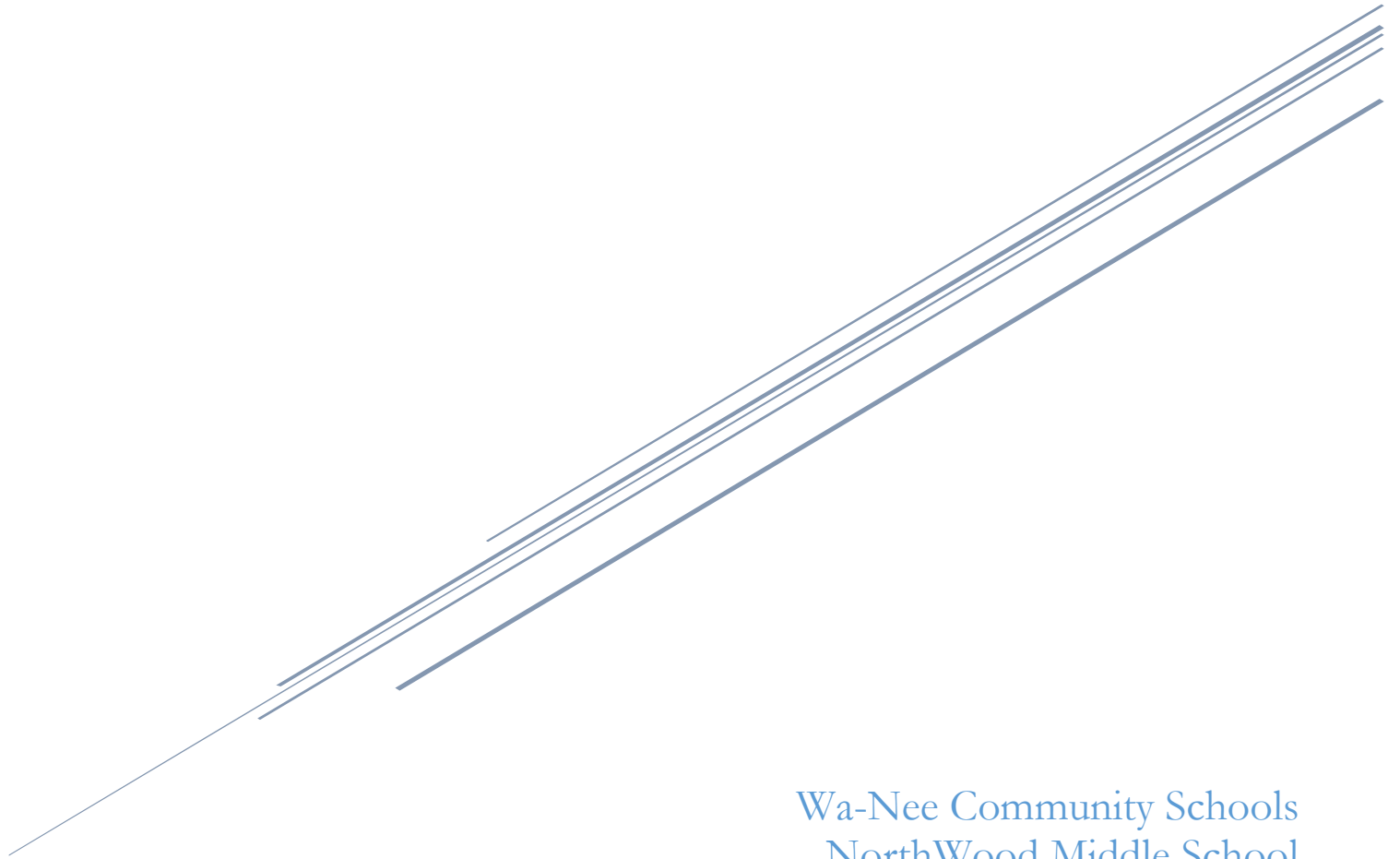


7TH GRADE PRE-ALGEBRA CURRICULUM MAP



Wa-Nee Community Schools
NorthWood Middle School

Nine Weeks	Units/Chapters	Standards
1 st Nine Weeks	Ch. 1 (Algebra) Ch. 2 (Integers) Ch. 3 (Rational Numbers)	7.AF.1 7.C.1, 7.C.2, 7.C.3, 7.C.4 7.C.7, 7.C.8
2 nd Nine Weeks	Ch. 4 (Powers and Roots) Ch. 5 (Proportions) Ch. 6 (Percents)	7.NS.1, 7.NS.2, 7.NS.3 7.GM.3, 7.C.5 7.C.6
3 rd Nine Weeks	Ch. 7 (Expressions) Ch. 8 (Equations & Inequalities) Ch. 9 (Linear Functions)	7.AF.1 7.AF.2, 7.AF.3 7.AF.4, 7.AF.5, 7.AF.6, 7.AF.7, 7.AF.8, 7.AF.9
4 th Nine Weeks	Ch. 11 (Geometry) Ch. 12 (Measurement) Ch. 10 (Probability & Statistics)	7.GM.1, 7.GM.2, 7.GM.4 7.GM.5, 7.GM.6, 7.GM.7 7.DSP.1, 7.DSP.2, 7.DSP.3, 7.DSP.4, 7.DSP.5, 7.DSP.6, 7.DSP.7

Chapter 1: The Language of Algebra			Unit 1: Rational Numbers and Exponents		
Essential Question: How can you use numbers and symbols to represent mathematical ideas?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Problem Solving (1 day)	7.C.8: Solve real-world problems with rational numbers by using one or two operations.	<ul style="list-style-type: none"> Four-step plan 	Pair and share	p.4-5	Study guide Textbook All Things Algebra
Lesson 2: Words and Expressions (1 day)	7.C.8: Solve real-world problems with rational numbers by using one or two operations.	<ul style="list-style-type: none"> Numerical expression Evaluate Order of operations 	Board problems	p.9-10	Study guide Textbook All Things Algebra
Lesson 3: Variables and Expressions (1 day)	7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$).	<ul style="list-style-type: none"> Algebra Variable Algebraic expression Defining a variable Substitution property of equality 	Online practice	p.16-18	Study guide Textbook All Things Algebra

Chapter 1: The Language of Algebra			Unit 1: Rational Numbers and Exponents		
Essential Question: How can you use numbers and symbols to represent mathematical ideas?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	Justify each step in the process.				
