

Knowre Math: **Algebra 1** Curriculum

Chapter 1 Basics of Algebra

Lesson	Topic	NGSSS
1-1 Classifying Numbers	A) Identifying Types of Numbers	MAFS.8.NS.1.1
	B) Number Sets	
1-2 Order of Operations	A) Expressions with Exponents	MAFS.7.NS.1.3, A1.MAFS.912.N-RN.1.2
	B) Expressions with Grouping Symbols	
1-3 Parts of Algebraic Expressions	A) Variables	A1.MAFS.912.A-SSE.1.1.a
	B) Terms	
	C) Coefficients	
1-4 Expressions and Equations	A) Identifying Expressions and Equations	A1.MAFS.912.A-CED.1.1
	B) Writing Expressions and Equations	
1-5 Simplifying Expressions	A) Like Terms	A1.MAFS.912.A-SSE.1.1.a
	B) Multiplying Terms with Different Variables	
1-6 Distributive Property	A) Distributive Property to Simplify Expressions	A1.MAFS.912.A-SSE.1.2
	B) Order of Operations with Variable Expressions	
1-7 Relations	A) Identifying Relations	A1.MAFS.912.F-IF.2.5
	B) Domain	
	C) Range	
1-8 Functions	A) Identifying Functions	A1.MAFS.912.F-IF.1.1, A1.MAFS.912.F-IF.2.5
	B) Identifying Inputs and Outputs of Functions	
1-9 Function Notation	A) Writing Function Notation	A1.MAFS.912.F-IF.1.1, A1.MAFS.912.F-IF.1.2
	B) Input and Output in Function Notation	
	C) Evaluating Equations Written in Function Notation	

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Chapter 2 Solving Equations

Lesson	Topic	NGSSS
2-1 One-Step and Two-Step Equations	A) Solutions of One-Variable Equations	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.1.1, A1.MAFS.912.A-REI.2.3
	B) Solving One-Step Equations	
	C) Solving Two-Step Equations	
2-2 Multi-Step Equations	A) Solving Multi-Step Equations	MAFS.8.EE.3.7.a, A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.1.1, A1.MAFS.912.A-REI.2.3
	B) Equations with Zero, One, or Many Solutions	
2-3 Equations with Rational Numbers	A) Solving Equations with Rational Coefficients	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.1.1, A1.MAFS.912.A-REI.2.3,
	B) Solving Equations with Grouping Symbols	
2-4 Proportions	A) Writing Proportions	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.1.1, A1.MAFS.912.A-REI.2.3
	B) Solving Proportions	
	C) Proportions with Zero, One, or Many Solutions	
2-5 Literal Equations	A) Solving One-Step Literal Equations	A1.MAFS.912.A-CED.1.4
	B) Solving Two-Step Literal Equations	
	C) Solving Multi-Step Literal Equations	
2-6 Absolute Value Equations	A) Solving Absolute Value Equations with Single Variable Inside Absolute Value	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.1.1
	B) Solving Absolute Value Equations with Linear Expression Inside Absolute Value	
	C) Writing Absolute Value Equations	

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Chapter 3 Linear Functions

Lesson	Topic	NGSSS
3-1 Direct Variation	A) Graphs and Tables of Direct Variation	A1.MAFS.912.A-CED.1.2, A1.MAFS.912.A-REI.4.10, A1.MAFS.912.F-IF.3.7.a, A1.MAFS.912.F-LE.1.1.a, A1.MAFS.912.F-LE.1.2, A1.MAFS.912.F-LE.2.5
	B) Writing and Graphing Equations of Direct Variation	
3-2 Standard Form of Linear Functions	A) Solutions of Two-Variable Equations	A1.MAFS.912.N-Q.1.1, A1.MAFS.912.A-CED.1.2, A1.MAFS.912.A-REI.4.10, A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-LE.1.1.a, A1.MAFS.912.F-LE.2.5
	B) Linear Equations in Standard Form	
	C) x- and y-Intercepts	
3-3 Rate of Change	A) Rate of Change Equations	A1.MAFS.912.N-Q.1.1, A1.MAFS.912.F-IF.2.6, A1.MAFS.912.F-LE.1.1.a, A1.MAFS.912.F-LE.1.1.b, A1.MAFS.912.S-ID.3.7
	B) Finding Rate of Change	
3-4 Slope	A) Classifying Slopes of Lines	A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-LE.1.1.b, A1.MAFS.912.S-ID.3.7
	B) Slopes of Lines from Graphs	
	C) Slopes of Lines from Points	

