S 1. Tha Language of Algebra

	Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
p	How can you use numbers and symbols to represent mathematical ideas?	1-1 A Plan for Problem Solving	Solve real life word problems.	Four-step plan			Pre Algebra Glenco-Math Accelerated	7.EE.A.2-Use properties of operations to generate equivalent expressions ~ 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.
e m b e r	What is the relationship between powers and multiplication?	1.2 Powers and Exponents	Use Powers to describe repeated multiplication.	Power Exponent Base Square Cube		Powers and Exponent	Pre Algebra Glenco-Math Accelerated	7.EE.A.1-Use properties of operations to generate equivalent expressions ~ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
	What determines which operation we use first?	1.3 Order of Operations	Use order of operation to evaluate expressions.	Order of Operations

Grouping Symbols | Quiz Integers 1.1-1.3 | Order of Operations | Pre Algebra Glenco-Maths Accelerated | 7.EE.A.1-Use properties of operations to generate equivalent expressions ~ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. |
| | What is the relationship between powers and multiplication? | 1.4 Comparing and Ordering Integers | Compare and order integers. | Negative integers

Positive integers

Absolute value

Opposites | | Compare and Order Integers | Pre Algebra Glenco-Math Accelerated | 7.NS.A.1b-Apply and extend previous understandings of operations with fractions ~ 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. |
| | What is the relationship between powers and multiplication? | 1.5 Adding Integers | Add integers. | Negative integers | | Adding Integers | Pre Algebra Glenco-Math Accelerated | 7.NS.A.1-Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. |

Essential Question	Section	Objective	Vocabulary	Quiz	Skill	Resource	Standards
			Positive integers				7.NS.A.1a-Apply and extend previous understandings of operations with fractions ~ Describe situations in which opposite quantities combine to make 0. 7.NS.A.1b-Apply and extend previous understandings of operations with fractions ~ 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-Apply and extend previous understandings of operations with fractions ~ Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
			Absolute value				7.NS.A.1d-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to add and subtract rational numbers.
What is the relationship between powers and multiplication?	1.6 Subtracting Integers	Subtract integers.	Opposites Negative integers	Quiz Integers 1.4-1.8	Subtracting Integers	Pre Algebra Glenco-Math Accelerated	7.NS.A.1-Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. 7.NS.A.1a-Apply and extend previous understandings of operations with fractions ~ Describe situations in which opposite quantities combine to make 0.
			Positive integers				7.NS.A.1b-Apply and extend previous understandings of operations with fractions ~ 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-Apply and extend previous understandings of operations with fractions ~ Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
			Absolute value			7.NS.A.1d-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to add and subtract rational numbers.
What is the relationship between powers and multiplication?	1.7 Multiplying and Dividing Integers	Multiply and divide integers.	Opposites Negative integers	Multiplying and Dividing Fractions	Pre Algebra Glenco-Math Accelerated	7.NS.A.2-Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 7.NS.A.2a-Apply and extend previous understandings of operations with fractions ~ 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.
			Positive integers			7.NS.A.2b-Apply and extend previous understandings of operations with fractions ~ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then –(p/q) = (–p)/q = p/(–q). Interpret quotients of rational numbers by describing real-world contexts. 7.NS.A.2c-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to multiply and divide rational numbers.
			Absolute value			7.NS.A.2d-Apply and extend previous understandings of operations with fractions ~ 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.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
How do integers relate to graphing?	1.8 Coordinate Plane	Graph on a coordinate plane. Identify coordinates on a graph.	Opposites Coordinates Origin	Integer Common Assessment			7.RP.A.2a-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ 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.