Lesson 4: Properties of Numbers (2 days)	7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.	<ul style="list-style-type: none"> • Properties • Commutative property • Associative Property • Counterexample • Simplify • Deductive reasoning 	Property theatre	p.22-24	Study guide Textbook All Things Algebra
Lesson 5: Problem-Solving Strategies (1 day)	7.C.8: Solve real-world problems with rational numbers by using one or two operations.	<ul style="list-style-type: none"> • Look for a pattern • Guess, check, and revise • Make a table • Work backward 	3-act math	p.28-30	Study guide Textbook All Things Algebra Dan Meyer's Three-Act Math

Chapter 1: The Language of Algebra			Unit 1: Rational Numbers and Exponents		
Essential Question: How can you use numbers and symbols to represent mathematical ideas?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 6: Ordered Pairs and Relations Lesson 7: Words, Equations, Tables, and Graphs (2 days)	7.AF.9: Identify real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent proportional relationships and recognize that these situations are described by a linear function in the form $y = mx$, where the unit rate, m , is the slope of the line.	<ul style="list-style-type: none"> • Coordinate plane • x and y-axis • origin • ordered pair • x and y-coordinates • relation • domain • range • equation 	Board graphing	Worksheet 6-7 Exit ticket	Study guide Textbook All Things Algebra
Mid-Chapter quiz: Study Guide p.13 Chapter test: 3A Review activities throughout chapter					

Chapter 2: Operations with Integers			Unit 1: Rational Numbers and Exponents		
Essential Question: What happens when you add, subtract, multiply, and divide integers?					
Lesson & Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Integers and Absolute Value (1 day)	7.C.1: 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.	<ul style="list-style-type: none"> • Negative number • Positive number • Integer • Opposites • Coordinate • Inequality • Absolute value 	Board examples Pair and Share Teach a partner	p. 49-50	Study guide Textbook All Things Algebra