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Chapter 3 Linear Functions (cont...)

Lesson	Topic	NGSSS
3-5 Point-Slope Form	A) Linear Equations in Point-Slope Form	A1.MAFS.912.A-CED.1.2, A1.MAFS.912.F-IF.3.7.a, A1.MAFS.912.F-IF.3.9, A1.MAFS.912.F-BF.2.3, A1.MAFS.912.F-LE.1.2, A1.MAFS.912.F-LE.2.5
	B) Writing Equations in Point-Slope Form	
	C) Graphing Equations in Point-Slope Form	
3-6 Slope-Intercept Form	A) Linear Equations in Slope-Intercept Form	A1.MAFS.912.N-Q.1.1, A1.MAFS.912.A-CED.1.2, A1.MAFS.912.F-IF.3.7.a, A1.MAFS.912.F-IF.3.9, A1.MAFS.912.F-BF.2.3, A1.MAFS.912.F-LE.1.2, A1.MAFS.912.F-LE.2.5
	B) Identifying the Slope and y-Intercept from Equations in Slope-Intercept Form	
	C) Writing and Graphing Equations in Slope-Intercept Form	
	D) Point-Slope and Slope-Intercept Forms	
3-7 Horizontal and Vertical Lines	A) Slopes of Horizontal and Vertical Lines	A1.MAFS.912.F-IF.3.7.a, A1.MAFS.912.F-LE.1.2
	B) Graphing Equations of Horizontal and Vertical Lines	
	C) Writing Equations of Horizontal and Vertical Lines	
3-8 Parallel and Perpendicular Lines	A) Slopes of Parallel Lines	A1.MAFS.912.A-CED.1.2, A1.MAFS.912.F-LE.1.2, G.MAFS.912.G-GPE.2.5
	B) Equations of Parallel Lines Through Given Points	
	C) Slopes of Perpendicular Lines	
	D) Equations of Perpendicular Lines Through Given Points	

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Chapter 3 Linear Functions (cont...)

Lesson	Topic	NGSSS
3-9 Scatter Plots and Lines of Fit	A) Scatter Plots	MAFS.8.SP.1.1, MAFS.8.SP.1.2,
	B) Lines of Fit	MAFS.8.SP.1.3,
	C) Making Predictions with Lines of Fit	A1.MAFS.912.N-Q.1.1, A1.MAFS.912.S-ID.2.6.a, A1.MAFS.912.S-ID.2.6.c, A1.MAFS.912.S-ID.3.7
3-10 Residuals and Correlation	A) Residuals and Residual Plots	A1.MAFS.912.S-ID.2.6.b,
	B) Correlation Coefficients	A1.MAFS.912.S-ID.3.8,
	C) Correlation and Causation	A1.MAFS.912.S-ID.3.9
3-11 Inverse Relations	A) Finding the Inverse of Sets of Points	A1.MAFS.912.N-Q.1.1,
	B) Graphing Inverses	A1.MAFS.912.F-BF.2.4.a
	C) Inverses in Function Notation	

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Chapter 4 Solving Inequalities