2. Solving Equations

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
How do we solve equations algebracially?	3.2 Solving Equations Having Like Terms and Parenthesis	Solve equations using the distributive property.	Distribute	Quiz Solving Equations 2.4-3.2			7.EE.B.4a-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
How do we solve equations algebracially?	2.4 Variables and Equations	Solve equations with variables.	Equation				7.EE.B.3-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
			Solution				7.EE.B.4-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
			Solving an Equation				

r	How do we solve equations algebracially?	2.5 Solving Equations Using Addition or Subtraction	Solve equations using addition or subtraction.	Inverse Operations	7.EE.B.3-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
				Equivalent Equations	7.EE.B.4-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
	How do we solve equations algebracially?	2.6 Solving Equations Using Multiplication or Division	Solve equations using multiplication or division.	Inverse Operations	7.EE.B.3-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
				Solving an Equation	7.EE.B.4-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
				Equivalent Equations	

How do we solve equations algebracially?	2.7 Decimal Operations and Equations with Decimals	Solve equations involving decimals.	Sum	7.EE.B.3-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
			Difference	7.EE.B.4-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
How do we solve equations algebracially?	3.1 Solving Two-Step Equations	Solve two-step equations.	Solve Decimal Inverse Operation	7.EE.B.4a-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
How do we solve equations algebraicly?	2.2 Distributive Property	Use the distributive property	Distribute	7.EE.A.1-Use properties of operations to generate equivalent expressions ~ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. 7.EE.A.2-Use properties of operations to generate equivalent expressions ~ 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.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
							7.EE.B.4a-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.
How do we solve equations algebracially?	2.3 Simplifying Variable Expressions	Simplify variable expressions.	Distribute				7.EE.A.1-Use properties of operations to generate equivalent expressions ~ Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
			Simplify				7.EE.A.2-Use properties of operations to generate equivalent expressions ~ 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.
How do we solve equations algebracially?	3.4 Solving inequalities	Solving inequalities using addition or subtraction	Like Terms Inequality Solution of an inequality Equivalent inequality	Common Assessment			7.EE.B.4b-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.

N 5. Rational Numbers and Equations

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
How do we work with fractions?	5.1 Rational Numbers	Write fractions as decimals and decimals as fractions.	Rational Number				7.NS.A.1-Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
							7.NS.A.1a-Apply and extend previous understandings of operations with fractions ~ Describe situations in which opposite quantities combine to make 0.

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m			Terminating Decimal	7.NS.A.2b-Apply and extend previous understandings of operations with fractions ~ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then â€"(p/q) = (â€"p)/q = p/(â€"q). Interpret quotients of rational numbers by describing real-world contexts.
b			Repeating Decimal	7.NS.A.2d-Apply and extend previous understandings of operations with fractions ~ 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.
e			Order	
r				
How do we work with fractions?	5.2 Adding and Subtracting Like Fractions	Add and subtract like fractions.	Numerator	7.NS.A.1b-Apply and extend previous understandings of operations with fractions ~ 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-Apply and extend previous understandings of operations with fractions ~ Understand subtraction of rational numbers as adding the additive inverse, p â€" q = p + (â€"q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
			Denominator	7.NS.A.1d-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to add and subtract rational numbers.
				7.NS.A.3-Apply and extend previous understandings of operations with fractions ~ Solve real-world and mathematical problems involving the four operations with rational numbers.
			Like Fractions Mixed Number Improper Fraction	

How do we work with fractions?	5.3 Adding and subtracting Unlike Fractions	Add and subtract unlike fractions.	Variable Expression Least Common Denominator (LCD)	Teacher Assessment 5.1 to 5.3	7.NS.A.1b-Apply and extend previous understandings of operations with fractions ~ 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-Apply and extend previous understandings of operations with fractions ~ Understand subtraction of rational numbers as adding the additive inverse, p â€" q = p + (â€"q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. 7.NS.A.1d-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to add and subtract rational numbers. 7.NS.A.3-Apply and extend previous understandings of operations with fractions ~ Solve real-world and mathematical problems involving the four operations with rational numbers.
How do we work with fractions?	5.4 Multiplying Fractions	Multiply fractions and mixed numbers.	Product		7.NS.A.2-Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 7.NS.A.3-Apply and extend previous understandings of operations with fractions ~ Solve real-world and mathematical problems involving the four operations with rational numbers.