Chapter 2: Operations with Integers			Unit 1: Rational Numbers and Exponents		
Essential Question: What happens when you add, subtract, multiply, and divide integers?					
Lesson & Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 2: Adding integers (1 day)	7.C.1: 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.	<ul style="list-style-type: none"> Additive inverse 	Board examples Pair and share	p. 58-60	study guide textbook All Things Algebra
Lesson 3: Subtracting integers (2 days)	7.C.2: 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.	<ul style="list-style-type: none"> Inductive reasoning 	Board examples Tile puzzles	p. 65-67	study guide textbook All Things Algebra

Chapter 2: Operations with Integers			Unit 1: Rational Numbers and Exponents		
Essential Question: What happens when you add, subtract, multiply, and divide integers?					
Lesson & Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 4: Multiplying Integers (1 day)	7.C.3: 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.		Board examples	p. 74-76	study guide textbook All Things Algebra
Lesson 5: Dividing Integers (1 day)	7.C.4: Understand that integers can be divided, provided that the divisor is not zero, and that every quotient of integers (with non-zero divisor) is a rational number. Understand that if p and q are		Board problems Pair and share	p. 80-82	study guide textbook All Things Algebra

Chapter 2: Operations with Integers			Unit 1: Rational Numbers and Exponents		
Essential Question: What happens when you add, subtract, multiply, and divide integers?					
Lesson & Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	integers, then $-(p/q) = (-p)/q = p/(-q)$.				
Lesson 6: Graphing in Four Quadrants (1 day)	7.AF.8: Explain what the coordinates of a point on the graph of a proportional relationship mean in terms of the situation, with special attention to the points (0, 0) and (1,r), where r is the unit rate.	<ul style="list-style-type: none"> quadrants 	Board examples Teach a partner	p. 85-87 IXL	study guide textbook All Things Algebra
Mid-Chapter quiz: Study Guide p.35 Chapter Test 3A Review activities throughout chapter					

Chapter 3: Operations with Rational Numbers			Unit 1: Rational Numbers and Exponents		
Essential Question: What happens when you add, subtract, multiply, and divide rational numbers?					
Lesson & Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Fractions and Decimals (1 day)	7.NS.3: Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers ($\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, π) and plot them on a number line.	<ul style="list-style-type: none"> Repeating decimal Terminating decimal Bar notation 	Board examples War	p.99-100	study guide textbook All Things Algebra war cards
Lesson 2: Rational Numbers (1 day)	7.NS.3: Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers ($\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, π) and plot them on a number line.	<ul style="list-style-type: none"> Rational numbers 	Board Examples	p.101-103	Study guide Textbook All Things Algebra
Lesson 3: Multiplying Rational Numbers (1 day)	7.C.7: Compute with rational numbers fluently using a standard algorithmic approach.		Board problems Create an instructional video	p.109-111	study guide textbook All Things Algebra
Lesson 4: Dividing Rational Numbers (1 day)	7.C.7: Compute with rational numbers fluently using a standard algorithmic approach.	<ul style="list-style-type: none"> Multiplicative inverse Reciprocal 	Board problems Create an instructional video	p.117-119	study guide textbook All Things Algebra

Chapter 3: Operations with Rational Numbers			Unit 1: Rational Numbers and Exponents		
Essential Question: What happens when you add, subtract, multiply, and divide rational numbers?					
Lesson & Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 5: Adding and Subtracting Like Fractions Lesson 6: Adding and Subtracting Unlike Fractions (1 day)	7.C.7: Compute with rational numbers fluently using a standard algorithmic approach.	<ul style="list-style-type: none"> Unlike fractions 	Board problems Create an instructional video	p.123-125 p.128-131	study guide textbook All Things Algebra
Mid-chapter quiz: Study Guide p.57 Chapter test 3A Review activities throughout chapter					

Chapter 4: Powers and Roots			Unit 1: Rational Numbers and Exponents		
Essential Question: Why is it useful to write numbers in different ways?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Powers and Exponents (1 day)	7.NS.2: Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	<ul style="list-style-type: none"> Exponent Power Base 	Board problems	p.138-140	study guide textbook All Things Algebra
Lesson 2: Negative Exponents (2 days)	7.NS.2: Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	<ul style="list-style-type: none"> Negative exponents 	Board problems	p.143-146	study guide textbook All Things Algebra

