Math Curriculum Map for Algebra I

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	September	October	November	December	January	
Unit Name or Theme	SOLVING EQUATIONS AND PROBLEMS	POLYNOMIALS	FACTORING >>	<< POLYNOMIALS	DIVIDING POLYNOMIALS/ POLYNOMIALS FRACTIONS	Unit Name or Theme
Enduring Understandings and Performance Indicators	Variables can be integrated into equations that demonstrate addition, subtraction, multiplication and division Variables can be evaluated Algebra can be applied in real world context	Monomials and polynomials represent polynomial mathematics Exponents can represent an increase in numerical value and large numbers I can apply strategies to solve real-world mathematical problems	Relationships exist between symbolic expressions Numerical expressions involve whole number exponents Variables represent numbers and sets known and unknown Expressions can be stated in mathematical terms	Properties of operations define equivalent expressions Rules can be applied among algebraic expressions Patterns exist among one and two variable equations	Relationships exist between fractions and whole numbers Numerical values can be communicated in mathematical terms Mathematic operations relate to one another	Enduring Understandings and Performance Indicators
Essential Questions	What strategies can I apply to solve problems? How do I apply the proper reasoning and terminology to a mathematical situation? How do mathematical models shape our understanding of mathematics? How are patterns of change related to mathematical functions?	How are patterns of change related behavior of function? How can I develop and evaluate expressions? What are ways to express equations in mathematical terms?	How can mathematical situations and problems be represented? Why do letters stand for numbers? How does mathematics relate to algebraic expressions? How can I apply what I know mathematically to what I am learning algebraically? How can I evaluate numerical expressions involving whole-number exponents?	What strategies can I apply in solving algebraic equations? How can I apply properties of operations in generating equivalent equations? How can I determine when expressions are equivalent? How can I identify patterns among variables?	How can I divide polynomials? How can I determine the values among polynomials? What rules should I apply in solving algebraic problems? How can I identify factor patterns?	Essential Questions
Assessment Strategies Formative & Summative	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Assessment Strategies Formative & Summative

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Instructional Skills and Strategies	**Instructional Skills and Strategies:** Evaluate variables Check solutions Translate words into expressions or equations Use tables, bar and line graphs Apply properties of addition, subtraction, multiplication and division to real numbers Combine like terms Analyze and solve word or real-life mathematical problems	**Instructional Skills and Strategies:** Identify polynomials Apply strategies such as FOIL Add and subtract polynomials Multiply polynomials Sketch quadratic functions Graph quadratic equations in standard form Utilize factoring to solve quadratic equations Graph exponential functions Use properties of exponents to multiply or divide and simplify exponential expressions Analyze and solve real-life problems with exponents	**Instructional Skills and Strategies:** Apply multiplication facts to find factors Apply factoring skills to factor fractions with variables Make connections between math and algebra Apply and extend mathematical knowledge and algebraic expressions Learn and apply algebraic terms Write, read and evaluate numerical expressions involving whole-number exponents Apply exponent skills to simplify fractions with exponents	**Instructional Skills and Strategies:** Apply properties to monomials and polynomials to determine rules for monomial and polynomial multiplication Recognize and apply factoring patterns for polynomials Analyze complex problems that contain two or more factoring patterns and determine if there is a solution Analyze and solve word problems containing one or more factoring patterns	**Instructional Skills and Strategies:** Use factoring patterns to simplify polynomial fractions Apply addition, subtraction, multiplication and division rules for polynomials and fractions Apply factoring patterns to solve polynomial division problems Analyze and solve word problems containing polynomial division	Instructional Skills and Strategies
Primary Resources	Algebra- Structure and Method Brown, Dolcianai,Sorgenfrey and Cole Houghton Mifflin Tests, Copy masters and supplementary material by the same	Algebra- Structure and Method Brown, Dolcianai,Sorgenfrey and Cole Houghton Mifflin Tests, Copy masters and supplementary material by the same	Algebra- Structure and Method Brown, Dolcianai,Sorgenfrey and Cole Houghton Mifflin Tests, Copy masters and supplementary material by the same	Algebra- Structure and Method Brown, Dolcianai,Sorgenfrey and Cole Houghton Mifflin Tests, Copy masters and supplementary material by the same	Algebra- Structure and Method Brown, Dolcianai,Sorgenfrey and Cole Houghton Mifflin Tests, Copy masters and supplementary material by the same	Primary Resources
Links with CCSS/ NCTM	CCSS 6.NS.2, 6.EE.1, 6.EE.2abc, 6.EE.3, 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.9 NCTM Algebra, Problem Solving, Communication, Connection, Representation, Reasoning and Proof	CCSS 6.EE.1, 6.EE.2abc, 6.EE.5, 6.EE.6, 6.EE.9 NCTM Algebra, Problem Solving, Communication, Connections, Representation, Reasoning and Proof	CCSS 6.EE.1, 6.EE.2abc,6.EE.6, 6.EE.9 NCTM Number and Operations, Algebra, Communication, Connections, Representation, Reasoning and Proof	CCSS 6.EE.3, 6.EE.4 NCTM , Algebra, Number and Operations, Problem Solving, Reasoning and Proof Communication, Connections, Representation	CCSS 6.EE.2c NCTM Algebra, Problem Solving, Communication, Connections, Representation, Reasoning and Proof	Links with CCSS/NCTM