			Simplify	7.NS.A.2a-Apply and extend previous understandings of operations with fractions ~ 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 (â€"1)(â€"1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
				7.NS.A.2b-Apply and extend previous understandings of operations with fractions ~ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then â€"(p/q) = (â€"p)/q = p/(â€"q). Interpret quotients of rational numbers by describing real-world contexts.
				7.NS.A.2c-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to multiply and divide rational numbers.
How do we work with fractions?	5.5 Dividing Fractions	Divide fractions and mixed numbers.	Reciporcal	7.NS.A.2-Apply and extend previous understandings of operations with fractions ~ Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
				7.NS.A.3-Apply and extend previous understandings of operations with fractions ~ Solve real-world and mathematical problems involving the four operations with rational numbers.
			Quotient	7.NS.A.2a-Apply and extend previous understandings of operations with fractions ~ 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 (â€"1)(â€"1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

7.NS.A.2b-Apply and extend previous understandings of operations with fractions ~ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then â€"(p/q) = (â€"p)/q = p/(â€"q). Interpret quotients of rational numbers by describing real-world contexts.

7.NS.A.2c-Apply and extend previous understandings of operations with fractions ~ Apply properties of operations as strategies to multiply and divide rational numbers.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
How do we work with fractions?	5.6 Using Multiplicative Inverses to Solve Equations	Use multiplicative inverses to solve equations.	Multiplicative inverse	Teacher Assessment 5.4 to 5.6			
How do we work with fractions?	5.7 Equations and Inequalities with Rational Numbers	Use the LCD to solve equations and inequalities.		Assessment Unit 3 Fractions			7.EE.B.4b-Solve real-life and mathematical problems using numerical and algebraic expressions and equations ~ 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.

D 6. Ratio, Proportion, and Probability

	Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
e								
c	How do we use ratios and proportions to solve problems?	6.1 Ratios and Rates	Find ratios and unit rates.	Ratio				7.RP.A.1-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
e								7.RP.A.2b-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
m				Equivalent Ratios				
b								

	Essential Question	Section	Objective	Vocabulary	Assessment	Standards
e	How do we use ratios and proportions to solve problems?	6.2 Writing and Solving Proportions	Write and solve proportions.	Ratio		7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
r				Proportion		7.RP.A.2b-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations.
	How do we use ratios and proportions to solve problems?	6.3 Solving Proportions Using Cross Products	Solve proportions using cross products.	Ratio		7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.2b-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
				Equivalent Ratios		7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
				Proportion Cross Products		
	How do we use ratios and proportions to solve problems?	6.4 Similar and Congruent Figures	Identify similar and congruent figures.	Similar Figures	Teacher Assessment 6.1 to 6.3	7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
			Corresponding Parts				7.RP.A.2b-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations. 7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities.
How do we use ratios and proportions to solve problems?	6.5 Similarity and Measurement	Find unknown side lengths of similar figures.	Congruent Figures Proportions				7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.2b-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
			Cross Products				7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
How do we use ratios and proportions to solve problems?	6.6 Scale Drawings	Use proportions with scale drawings.	Similar Figures Corresponding Scale Scale Drawing Scale Model	Common Assessment			7.G.A.1-Draw construct, and describe geometrical figures and describe the relationships between them ~ 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.