Chapter 4: Powers and Roots			Unit 1: Rational Numbers and Exponents		
Essential Question: Why is it useful to write numbers in different ways?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 3: Multiplying and Dividing Monomials (2 days)	7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.	<ul style="list-style-type: none"> monomial 	Board problems	p.150-152	study guide textbook All Things Algebra
Lesson 4: Scientific Notation (1 day)	7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring	<ul style="list-style-type: none"> Standard form Scientific notation 	Board problems	p.155-158	study guide textbook All Things Algebra

Chapter 4: Powers and Roots			Unit 1: Rational Numbers and Exponents		
Essential Question: Why is it useful to write numbers in different ways?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	(e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.				
Lesson 5: Compute with Scientific Notation (2 days)	7.C.7: Compute with rational numbers fluently using a standard algorithmic approach.		Board problems	p.163-165	study guide textbook All Things Algebra
Lesson 6: Square Root and Cube Roots (1 day)	7.NS.2: Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	<ul style="list-style-type: none"> • Square root • Perfect square • Radical sign • Cube root • Perfect cube 	Board problems	p.171-173	study guide textbook All Things Algebra square & cube list
Lesson 7: The Real Number System (2 days)	7.NS.3: Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers ($\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, π) and plot them on a number line	<ul style="list-style-type: none"> • Irrational number • Real numbers 	Group work Line Up!	p.177-179	study guide textbook All Things Algebra Line Up cards

Chapter 4: Powers and Roots			Unit 1: Rational Numbers and Exponents		
Essential Question: Why is it useful to write numbers in different ways?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Mid-Chapter Assessment: Study Guide p.81 End of Chapter Assessment: 3A Chapter review games-various days throughout chapter					

Chapter 5: Ratio, Proportion, and Similar Figures			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you identify and represent proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Ratios (1 day)	7.C.5: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	<ul style="list-style-type: none"> ratio 	Board problems	185-188	study guide textbook All Things Algebra
Lesson 2: Unit rates (1 day)	7.C.5: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	<ul style="list-style-type: none"> Rate Unit rate 	Board problems	191-193	study guide textbook All Things Algebra
Lesson 3: Complex Fractions and Unit Rates (1 day)	7.C.5: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	<ul style="list-style-type: none"> Complex fraction 	Board problems	196-199	study guide textbook All Things Algebra
Lesson 4: Converting Rates (2 days)	7.C.5: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and	<ul style="list-style-type: none"> Dimensional analysis 	Board problems	203-205 Exit ticket	study guide textbook All Things Algebra

Chapter 5: Ratio, Proportion, and Similar Figures			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you identify and represent proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	other quantities measured in like or different units.				
Lesson 5: Proportional and Nonproportional Relationships (1 day)	7.AF.6: 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).	<ul style="list-style-type: none"> • Proportional • Constant of proportionality • Nonproportional 	Board problems	208-210	study guide textbook All Things Algebra
Lesson 6: Graphing Proportional Relationships (1 day)	7.AF.7: Identify the unit rate or constant of proportionality in tables, graphs, equations, and verbal descriptions of proportional relationships.		Group work	215-217	study guide textbook All Things Algebra
Lesson 7: Solving proportions (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems	<ul style="list-style-type: none"> • Proportion • Cross products 	Board problems	221-223	study guide textbook All Things Algebra

Chapter 5: Ratio, Proportion, and Similar Figures			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you identify and represent proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.				
Lesson 8: scale drawings and models	7.GM.3: Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	<ul style="list-style-type: none"> • Scale drawing • Scale model • Scale • Scale factor 	Create scale models	227-229	study guide textbook All Things Algebra

Chapter 5: Ratio, Proportion, and Similar Figures			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you identify and represent proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 9: similar figures	7.GM.3: Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	<ul style="list-style-type: none"> Similar figures Congruent Corresponding parts 	Board problems	234-237	study guide textbook All Things Algebra
Lesson 10: indirect measurement (1 day)	7.GM.3: Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	<ul style="list-style-type: none"> Indirect measurement 	Conduct an indirect measurement outside	239-242	study guide textbook All Things Algebra measuring tape
Mid-Chapter Assessment: Study Guide p.107 End of Chapter Assessment: 3A Chapter review games- various days throughout chapter					

Chapter 6: Percents			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you use proportional relationships to solve real-world percent problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Using the Percent Proportion (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.	<ul style="list-style-type: none"> Percent proportion 	Teach a partner	252-255	study guide textbook All Things Algebra
Lesson 2: Find a percent of a number mentally (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax,		Board races	258-260	study guide textbook All Things Algebra

