.* 6.NS.C.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. *For example, for an account balance of –30*	MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically	Concept(s): ● The absolute value of a rational number is its distance from 0 on the number line. Students are able to: ● given an inequality, determine the position of one rational number relative to another. ● write a inequality and explain statements of order for rational numbers in real world situations. Learning Goal 6: Use statements of inequality to determine relative positions of two rational numbers on a number line; write and explain statements of order for rational numbers in real-world contexts. Learning Goal 7: Explain the meaning of absolute value of a rational number as distance from zero on the number line and as magnitude for a positive or negative quantity in a real-world situation.

dollars, write |–30| = 30 to describe the size of the debt in dollars. 6.NS.C.7d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*		
● 6.EE.B.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	MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● An inequality may represent a constraint (or a condition) in a real-world problem. ● Infinity ($x > c$ and $x < c$ have an infinite number of solutions). Students are able to: ● represent real-world constraint or condition by writing an inequality of the form $x > c$ or $x < c$. ● graph inequalities of the form $x > c$ or $x < c$ on number lines. Learning Goal 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 and represent them on a number line.
● 6.NS.C.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. *(benchmarked) ● 6.G.A.3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining	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): No new concept(s) introduced Students are able to: ● graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems. ● draw polygons in the coordinate plane. ● use absolute value to find distances between points with the same first coordinate or the same second coordinate. ● use coordinates to solve real-world distance, perimeter, and area problems.

points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.		Learning Goal 9: Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use the absolute value of the differences of their coordinates to find distances between points with the same first coordinate or same second coordinate.
• 6.G.A.1. Find the area of right triangles, other triangles, special 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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: • compose rectangles in order to find the area of triangles, special quadrilaterals and polygons. • decompose triangles, special quadrilaterals, and polygons into triangles and other shapes in order to find their area. • compose rectangles and decompose into triangles in order to solve real-world problems. Learning Goal 10: Find the area of right triangles, other triangles, special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes to solve real world or mathematical problems.

Unit 3 Grade 6 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Performance Tasks: Students will write and solve algebraic equations. Students will use various algebraic properties to solve real world problems. Students will write, solve and graph inequalities *Exit Slips* *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes*	*MAP Assessment* *Link It Testing* *End of Unit Test* *Create a Coordinate Town Project*

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: Write, read, and evaluate which letters stand for numbers. Understand rational numbers. Multiply and Divide Fractions. Understanding different shapes and area of a rectangle. Understanding the x-axis and y-axis, and how to graph coordinate points in the first quadrant.
Common Misconceptions:
While solving equations, it is important to be able to write equations and use them in the context of a situation. To do this, you have to understand what the variables in a problem represent, and how they might apply in different situations. You need to understand what they're used to model. Also, an important aspect of equations is that the two expressions on either side of the equal sign may not always be equal; that is, the equation might be a true statement for some values of the variable(s) and a false statement for others.

District/School Tasks	District/School Primary and Supplementary Resources
Things to add throughout the year: *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 Build to the Common Core- Course 1 Glencoe Math- Power Up Glencoe Math Build to the Common Core- Common Core Practice Masters* *Websites:* *http://www.mymathuniverse.com/digitsSNP* *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* *https://tedd.org/mathematics/ - https://www.engageny.org/common-core-curriculum* *Go Math my.hrw.com (Lawnside and Haddon Heights)* *Big Ideas Math http://bigideasmath.com/ (Merchantville)*

Instructional Best Practices and Exemplars

Consider how will the design will: (WHERETO – Understanding By Design –Wiggins and McTighe) W = Help the students know Where the unit is going and What is expected? Help the teacher know Where the students are coming from (prior knowledge and interests)? H= Hook all students and Hold their interest? E= Equip students, help the Experience the key ideas and Explore the issue? R=Provide opportunities to Rethink and Revise their understandings and work? E=Allow students to Evaluate their work and its implications? T=be Tailored (personalized to the different needs, interests and abilities of learners? O=be Organized to maximize initial and sustained engagement as well as effective learning? Description with Modifications, number of days, etc. 1. Finding GCF and LCM ● 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