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a 7. Percents

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards

	Essential Question	Section	Objective	Vocabulary	Assessment	Standards
n	How do we calculate percents?	7.1 Percents and Fractions	Use a fraction to find the percent of a number.	Percent		7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations.
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	How do we calculate percents?	7.2 Percents and Proportions	Use proportions to solve percent problems.	Percent		7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations.
				Proportion		7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
	How do we calculate percents?	7.3 Percents and Decimals	Use decimals to solve percent problems.	Percent		7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations.
				Decimal		7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
	How do we calculate percents?	7.4 The Percent Equation	Use equations to solve percent problems.	Percent	Teacher Assessment 7.1 to 7.4	7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
			Equation				7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
How do we calculate percents?	7.5 Percent of Change	Find a percent of change in a quantity.	Commission Percent of Change				7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
			Percent of Increase				
			Percent of Decrease				
How do we calculate percents?	7.6 Percent Applications	Find markups, discounts, sales tax, and tips.	Markup	Teacher Assessment 7.5 to 7.7			7.RP.A.2-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Recognize and represent proportional relationships between quantities. 7.RP.A.2c-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Represent proportional relationships by equations. 7.RP.A.3-Analyze proportional relationships and use them to solve real-world and mathematical problems ~ Use proportional relationships to solve multistep ratio and percent problems.
				Common Assessment			
			Discount				
			Wholesale				

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e 10. Measurement, Area and Volume

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
b How do we calculate r area and volume? u	10.1 Triangles	Solve problems involving triangles	Acute Triangle Right Triangle Obtuse Triangle				7.G.A.2-Draw construct, and describe geometrical figures and describe the relationships between them ~ Draw (freehand, with ruler and protractor, and with technology)

a r y			Equiangular Triangle Equallateral Triangle Isosceles Triangle Scalene Triangle		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.
How do we calculate area and volume?	10.2 Polygons and Quadrilaterals	Classify polygons and quadrilaterals	Polygon Regular Polygon Convex Concave Quadrilateral Pentagon Hexagon Heptagon Octagon Trapezoid Parallelogram Rhombus Diagonal		7.G.A.2-Draw construct, and describe geometrical figures and describe the relationships between them ~ Draw (freehand, with ruler and protractor, and with technology) 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.
How do we calculate area and volume?	10.3 Areas of parallelograms and Trapezoids	Find the area of parallelograms and trapezoids	Base Height Area Center Radius	Teacher Assessment 10.1 to 10.4	7.G.B.4-Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ 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.
How do we calculate area and volume?	10.4 Circumference and Area of Circle	Find the circumference and area of circles	Diameter Circumference Pi Area		7.G.B.4-Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ 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.
How do we calculate area and volume?	10.5 Surface Areas of Prisms and Cylinders	Find the surface area of prisms and cylinders	Net		7.G.A.3-Draw construct, and describe geometrical figures and describe the relationships between them ~ Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
			Surface Area				7.G.B.6-Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ 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.
			Lateral Face Lateral Area Prism Cylinder				
How do we calculate area and volume?	10.7 Volume of Prisms and Cylinders	Find the volume of prisms and cylinders	Volume	Teacher Assessment 10.5 to 10.7			7.G.A.3-Draw construct, and describe geometrical figures and describe the relationships between them ~ Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
				Common Assessment			7.G.B.6-Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ 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.

M11. Statistics and Probability

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Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
r How can we calculate the probability of an event?	11.7 Combinations	Use combinations to count possibilities	Combination				7.SP.C.7-Investigate chance processes and develop, use, and evaluate probability models ~ 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.
c			Arrangement				7.SP.C.8-Investigate chance processes and develop, use, and evaluate probability models ~ Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
h How can we calculate the probability of an event?	11.8 Probability of Disjoint and Overlapping Events	Find the probability that event A or event B occurs.	Disjoint events				7.SP.C.7a-Investigate chance processes and develop, use, and evaluate probability models ~ Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.