Chapter 6: Percents			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you use proportional relationships to solve real-world percent problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.				
Lesson 3: Using the percent equation (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and	<ul style="list-style-type: none"> Percent equation 	Board problems	264-266	study guide textbook All Things Algebra

Chapter 6: Percents			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you use proportional relationships to solve real-world percent problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	decrease, and percent error.				
Lesson 4: Percent of Change (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.	<ul style="list-style-type: none"> Percent of change Percent of increase Percent of decrease Percent error 	Spheros percent error lesson	272-274	study guide textbook All Things Algebra
Lesson 5: Discount and Markup (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax,	<ul style="list-style-type: none"> Markup Selling price discount 	Board problems	277-280	study guide textbook All Things Algebra

Chapter 6: Percents			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you use proportional relationships to solve real-world percent problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.				
Lesson 6: Simple and Compound Interest (1 day)	7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and	<ul style="list-style-type: none"> • Interest • Simple interest • Principal • Compound interest 	Group work	283-285	study guide textbook All Things Algebra

Chapter 6: Percents			Unit 2: Proportionality and Linear Relationships		
Essential Question: How can you use proportional relationships to solve real-world percent problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	decrease, and percent error.				
Mid-Chapter Assessment: Study Guide p. 133 End of Chapter Assessment: 3A Chapter review games- various days throughout chapter					

Chapter 7: Algebraic Expressions			Unit 2: Proportionality and Linear Relationships		
Essential Question(s): Why are algebraic rules useful?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: The Distributive Property (2 days)	7.AF.1 Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.	<ul style="list-style-type: none"> • Equivalent • Expressions • Distributive Property 	Board problems	294-296	study guide textbook All Things Algebra

Chapter 7: Algebraic Expressions			Unit 2: Proportionality and Linear Relationships		
Essential Question(s): Why are algebraic rules useful?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 2: Simplifying algebraic expressions (2 days)	7.AF.1 Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.	<ul style="list-style-type: none"> • Term • Coefficient • Like terms • Constant • Simplest form • Simplifying the expression 	Board problems	301-304	study guide textbook All Things Algebra
Lesson 3: Adding Linear Expressions (1 day)	7.AF.1 Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring	<ul style="list-style-type: none"> • Linear expression 	Board problems	307-308	study guide textbook All Things Algebra

Chapter 7: Algebraic Expressions			Unit 2: Proportionality and Linear Relationships		
Essential Question(s): Why are algebraic rules useful?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	(e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.				
Lesson 4: Subtracting Linear Expressions (1 day)	7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.		Board problems	312-313	study guide textbook All Things Algebra

Chapter 7: Algebraic Expressions			Unit 2: Proportionality and Linear Relationships		
Essential Question(s): Why are algebraic rules useful?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 5: Factoring Linear Expressions (2 days)	7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.	<ul style="list-style-type: none"> Factor Factored form 	Board problems	318-320	study guide textbook All Things Algebra
Mid-Chapter Assessment: Study Guide p. 155 End of Chapter Assessment: 3A Chapter review games- various days throughout chapter					

Chapter 8: Equations and Inequalities			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are equations and inequalities used to describe and solve multi-step problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Solving Equations with Rational Coefficients (1 day)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	<ul style="list-style-type: none"> • Solution • Inverse operations • Equivalent equations 	Board problems	326-329	study guide textbook All Things Algebra
Lesson 2: Solving Two-Step Equations (2 days)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	<ul style="list-style-type: none"> • Two-step equation 	Board problems	335-338	study guide textbook All Things Algebra
Lesson 3: Writing Equations (1 day)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational		Board problems	341-343	study guide textbook All Things Algebra

Chapter 8: Equations and Inequalities			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are equations and inequalities used to describe and solve multi-step problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	numbers. Represent real-world problems using equations of these forms and solve such problems.				
Lesson 4: More Two-Step Equations (1 day)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.		Board problems	349-351	study guide textbook All Things Algebra
Lesson 5: Solving Equations with Variables on Each Side (2 days)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.		Board problems	358-360	study guide textbook All Things Algebra
Lesson 6: Inequalities (1 day)	7.AF.3: Solve inequalities of the		Board problems Group work	364-366	study guide textbook