Lesson	Topic	NGSSS
4-1 One-Step and Two-Step Inequalities	A) Solutions of One-Variable Inequalities	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.2.3
	B) Solving One-Step Inequalities	
4-2 Multi-Step Inequalities	A) Solving Multi-Step Inequalities	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.2.3
	B) Inequalities with Zero, Many, or Infinite Solutions	
	C) Graphing Solutions of Multi-Step Inequalities	
4-3 Inequalities with Rational Numbers	A) Solving Inequalities with Rational Coefficients	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.2.3
	B) Solving Inequalities with Grouping Symbols	
4-4 Graphing and Writing Compound Inequalities	A) Graphing Compound Inequalities	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.2.3
	B) Writing Compound Inequalities from Graphs	
	C) Graphing Special Cases of Compound Inequalities	
4-5 Solving Compound Inequalities	A) Solutions of Compound Inequalities	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.2.3
	B) Solving Compound Inequalities	
	C) Graphing Solutions of Compound Inequalities	
4-6 Absolute Value Inequalities	A) Solutions of Absolute Value Inequalities	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3
	B) Writing Absolute Value Inequalities as Compound Inequalities	
	C) Solving Absolute Value Inequalities by Writing Them as Compound Inequalities	
	D) Graphing Absolute Value Inequalities by Writing Them as Compound Inequalities	
4-7 Solving Absolute Value Inequalities	A) Solving Absolute Value Inequalities with Single Variable Inside Absolute Value	A1.MAFS.912.A-SSE.1.1.b, A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-CED.1.3
	B) Solving Absolute Value Inequalities with Linear Expression Inside Absolute Value	

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Chapter 4 Solving Inequalities (cont...)

Lesson	Topic	NGSSS
4-8 Linear Inequalities	A) Solutions of Two-Variable Inequalities	A1.MAFS.912.A-CED.1.3,
	B) Graphing Linear Inequalities	A1.MAFS.912.A-REI.4.12
	C) Writing Linear Inequalities	

Chapter 5 Systems of Linear Equations and Inequalities

Lesson	Topic	NGSSS
5-1 Solutions of Systems of Equations	A) Solutions of Systems of Linear Equations	MAFS.8.EE.3.8.a,
	B) Graphs of Systems of Equations and the Number of Solutions	MAFS.8.EE.3.8.c, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-CED.1.3
5-2 Graphing to Solve Systems of Equations	A) Graphing Systems of Linear Equations	MAFS.8.EE.3.8.a,
	B) Graphing to Solve Systems of Linear Equations	MAFS.8.EE.3.8.b, MAFS.8.EE.3.8.c, A1.MAFS.912.N-Q.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.3.6, A1.MAFS.912.A-REI.4.11
5-3 Using Substitution to Solve Systems of Equations	A) Substitution to Solve Systems of Linear Equations with One Variable Isolated	MAFS.8.EE.3.8.b, MAFS.8.EE.3.8.c,
	B) Substitution to Solve Systems of Linear Equations After Isolating a Variable	A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.3.6, A1.MAFS.912.A-REI.4.11

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Chapter 5 Systems of Linear Equations and Inequalities (cont...)

Lesson	Topic	NGSSS
5-4 Using Elimination to Solve Systems of Equations	A) Addition or Subtraction Property of Equality to Eliminate a Variable	MAFS.8.EE.3.8.b, MAFS.8.EE.3.8.c, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.3.5, A1.MAFS.912.A-REI.3.6
	B) Multiplication and Addition or Subtraction Property of Equality to Eliminate a Variable	
5-5 Systems of Linear Inequalities	A) Solutions of Systems of Linear Inequalities	A1.MAFS.912.N-Q.1.1, A1.MAFS.912.A-CED.1.3, A1.MAFS.912.A-REI.4.12
	B) Graphing Systems of Linear Inequalities	
	C) Writing Systems of Linear Inequalities	