			Mutually exclusive evnets		7.SP.C.7b-Investigate chance processes and develop, use, and evaluate probability models ~ Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
			Overlapping events		7.SP.C.8a-Investigate chance processes and develop, use, and evaluate probability models ~ 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-Investigate chance processes and develop, use, and evaluate probability models ~ 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., â€œrolling double sixesâ€), identify the outcomes in the sample space which compose the event. 7.SP.C.8c-Investigate chance processes and develop, use, and evaluate probability models ~ Design and use a simulation to generate frequencies for compound events.
How can we calculate the probability of an event?	11.5 Interpreting Data	Make conclusions about populations using surveys.	Margin of Error	Teacher Assessment 6.7, 6.8, 11.4 & 11.5 3/31/2016	7.SP.A.1-Use random sampling to draw inferences about a population ~ Understand that statistics can be used to gain 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. 7.SP.A.2-Use random sampling to draw inferences about a population ~ 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.
			Survey		7.SP.B.3-Draw informal comparative inferences about two populations ~ 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.

			Sample	7.SP.B.4-Draw informal comparative inferences about two populations ~ Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
			Prediction	
How can we calculate the probability of an event?	11.6 Permutations	Use permutations to count possibilities.	Permutation	7.SP.C.5-Investigate chance processes and develop, use, and evaluate probability models ~ 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.
			Factorial	7.SP.C.6-Investigate chance processes and develop, use, and evaluate probability models ~ 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.
How can we calculate the probability of an event?	6.7 Probability and Odds	Find probability and odds.	Event	7.SP.C.6-Investigate chance processes and develop, use, and evaluate probability models ~ 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.
			Outcome	7.SP.C.7-Investigate chance processes and develop, use, and evaluate probability models ~ 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.
			Favorable/Unfavorable	7.SP.C.7a-Investigate chance processes and develop, use, and evaluate probability models ~ Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
			Probability Theoretical Probability	

Essential Question	Section	Objective	Vocabulary	Assessment	Standard
How can we calculate the probability of an event?	6.8 Counting Principle	Use the counting principle to find probabilities.	Experimental Probability Odds Tree Diagram Couting Principle		7.SP.C.8-Investigate chance processes and develop, use, and evaluate probability models ~ Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
How can we calculate the probability of an event?	11.4 Collecting Data	Identify populations and sampling methods	Random sample		7.SP.A.1-Use random sampling to draw inferences about a population ~ Understand that statistics can be used to gain 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.
			Systematic sample		7.SP.A.2-Use random sampling to draw inferences about a population ~ 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.
			Stratified sample		
			Convenient sample Self-selected sample		
How can we calculate the probability of an event?	11.9 Independent and Dependent Events	Find probability that two events occur.	Independent events	Teacher Assessment 11.6, 11.7, 11.8 & 11.9	7.SP.C.7a-Investigate chance processes and develop, use, and evaluate probability models ~ Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
			Dependent events		7.SP.C.7b-Investigate chance processes and develop, use, and evaluate probability models ~ Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
			Probability				7.SP.C.8a-Investigate chance processes and develop, use, and evaluate probability models ~ 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-Investigate chance processes and develop, use, and evaluate probability models ~ 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., â€œrolling double sixesâ€), identify the outcomes in the sample space which compose the event. 7.SP.C.8c-Investigate chance processes and develop, use, and evaluate probability models ~ Design and use a simulation to generate frequencies for compound events.
How can we calculate the probability of an event?	Mean, Median, Mode	Find and use mean, median, and mode.	Mean Median Mode Range	Assessment Unit 7 3/31/2016			7.SP.C.7-Investigate chance processes and develop, use, and evaluate probability models ~ 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.

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Angle Relationships

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
r i l							
How do we use angle relationships to find missing angle measurements?	13.2 Angles and Parallel Lines	Identify angles when a transversal intersects lines.	Transversal Corresponding angles Alternate interior angles Alternate exterior angles				7.G.B.5-Solve real-life and mathematical problems involving angle measure, area, surface area, and volume ~ 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.
How do we use angle relationships to find missing angle measurements?	13.3 Angles and Polygons	Find the measures of interior and exterior angles.	Interior angles Exterior angles	Teacher Assessment 13.1, 13.2 & 13.3			7.G.A.2-Draw construct, and describe geometrical figures and describe the relationships between them ~ Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on