Chapter 8: Equations and Inequalities			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are equations and inequalities used to describe and solve multi-step problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	form $px + q (> \text{ or } \geq) r$ or $px + q (< \text{ or } \leq) r$, where p , q , and r are specific rational numbers. Represent real-world problems using inequalities of these forms and solve such problems. Graph the solution set of the inequality and interpret it in the context of the problem.				All Things Algebra
Lesson 7: Inequalities (1 day)	7.AF.3: Solve inequalities of the form $px + q (> \text{ or } \geq) r$ or $px + q (< \text{ or } \leq) r$, where p , q , and r are specific rational numbers. Represent real-world problems using inequalities of these forms and solve such problems. Graph the solution set of the inequality and interpret it in the		Board problems Group work	370-373	study guide textbook All Things Algebra

Chapter 8: Equations and Inequalities			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are equations and inequalities used to describe and solve multi-step problems?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	context of the problem.				
Lesson 8: Solving Multi-Step Equations and Inequalities (1 day)	7.AF.3: Solve inequalities of the form $px + q (> \text{ or } \geq) r$ or $px + q (< \text{ or } \leq) r$, where p , q , and r are specific rational numbers. Represent real-world problems using inequalities of these forms and solve such problems. Graph the solution set of the inequality and interpret it in the context of the problem.	<ul style="list-style-type: none"> Null or empty set Identity 	Board problems Group work	377-379	study guide textbook All Things Algebra
Mid-Chapter Assessment: Study Guide p. 177 End of Chapter Assessment: 2A Chapter review games- various days throughout chapter					

Chapter 9: Linear Functions			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are linear functions used to model proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Functions (2 days)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	<ul style="list-style-type: none"> • Function • Independent variable • Dependent variable • Vertical line test • Function rule • Function notation 	Power point Board problems Group work	387-389	Study guide Textbook All Things Algebra
Lesson 2: Representing Linear Functions (1 day)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	<ul style="list-style-type: none"> • Linear equation • Linear function • Function table • x-intercept • y-intercept 	Board problems Group work	393-395	Study guide Textbook All Things Algebra
Lesson 3: Constant Rate of Change and Slope (2 days)	7.AF.4: Define slope as vertical change for each unit of horizontal change and recognize that a	<ul style="list-style-type: none"> • Rate of change • Linear relationship 	Online practice	399-402	Study guide Textbook All Things Algebra

Chapter 9: Linear Functions			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are linear functions used to model proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	constant rate of change or constant slope describes a linear function. Identify and describe situations with constant or varying rates of change.	<ul style="list-style-type: none"> • Constant rate of change • Slope 			
Lesson 4: Direct Variation (2 days)	7.AF.9: Identify real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent proportional relationships and recognize that these situations are described by a linear function in the form $y = mx$, where the unit rate, m , is the slope of the line.	<ul style="list-style-type: none"> • Direct variation • Constant of variation 	Board problems	408-410	Study guide Textbook All Things Algebra

Chapter 9: Linear Functions			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are linear functions used to model proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 5: Slope-Intercept Form (2 days)	7.AF.5: Graph a line given its slope and a point on the line. Find the slope of a line given its graph.	<ul style="list-style-type: none"> Slope-intercept form 	Board problems	414-417	Study guide Textbook All Things Algebra
Lesson 6: Solve Systems of Equations by Graphing (0-1 day)	7.AF.8: Explain what the coordinates of a point on the graph of a proportional relationship mean in terms of the situation, with special attention to the points (0, 0) and (1,r), where r is the unit rate.	<ul style="list-style-type: none"> System of equations 	Board graphing	422-424	Study guide Textbook All Things Algebra
Lesson 7: Solve Systems of Equations Algebraically (0-1 day)	7.AF.2: Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p, q, and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	<ul style="list-style-type: none"> Substitution 	Board problems Group work	427-429	Study guide Textbook All Things Algebra

Chapter 9: Linear Functions			Unit 2: Proportionality and Linear Relationships		
Essential Question: How are linear functions used to model proportional relationships?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Mid-Chapter quiz: study guide p. 203 Chapter test: 2A Review activities throughout chapter					