Chapter 6 Exponents and Exponential Functions

Lesson	Topic	NGSSS
6-1 Integer Exponents	A) Numerical Expressions with Nonpositive Integer Exponents	MAFS.8.EE.1.1
	B) Variable Expressions with Nonpositive Integer Exponents	
6-2 Product of Powers Property	A) Expanding Expressions to Show the Product of Powers Property	A1.MAFS.912.A-SSE.1.2
	B) Simplify Expressions with the Product of Powers Property	
6-3 Quotient of Powers Property	A) Expanding Expressions to Show the Quotient of Powers Property	A1.MAFS.912.A-SSE.1.2
	B) Simplifying Expressions with the Quotient of Powers Property	
6-4 Combining Product and Quotient of Powers Properties	A) Simplifying Products with the Product and Quotient of Power Properties	A1.MAFS.912.A-SSE.1.2
	B) Simplifying Quotients with the Product and Quotient of Power Properties	

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Chapter 6 Exponents and Exponential Functions (cont...)

Lesson	Topic	NGSSS
6-5 Power of Power Property	A) Expanding Expressions to Show the Power of Power Property	A1.MAFS.912.A-SSE.1.3
	B) Simplifying Expressions with the Power of Power Property	
6-6 Power of Product Property	A) Expanding Expressions to Show the Power of Product Property	A1.MAFS.912.A-SSE.1.4
	B) Simplifying Expressions with the Power of Product Property	
6-7 Power of Quotient Property	A) Expanding Expressions to Show the Power of Quotient Property	A1.MAFS.912.A-SSE.1.5
	B) Simplifying Expressions with the Power of Quotient Property	
6-8 Combining All Exponent Properties	A) Simplifying Expressions Using Two to Three Exponent Properties	A1.MAFS.912.A-SSE.1.6
	B) Simplifying Expressions Using Three to Four Exponent Properties	
	C) Simplifying Expressions Using All Exponent Properties	
6-9 Solving Exponential Equations	A) Solutions of Exponential Equations	A1.MAFS.912.A-CED.1.1
	B) Exponential Equations with Equivalent Bases	
	C) Exponential Equations with Different Bases	

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Chapter 7 Arithmetic and Geometric Sequences

Lesson	Topic	NGSSS
7-1 Introduction to Sequences	A) Sequences	A1.MAFS.912.F-BF.1.2
	B) Terms of Sequences	
	C) Types of Sequences	
7-2 Arithmetic Sequences	A) Finding Common Differences from Terms of Arithmetic Sequences	A1.MAFS.912.F-BF.1.2
	B) Extending Arithmetic Sequences	
	C) Writing Terms of Arithmetic Sequences from Terms and Common Differences	
7-3 Recursive Formulas of Arithmetic Sequences	A) Parts of Recursive Formulas of Arithmetic Sequences	A1.MAFS.912.F-IF.1.3, A1.MAFS.912.F-BF.1.1.a, A1.MAFS.912.F-BF.1.2, A1.MAFS.912.F-LE.1.2
	B) Writing Terms of Arithmetic Sequences from Recursive Formulas	
	C) Writing Recursive Formulas for Arithmetic Sequences	
7-4 Explicit Formulas of Arithmetic Sequences	A) Parts of Explicit Formulas of Arithmetic Sequences	A1.MAFS.912.F-IF.1.3, A1.MAFS.912.F-BF.1.1.a, A1.MAFS.912.F-BF.1.2, A1.MAFS.912.F-LE.1.2
	B) Writing and Evaluating Explicit Formulas of Arithmetic Sequences	
	C) Converting Between Explicit and Recursive Formulas of Arithmetic Sequences	
7-5 Geometric Sequences	A) Finding Common Ratios from Terms of Geometric Sequences	A1.MAFS.912.F-BF.1.2
	B) Extending Geometric Sequences	
	C) Writing Terms of Geometric Sequences from Terms and Common Ratios	
7-6 Recursive Formulas of Geometric Sequences	A) Parts of Recursive Formulas of Geometric Sequences	A1.MAFS.912.F-IF.1.3, A1.MAFS.912.F-BF.1.1.a, A1.MAFS.912.F-BF.1.2, A1.MAFS.912.F-LE.1.2
	B) Writing Terms of Geometric Sequences from Recursive Formulas	
	C) Writing Recursive Formulas for Geometric Sequences	

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Chapter 7 Arithmetic and Geometric Sequences (cont...)