Interdisciplinary Connections

ELA	**Social Studies**	**Science**
SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly. RI.6.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	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	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 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 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	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 TPR Total Physical Response	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
Gifted and Talented	**Students with 504 Plans**	
extension project leveled text leadership roles intentional grouping targeted learning from assessment DOK higher order questions Blooms - analyze, evaluate, create	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 Duration: Instructional Days
How long will the unit take to complete? 42 days

Unit 4 Grade 6		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 6.EE.C.9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. 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*.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.6 Attend to precision.	Concept(s): ● Two quantities that change in relationship to one another may be represented with an equation in two variables, with a graph, and with a table of values. Students are able to: ● represent two quantities that related to one another, with variables. ● write an equation in two variables. ● distinguish the dependent variable from the independent variable. ● analyze a given graph and table of values, and relate them to the equation. Learning Goal 1: Write an equation using two variables (independent and dependent) to represent two quantities that change in relationship to one another in a real world problem. Learning Goal 2: Analyze the relationship between the dependent and independent variables and relate the equation to a given graph and to its table of values.
● 6.SP.A.1. Recognize a statistical question as one that anticipates	MP.2 Reason abstractly and	Concept(s):

variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*	quantitatively. MP.6 Attend to precision	• Variability/Variation • A statistical question is one that anticipates variability in the data that is related to the question. Students are able to: • distinguish questions that are statistical (anticipate variability in data) from those that are not. Learning Goal 3: Distinguish questions that are statistical (anticipate variability in data) from those that are not.
• 6.SP.A.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. • 6.SP.A.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. • 6.SP.B.4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	MP.4 Model with mathematics.	Concept(s): • A data set has a distribution which can be described by its center, spread, and overall shape. • A measure of center summarizes, with a single number, the values of an entire data set. • A measure of variation describes, with a single number, how the values of a data set vary. Students are able to: • distinguish center from variation. • display numerical data in dot plots on a number line. • display numerical data in histograms on a number line. • display numerical data in box plots on a number line. Learning Goal 4: Display numerical data in plots on the number line (including dot plots, histograms, and box plots) and summarize in relation to their context.
• 6.SP.B.5. Summarize numerical data sets in relation to their context, such as by: 6.SP.B.5a. Reporting the number of observations.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): No new concept(s) introduced Students are able to: • determine the number of observations of a data set.

6.SP.B.5b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. 6.SP.B.5c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. 6.SP.B.5d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	MP.5 Use appropriate tools strategically.	• describe the data in context, including how it was measured and the units of measurement. • calculate measures of center, mean and median. • calculate measures of spread, interquartile range and mean absolute deviation. • describe the overall shape of a distribution (skewed left, skewed right, etc). • identify striking deviations (outliers). • choose measures of center and variability appropriate to the shape of the distribution and context. Learning Goal 5: Summarize numerical data in relation to their context by identifying the number of observations and describing how the data was measured. Learning Goal 6*:* Calculate, and interpret measures of center (mean and median) and variability (interquartile range and mean absolute deviation); report measures of center and variability appropriate to the shape of the distribution and context.
• 6.RP.A.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. *(benchmarked) 6.RP.A.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. 6.RP.A.3b. Solve unit rate problems including those	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. MP.8 Look for and express regularity in repeated reasoning	Concept(s): No new concept(s) introduced Students are able to: • use ratio and rate reasoning to create tables of equivalent ratios relating quantities with *whole number* measurements, find missing values in tables and plot pairs of values. • compare ratios using tables of equivalent ratios. • solve real world and mathematical problems involving unit rate (including unit price and constant speed). • calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent. • convert measurement units using ratio reasoning. • transform units appropriately when multiplying and dividing quantities. Learning Goal 7*:* Create and complete tables of equivalent ratios to sole real world and

involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?* 6.RP.A.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. 6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.		mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, finding percent of a quantity as a rate per 100. Learning Goal 8: Use ratio and rate reasoning to convert measurement units and to transform units appropriately when multiplying or dividing quantities.
● 6.NS.C.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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: ● graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems. ● draw polygons in the coordinate plane. ● use absolute value to find distances between points with the same first coordinate or the same second coordinate. ● use coordinates to solve real-world distance, perimeter, and area problems. Learning Goal 9: Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane; use the absolute value of the differences of their coordinates to find distances between points with the same first coordinate or same second coordinate.

Unit 4 Grade 6 What This May Look Like	
District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
Performance Task: Students will collect data and represent data using measures of center and variance. Students will be assessed using a rubric. *Exit Slips* *Class Assignments* *Homework* *Extended Response* *Teacher Observations* *Reflex Math* *Warm-ups* *Mini Quizzes*	*MAP Assessment* *Link it Testing* *End of Unit Tests* *Data Poster Project*

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: Students should be able to add, subtract, multiply and divide fractions, make line plots to display a data set of measurements in fractions, graph ordered pairs on the coordinate plane, generate two numerical patterns and identify relationships between corresponding terms, multiply and divide to solve word problems involving comparison.* *Common Misconceptions:* *Students may misunderstand what the graph represents in context. For example, that moving up or down on a graph does not necessarily mean that a person is moving up or down. Students may number the intervals in a graphical representation inconsistently based on the numbers in the data set. Providing students with examples and non-examples of correctly labeled representations can show the misleading qualities an incorrectly labeled graph can have.*

District/School Tasks	**District/School Primary and Supplementary Resources**
Things to add throughout the year: *Number/Pattern talks* *Which One Doesn't Belong* *Exit Tickets* *Questioning (specific questions, anticipated responses both correct and incorrect)*	*Glencoe Math Build to the Common Core- Course 1 Glencoe Math- Power Up Glencoe Math Build to the Common Core- Common Core Practice Masters* *Websites:* *http://www.mymathuniverse.com/digitsSNP* *www.brainpop.com*

Warm-ups *Error Analysis* *Performance Tasks* *3-ACT tasks* *Launch – Explore – Summarize Tasks* *Reteach Worksheets*	*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* *https://tedd.org/mathematics/ - https://www.engageny.org/common-core-curriculum* *Additional Resources:* *Interactive Notebook* *Go Math; my.hrw.com (Lawnside and Haddon Heights)* *Big Ideas Math http://bigideasmath.com/ (Merchantville)*

Instructional Best Practices and Exemplars

Consider how will the design will: (WHERETO – Understanding By Design –Wiggins and McTighe) W = Help the students know Where the unit is going and What is expected? Help the teacher know Where the students are coming from (prior knowledge and interests)? H= Hook all students and Hold their interest? E= Equip students, help the Experience the key ideas and Explore the issue? R=Provide opportunities to Rethink and Revise their understandings and work? E=Allow students to Evaluate their work and its implications? T=be Tailored (personalized to the different needs, interests and abilities of learners? O=be Organized to maximize initial and sustained engagement as well as effective learning? Description with Modifications, number of days, etc. ● 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

Interdisciplinary Connections

ELA	**Social Studies**	**Science**
LA.7.W.6.1 - Write arguments to support claims with clear reasons and relevant evidence. SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and	6.2.8.C.1.a Describe the influence of the agricultural revolution (e.g., the impact of food surplus from farming) on population growth and the subsequent development of civilizations	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

issues, building on others' ideas and expressing their own clearly. RI.6.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.		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 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 graphic organizers, labels, word banks visuals chunking leveled text read text, use audio when available kinesthetic activities extended time	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	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	breaks check-in/check-out system TPR Total Physical Response	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 Duration: Instructional Days
How long will the unit take to complete? 42 days