Chapter 10: Statistics and Probability			Unit 3: Introduction to Sampling and Inference		
Essential Question: How are statistics used to draw inferences about and compare populations?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Measures of Center (1 day)	7.DSP.3: Find, use, and interpret measures of center (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations.	<ul style="list-style-type: none"> • Statistics • Measures of center 	Pair and share	437-439	Study guide Textbook All Things Algebra
Lesson 2: Measures of Variability (1 day)	7.DSP.4: Make observations about the degree of visual overlap of two numerical data distributions represented in line plots or box plots. Describe how data, particularly outliers, added to a data set may affect the mean and/or median.	<ul style="list-style-type: none"> • Measures of variability • Range • Quartiles • First quartile • Third quartile • Interquartile range • Outlier 	Board problems	444-446	Study guide Textbook All Things Algebra

Chapter 10: Statistics and Probability			Unit 3: Introduction to Sampling and Inference		
Essential Question: How are statistics used to draw inferences about and compare populations?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 3: Mean Absolute Deviation (1 day)	7.DSP.3: Find, use, and interpret measures of center (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations.	<ul style="list-style-type: none"> Mean absolute deviation 	Online practice	449-451	Study guide Textbook All Things Algebra
Lesson 4: Compare Populations (1 day)	7.DSP.3: Find, use, and interpret measures of center (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations.	<ul style="list-style-type: none"> Box plot Double box plot 	Board graphing and discussion	457-460	Study guide Textbook All Things Algebra

Chapter 10: Statistics and Probability			Unit 3: Introduction to Sampling and Inference		
Essential Question: How are statistics used to draw inferences about and compare populations?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 5: Using Sampling to Predict (1 day)	7.DSP.2: Use data from a random sample to draw inferences about a population. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	<ul style="list-style-type: none"> • Sample • Population • Unbiased sample • Random • Simple random sample • Stratified random sample • Stratified random sample • Biased sample • Convenience sample • Voluntary response sample 	Interview a Word	464-467	Study guide Textbook All Things Algebra
Lesson 6: Probability of Simple Events (1 day)	7.DSP.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the	<ul style="list-style-type: none"> • Outcome • Simple event • Probability • Sample space • Complement 	Board problems	472-474	Study guide Textbook All Things Algebra

Chapter 10: Statistics and Probability			Unit 3: Introduction to Sampling and Inference		
Essential Question: How are statistics used to draw inferences about and compare populations?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	<p>event occurring. Understand that 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. Understand that a probability of 1 indicates an event certain to occur and a probability of 0 indicates an event impossible to occur.</p>				
Lesson 7: Theoretical and Experimental Probability (1 day)	<p>7.DSP.7: Develop probability models that include the sample space and probabilities of outcomes to represent simple events with equally likely outcomes. Predict the</p>	<ul style="list-style-type: none"> • Uniform probability model • Theoretical probability • Experimental probability 	Bracketology	479-481	<p>study guide</p> <p>textbook</p> <p>All Things Algebra</p> <p>Bracketology unit</p>

Chapter 10: Statistics and Probability			Unit 3: Introduction to Sampling and Inference		
Essential Question: How are statistics used to draw inferences about and compare populations?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	approximate relative frequency of the event based on the model. Compare probabilities from the model to observed frequencies; evaluate the level of agreement and explain possible sources of discrepancy.				
Lesson 8: Probability of Compound Events (1 day)	7.DSP.7: Develop probability models that include the sample space and probabilities of outcomes to represent simple events with equally likely outcomes. Predict the approximate relative frequency of the event based on the model. Compare	<ul style="list-style-type: none"> Compound event Tree diagram 	Skunk	484-486	study guide textbook All Things Algebra dice

Chapter 10: Statistics and Probability			Unit 3: Introduction to Sampling and Inference		
Essential Question: How are statistics used to draw inferences about and compare populations?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	probabilities from the model to observed frequencies; evaluate the level of agreement and explain possible sources of discrepancy.				
Mid-Chapter quiz: Study Guide p. 227 Chapter test: 3A Review activities throughout chapter					