Lesson	Topic	NGSSS
7-7 Explicit Formulas of Geometric Sequences	A) Parts of Explicit Formulas of Geometric Sequences	A1.MAFS.912.F-IF.1.3, A1.MAFS.912.F-BF.1.1.a,
	B) Writing and Evaluating Explicit Formulas of Geometric Sequences	A1.MAFS.912.F-BF.1.2, A1.MAFS.912.F-LE.1.2
	C) Converting Between Explicit and Recursive Formulas of Geometric Sequences	
7-8 Exponential Functions	A) Solutions of Exponential Functions	A1.MAFS.912.A-SSE.1.1.b, A1.MAFS.912.A-SSE.2.3.c,
	B) Equations of Exponential Functions	A1.MAFS.912.A-CED.1.2, A1.MAFS.912.A-REI.4.10,
	C) Graphs of Exponential Functions	A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.2.5, A1.MAFS.912.F-IF.3.7.e, A1.MAFS.912.F-IF.3.8.b, A1.MAFS.912.F-BF.1.1.b, A1.MAFS.912.F-LE.1.1.a, A1.MAFS.912.F-LE.1.2, A1.MAFS.912.F-LE.2.5
7-9 Exponential Growth and Decay	A) Classifying Graphs and Equations as Exponential Growth or Decay	A1.MAFS.912.N-Q.1.2, A1.MAFS.912.A-SSE.1.1.b,
	B) Equations of Exponential Growth or Decay	A1.MAFS.912.A-CED.1.2, A1.MAFS.912.F-IF.2.4,
	C) Writing and Evaluating Exponential Growth and Decay Equations	A1.MAFS.912.F-IF.2.5, A1.MAFS.912.F-IF.3.7.e, A1.MAFS.912.F-IF.3.8.b, A1.MAFS.912.F-BF.1.1.b, A1.MAFS.912.F-LE.1.1.b, A1.MAFS.912.F-LE.1.1.a, A1.MAFS.912.F-LE.1.1.c, A1.MAFS.912.F-LE.1.2, A1.MAFS.912.F-LE.2.5

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Chapter 8 Roots and Square Root Functions

Lesson	Topic	NGSSS
8-1 Square Roots of Whole Numbers	A) Square Roots of Perfect Squares	A1.MAFS.912.N-RN.1.2, A1.MAFS.912.N-RN.2.3
	B) Product Property of Square Roots	
	C) Square Roots of Whole Numbers Written in Prime Factored Form	
	D) Square Roots of Whole Numbers	
8-2 Square Roots of Variable Expressions	A) Square Roots of Single Variables Raised to Even Powers	A1.MAFS.912.A-SSE.1.2
	B) Square Roots of Single Variables Raised to Odd Powers	
	C) Square Roots of Monomial Expressions with Two or More Factors	
8-3 Adding and Subtracting Square Roots	A) Adding and Subtracting Simplified Square Roots	A1.MAFS.912.N-RN.1.2, A1.MAFS.912.N-RN.2.3
	B) Adding and Subtracting Square Roots After Simplifying	
8-4 Products of Square Roots	A) Simplifying a Product of Square Roots with Prime Factorized Radicands	A1.MAFS.912.N-RN.1.2, A1.MAFS.912.N-RN.2.3
	B) Simplifying a Product of Square Roots with Whole Number Radicands	
8-5 Quotients of Square Roots	A) Simplifying a Fraction with at Least One Square Root without Needing to Rationalize the Denominator	A1.MAFS.912.N-RN.1.2, A1.MAFS.912.N-RN.2.3
	B) Simplifying Square Roots of Fractions without Needing to Rationalize the Denominator	
	C) Simplifying a Fraction of Square Roots without Needing to Rationalize the Denominator	
	D) Simplifying Square Roots of Fractions and Fractions of Square Roots with Multipliers	
8-6 Rationalizing Square Roots	A) Finding the Value Needed to Rationalize a Denominator	A1.MAFS.912.N-RN.1.2, A1.MAFS.912.N-RN.2.3
	B) Simplifying a Fraction of Square Roots	
	C) Simplifying Square Roots of Fractions	

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Chapter 8 Roots and Square Roots Functions (cont...)