Multi-Step Equations and Inequalities

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards

How do we rewrite large or small numbers in other forms?	4.7 Scientific Notation	Write numbers using scientific notation.	Scientific notation		8.EE.A.3-Expressions and Equations Work with radicals and integer exponents ~ Use numbers expressed in the form of a single digit times a whole-number power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
			Standard form		8.EE.A.4-Expressions and Equations Work with radicals and integer exponents ~ Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
How do we solve problems with square roots?	9.1 Square Roots	Find approximate square roots of numbers.	Square root Perfect square Radical expressions Approximate		8.EE.A.2-Expressions and Equations Work with radicals and integer exponents ~ Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
How do we solve problems with square roots?	9.3 Pythagorean Theorem	Use the Pythagorean theorem to solve problems.	Leg	Teacher Assessment 4.7, 9.1 & 9.3	8.EE.A.2-Expressions and Equations Work with radicals and integer exponents ~ Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
			Hypoteneuse		8.G.B.6-Understand and apply the Pythagorean Theorem ~ Explain a proof of the Pythagorean Theorem and its converse.
			Pythagorean Theorem		8.G.B.7-Understand and apply the Pythagorean Theorem ~ Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
					8.G.B.8-Understand and apply the Pythagorean Theorem ~ Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
y How do we rewrite large or small numbers in other forms?	4.7 Scientific Notation	Write numbers using scientific notation.	Scientific notation				8.EE.A.3-Expressions and Equations Work with radicals and integer exponents ~ Use numbers expressed in the form of a single digit times a whole-number power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
			Standard form				8.EE.A.4-Expressions and Equations Work with radicals and integer exponents ~ Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
How do we solve problems with square roots?	9.1 Square Roots	Find approximate square roots of numbers.	Square root Perfect square Radical expressions Approximate				8.EE.A.2-Expressions and Equations Work with radicals and integer exponents ~ Use square root and cube root symbols to represent solutions to equations of the form $x2 = p$ and $x3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that ?2 is irrational.
How do we solve equations algebraically?	3.2 Solving Equations Having Like Terms and Parenthesis	Solve equations with variables on both sides.	Like Term Inverse Operation				8.EE.C.7-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations in one variable. 8.EE.C.7b-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
How do we solve equations algebraically?	3.3 Solving Equations with Variables on	Solve Equations with like terms and parenthesis.					8.EE.C.7-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations in one variable.

Essential Question	Lesson	Objective	Vocabulary	Assessment	Standard
	Both Sides				8.EE.C.7b-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
How do we solve problems with square roots?	9.3 Pythagorean Theorem	Use the Pythagorean theorem to solve problems.	Leg	Teacher Assessment 4.7, 9.1 & 9.3	8.EE.A.2-Expressions and Equations Work with radicals and integer exponents ~ Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that ?2 is irrational.
			Hypoteneuse		8.G.B.6-Understand and apply the Pythagorean Theorem ~ Explain a proof of the Pythagorean Theorem and its converse.
			Pythagorean Theorem		8.G.B.7-Understand and apply the Pythagorean Theorem ~ Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
					8.G.B.8-Understand and apply the Pythagorean Theorem ~ Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
How do we solve equations algebraically?	3.4 Solving Inequalities Using Addition or Subtraction	Solve inequalities using addition or subtraction.	Inequality	Teacher Assessment 3.2, 3.3, 3.4 5/15/2016	8.EE.C.7-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations in one variable.
			Solution of an inequality		8.EE.C.7b-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
			Equivalent inequalities		
How do we solve equations algebraically?	3.5 Solving Inequalities Using	Solving inequalities using multiplication or			8.EE.C.7-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations in one variable.

	Multiplication or Division	division		8.EE.C.7b-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
How do we solve equations algebraically?	3.6 Solving Multi-Step Inequalities	Solve multi-step inequalities.	Common Assessment	8.EE.C.7-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations in one variable. 8.EE.C.7b-Analyze and solve linear equations and pairs of simultaneous linear equations ~ Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.