Chapter 11: Congruence, Similarity, and Transformations			Unit 4: Creating, Comparing, and Analyzing Geometric Figures		
Essential Question: How can you determine congruence and similarity?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Angle and Line Relationships (1 day)	7.GM.4: Solve real-world and other mathematical problems that involve vertical, adjacent, complementary, and supplementary angles.	<ul style="list-style-type: none"> • Vertical angles • Adjacent angles • Complementary angles • Supplementary angles • Perpendicular lines • Parallel lines • Transversal • Alternate interior angles • Alternate exterior angles • Corresponding angles 	Pictionary	497-500	Study guide Textbook All Things Algebra
Lesson 2: Triangles (1 day)	7.GM.1: Draw triangles (freehand, with ruler and protractor, and using technology) with	<ul style="list-style-type: none"> • Line segment • Triangle • Vertex • Interior angle • Exterior angle 	Board problems	506-508	Study guide Textbook All Things Algebra

Chapter 11: Congruence, Similarity, and Transformations			Unit 4: Creating, Comparing, and Analyzing Geometric Figures		
Essential Question: How can you determine congruence and similarity?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	given conditions from three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.	<ul style="list-style-type: none"> • Congruent 			
Lesson 3: Polygons (1 day)	7.GM.2: Identify and describe similarity relationships of polygons including the angle-angle criterion for similar triangles, and solve problems involving similarity.	<ul style="list-style-type: none"> • Polygon • Diagonal • Regular polygon • Tessellation 	Board problems	516-518	Study guide Textbook All Things Algebra
Chapter test: Quiz chapter 11 Review activities throughout chapter					

Chapter 12: Volume and Surface Area			Unit 4: Creating, Comparing, and Analyzing Geometric Figures		
Essential Question: How are two-dimensional figures used to solve problems involving three-dimensional figures?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 1: Circles and Circumference (1 day)	7.GM.5: Understand the formulas for area and circumference of a circle and use them to solve real-world and other mathematical problems; give an informal derivation of the relationship between circumference and area of a circle.	<ul style="list-style-type: none"> • Circle • Center • Diameter • Radius • Circumference • Pi 	Board problems	560-562	Study guide Textbook All Things Algebra
Lesson 2: Area of Circles (1 day)	7.GM.5: Understand the formulas for area and circumference of a circle and use them to solve real-world and other mathematical problems; give an informal derivation of the relationship between		Board problems	565-567	Study guide Textbook All Things Algebra

Chapter 12: Volume and Surface Area			Unit 4: Creating, Comparing, and Analyzing Geometric Figures		
Essential Question: How are two-dimensional figures used to solve problems involving three-dimensional figures?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
	circumference and area of a circle.				
Lesson 3: Area of Composite Figures (1 day)	7.GM.3: Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	<ul style="list-style-type: none"> • Composite figure 	Group work	570-573	Study guide Textbook All Things Algebra
Lesson 4: Three-Dimensional Figures (1 days)	7.GM.7: Construct nets for right rectangular prisms and cylinders and use the nets to compute the surface area; apply this technique to solve real-world and other mathematical problems.	<ul style="list-style-type: none"> • Plane • Solids • Polyhedron • Edge • Vertex • Face • Skew lines • Prism • Bases • Pyramid • Cylinder • Cone 	Guess My Solid	577-579	Study guide Textbook All Things Algebra Power Solids

Chapter 12: Volume and Surface Area			Unit 4: Creating, Comparing, and Analyzing Geometric Figures		
Essential Question: How are two-dimensional figures used to solve problems involving three-dimensional figures?					
Lesson & Approximate Duration	Standards & Objectives	Key Terms	Activities (formative)	Assessment (summative)	Resources
Lesson 5: Volume of Prisms Lesson 6: Volume of Cylinders (1 day)	7.GM.6: Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms.	<ul style="list-style-type: none"> Volume 	Find the volume of a box and a can	582-585 588-590	Study guide Textbook All Things Algebra Boxes, cans, and measuring tape
Lesson 8: Surface Area of Prisms Lesson 9: Surface Area of Cylinders (1 day)	7.GM.7: Construct nets for right rectangular prisms and cylinders and use the nets to compute the surface area; apply this technique to solve real-world and other mathematical problems.	<ul style="list-style-type: none"> Lateral faces Lateral area Surface area 	Find the surface area of a box and a can	605-607 612-614	Study guide Textbook All Things Algebra Boxes, cans, and measuring tape
Mid-Chapter quiz: Study Guide p. 283 Chapter test: 3A and Performance Task Review activities throughout chapter					