Lesson	Topic	NGSSS
8-7 Rational Exponents and nth Roots	A) Writing Roots as Rational Exponents	A1.MAFS.912.N-RN.1.1, A1.MAFS.912.N-RN.1.2, A1.MAFS.912.A-SSE.1.2
	B) Writing Rational Exponents as nth Roots	
8-8 Simplifying Rational Exponents and nth Roots	A) Evaluating Expressions with Rational Exponents	A1.MAFS.912.N-RN.1.1, A1.MAFS.912.N-RN.1.2
	B) Evaluating Expressions with nth Roots	

Chapter 9 Polynomials

Lesson	Topic	NGSSS
9-1 Introduction to Polynomials	A) Terms of Polynomials	A1.MAFS.912.A-SSE.1.1.a
	B) Degree of Polynomials	
	C) Standard Form of Polynomials	
	D) Leading Coefficients	
9-2 Modeling Polynomial Addition and Subtraction	A) Using Algebra Tiles to Model Polynomials	A1.MAFS.912.A-APR.1.1
	B) Using Algebra Tiles to Add Polynomials	
	C) Using Algebra Tiles to Subtract Polynomials	
9-3 Adding and Subtracting Polynomials	A) Adding Polynomials	A1.MAFS.912.A-APR.1.1
	B) Subtracting Polynomials	
	C) Adding and Subtracting Polynomials	
9-4 Modeling Polynomial Multiplication	A) Using Algebra Tiles to Multiply a Monomial and Binomial	A1.MAFS.912.A-SSE.1.2, A1.MAFS.912.A-APR.1.1
	B) Using Algebra Tiles to Multiply Two Binomials	
9-5 Using Tables to Multiply Polynomials	A) Completing Tables for Polynomial Multiplication	A1.MAFS.912.A-SSE.1.2, A1.MAFS.912.A-APR.1.1
	B) Using a Table to Multiply a Monomial and Polynomial	
	C) Using a Table to Multiply Polynomials with Two or More Terms	

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Chapter 9 Polynomials (cont...)

Lesson	Topic	NGSSS
9-6 Multiplying Polynomials	A) Multiplying Two Polynomials	A1.MAFS.912.A-SSE.1.2, A1.MAFS.912.A-APR.1.1
	B) Multiplying Three or More Polynomials	
9-7 Special Products	A) Squares of Sums	A1.MAFS.912.A-SSE.1.2, A1.MAFS.912.A-APR.1.1
	B) Squares of Differences	
	C) Products of Binomial Conjugates	

Chapter 10 Factoring

Lesson	Topic	NGSSS
10-1 Greatest Common Factors	A) Identifying Factors	A1.MAFS.912.A-SSE.1.1.a
	B) Finding Greatest Common Factors	
10-2 Using Greatest Common Factors to Factor	A) Using Algebra Tiles to Factor Common Factors from Polynomial Expressions	A1.MAFS.912.A-SSE.1.2
	B) Factoring Common Factors from Polynomial Expressions	
	C) Factoring -1 From Polynomial Expressions	
10-3 Factoring by Grouping	A) Using Algebra Tiles to Factor Polynomials with Four Terms	A1.MAFS.912.A-SSE.1.2
	B) Factoring Polynomials with Four Terms by Grouping	
10-4 Factoring Quadratics with Leading Coefficients of One	A) Using Algebra Tiles to Factor Quadratic Trinomials	A1.MAFS.912.A-SSE.1.2
	B) Factoring Quadratics with Leading Coefficients of One	
10-5 Factoring Trinomials with Leading Coefficients Not One	A) Factoring Quadratics with Leading Coefficients Not Equal to One	A1.MAFS.912.A-SSE.1.2
	B) Factoring a Polynomial into a Monomial and Two Binomial Factors	
	C) Determining if Quadratics are Factorable	
10-6 Special Cases in Factoring Polynomials	A) Factoring Differences of Squares	A1.MAFS.912.A-SSE.1.2
	B) Factoring Perfect Square Trinomials	

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Chapter 11 Quadratic Equations and Functions

Lesson	Topic	NGSSS
11-1 Parabolas	A) Graphs of Quadratic Functions	A1.MAFS.912.A-REI.4.10, A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.3.7.a, A1.MAFS.912.F-IF.3.9, A1.MAFS.912.F-LE.1.3
	B) Key Features of Parabolas	
	C) Relationship Between the Vertex and the x-Intercepts of Parabolas	
11-2 Standard Form of Quadratic Functions	A) Equations of Quadratic Functions in Standard Form	A1.MAFS.912.A-SSE.1.1.a, A1.MAFS.912.A-REI.3.7, A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.2.5, A1.MAFS.912.F-IF.3.7.a, A1.MAFS.912.F-IF.3.9
	B) Key Features of Quadratic Functions from Equations	
	C) Graphing Quadratic Functions from Equations in Standard Form	
11-3 Solving Quadratic Equations by Graphing	A) Solutions of Quadratic Equations	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.2.4.b, A1.MAFS.912.A-REI.4.10, A1.MAFS.912.A-REI.4.11, A1.MAFS.912.F-IF.3.7.a
	B) Connection Between Quadratic Functions and Their Related Equations	
	C) Solving Quadratic Equations by Graphing	
11-4 Solving Quadratic Equations by Factoring	A) Solving Factored Quadratic Equations	A1.MAFS.912.A-SSE.2.3.a, A1.MAFS.912.A-SSE.2.3.b, A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.2.4.b, A1.MAFS.912.F-IF.3.8.a
	B) Solving Quadratic Equations in Standard Form by Factoring	
	C) Solving Quadratic Equations in Nonstandard Form by Factoring	

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Chapter 11 Quadratic Equations and Functions (cont...)

Lesson	Topic	NGSSS
11-5 Using Square Roots to Solve Quadratic Equations	A) Solving Quadratic Equations with Squared Variable	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.2.4.b
	B) Solving Quadratic Equations with Squared Linear Expressions	
11-6 Solving Quadratic Equations by Completing the Square	A) Perfect Square Trinomials	A1.MAFS.912.A-SSE.2.3.b, A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.2.4.a, A1.MAFS.912.A-REI.2.4.b, A1.MAFS.912.F-IF.3.8.a
	B) Solving Quadratic Equations by Completing the Square	
11-7 Using the Quadratic Formula to Solve Quadratic Equations	A) Writing the Quadratic Formula	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.2.4.a, A1.MAFS.912.A-REI.2.4.b
	B) Solving Quadratic Equations in Standard Form with the Quadratic Formula	
	C) Solving Quadratic Equations in Nonstandard Form with the Quadratic Formula	
11-8 Discriminants of Quadratic Equations	A) Finding Discriminants	A1.MAFS.912.A-CED.1.1, A1.MAFS.912.A-REI.2.4.b
	B) Relationship Between Discriminants and Number of Real Solutions	
	C) Relationship Between Discriminants and Graphs of Quadratic Functions	

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Chapter 12 Functions and Transformations

Lesson	Topic	NGSSS
12-1 Piecewise Functions	A) Graphing Functions on a Given Domain	A1.MAFS.912.A-CED.1.2,
	B) Graphing Piecewise Functions	A1.MAFS.912.A-REI.4.10,
	C) Writing Equations of Piecewise Functions	A1.MAFS.912.F-IF.2.5, A1.MAFS.912.F-IF.3.7.b
12-2 Step Functions	A) Evaluating Floor and Ceiling Functions	A1.MAFS.912.A-CED.1.2,
	B) Graphs of Step Functions	A1.MAFS.912.A-REI.4.10, A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.2.5, A1.MAFS.912.F-IF.3.7.b
12-3 Parent Functions	A) Graphing Parent Functions	A1.MAFS.912.A-CED.1.2,
	B) Writing Equations of Parent Functions	A1.MAFS.912.A-REI.4.10, A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.2.5, A1.MAFS.912.F-IF.3.7.b
12-4 Translations	A) Identifying Vertical or Horizontal Translations of Parent Functions from Graphs and Equations	A1.MAFS.912.A-CED.1.2,
	B) Identifying Translations of Parent Functions from Graphs and Equations	A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.3.7.b,
	C) Graphing Translated Parent Functions from Equations	A1.MAFS.912.F-BF.1.1.b,
	D) Writing Equations of Translated Parent Functions from Graphs	A1.MAFS.912.F-BF.2.3

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Chapter 12 Functions and Transformations (cont...)

Lesson	Topic	NGSSS
12-5 Reflections	A) Graphing Reflected Parent Functions	A1.MAFS.912.A-CED.1.2,
	B) Writing Equations of Reflected Parent Functions	A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.3.7.b, A1.MAFS.912.F-BF.2.3
12-6 Dilations	A) Identifying Vertical Dilation Factors from Graphs and Equations	A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.3.7.b,
	B) Identifying Horizontal Dilation Factors from Graphs and Equations	A1.MAFS.912.F-BF.2.3
	C) Graphing Dilated Quadratic and Absolute Value Functions	
	D) Comparing Dilation Factors	
12-7 Transformations and Vertex Form	A) Graphing and Writing Equations of Transformed Quadratic and Absolute Value Functions	A1.MAFS.912.A-SSE.2.3.b, A1.MAFS.912.A-CED.1.2, A1.MAFS.912.F-IF.2.4, A1.MAFS.912.F-IF.3.7.b,
	B) Relationship Between the Vertices of Quadratic and Absolute Value Functions and Their Equations	A1.MAFS.912.F-BF.1.1.b, A1.MAFS.912.F-BF.2.3
	C) Vertex Form of Quadratic Equations	

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Chapter 13 Statistics and Probability

Lesson	Topic	NGSSS
13-1 Measures of Center	A) Mean	A1.MAFS.912.S-ID.1.1, A1.MAFS.912.S-ID.1.2, A1.MAFS.912.S-ID.1.3
	B) Median	
13-2 Measures of Spread	A) Range	A1.MAFS.912.S-ID.1.1, A1.MAFS.912.S-ID.1.2, A1.MAFS.912.S-ID.1.3
	B) Standard Deviation	
	C) IQR	
13-3 Outliers	A) Effects of Outliers	A1.MAFS.912.S-ID.1.1, A1.MAFS.912.S-ID.1.2, A1.MAFS.912.S-ID.1.3
	B) Identifying Outliers	
	C) Identifying a Box Plot from a Data Set	
13-4 Distributions of Data	A) Shapes of Data Displays	A1.MAFS.912.S-ID.1.1, A1.MAFS.912.S-ID.1.2, A1.MAFS.912.S-ID.1.3
	B) Shape and Measures of Center	
	C) Effects of Changes in Data Set on Values of Measures of Center and Spread	
	D) Using Shapes of Data Displays to Compare Measures of Center	
13-5 Two-Way Tables	A) Parts of Two-Way Tables	MAFS.8.SP.1.4, A1.MAFS.912.S-ID.2.5
	B) Reading Two-Way Tables	
	C) Finding Missing Joint and Marginal Frequencies	
13-6 Relative and Conditional Frequency	A) Identifying Types of Frequency Tables	MAFS.8.SP.1.4 A1.MAFS.912.S-ID.2.5
	B) Using Two-Way Tables to Calculate Probabilities	
	C) Finding Missing Conditional and Relative Frequencies	