Math Curriculum Map for Algebra I

	February	March	April	May	June	
Unit Name or Theme	RATIOS AND PROPORTIONS	FUNCTIONS	LINEAR EQUATIONS	INEQUALITIES >>	<<	Unit Name or Theme
Enduring Understandings and Performance Indicators	Ratio language exists to describe relationships between two quantities Associations exist among ratios Ratios and rate reasoning as well as proportions can be used to solve real-world and mathematical problems	Mathematical models and representations shape the way I understand math	Linear systems can be qualified Patterns, relations and functions can be compared	Systems of linear inequalities	<<	Enduring Understandings and Performance Indicators
Essential Questions	How can I monitor and reflect upon the process of mathematical problem solving? What strategies can I apply to solve problems? How do I make associations among ratios? How do I apply ratio language to describe a relationship between two quantities?	How can I choose a model that represents collected data? How can I solve quadratic equations? What is standard form?	How are patterns of change related to the behavior of functions? How can mathematical situations and problems be represented? How can operations relate to one another? What strategies can I apply to solve problems?	How can I use symbolic algebra to represent situation? How can I generate equivalent forms for simple algebraic expressions? How can I represent contextualized problems?	<<	Essential Questions
Assessment Strategies Formative & Summative	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework ??	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Quizzes (daily or weekly) Math diary Everyday Math assessments Paper/pencil class work Homework	Assessment Strategies Formative & Summative

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Instructional Skills and Strategies	**Instructional Skills and Strategies:** Derive rules for ratios and proportions Apply ratios and proportions to algebraic equations Derive percentage rules and apply to algebraic equations Make tables of equivalent ratios Relate ratio quantities with whole-number measurements Find missing values in tables Compare ratios in tables Apply ratios and percents of proportions to a variety of real-world problems Find a percent of a quantity as a rate per 100 Solve problems to find the whole, percent and given part Use ratio reasoning to convert measurement units	**Instructional Skills and Strategies:** Recognize and apply math properties to simplify and solve equations with two variables Plot points and lines on a Cartesian co-ordinate plane . Use various formulas to form line graphs Replace lines and linear equations to functions Define and apply direct and indirect proportions. Choose models that fit represented data Sketch quadratic functions Graph quadratic equations in standard form	**Instructional Skills and Strategies:** Apply linear graphing techniques to solve systems of linear equations Develop techniques to solve linear equations without graphing Apply graphing techniques to solve and analyze advanced word problems Utilize exponential growth and decay models and compare with linear growth Make stem and leaf plots Graph linear inequalities Classify linear systems as one solution, no solution or all solutions	**Instructional Skills and Strategies:** Differentiate between equalities and inequalities Graph inequalities Solve single variable inequalities Solve single variable inequalities Apply advanced graphing techniques to analyze and solve linear inequalities Graph solutions to linear inequalities and analyze and interpret and draw the graphic solution.	**Instructional Skills and Strategies:** Solve problems with ratios and proportions Shade, construct, deconstruct ratios Identify proportions Solve percent problems Use concrete objects to represent fractions and percentages Convert fractions to decimals and percents Utilize "shortcut" strategies (e.g. tables) Describe ratio relationships between two quantities Use ratios to solve real world problems	Instructional Skills and Strategies
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Links with CCSS/ NCTM	CCSS 6.RP.1, 6.RP.2,6.RP.3abcd NCTM Number and Operations, Algebra, Problem Solving, Communication, Connection, Representation, Reasoning and Proof	CCSS 6.NS.5, 6.NS.6abc, 6.NS.7abcd, 6.EE.1, 6.EE.2ab, 6.EE.6, 6.EE.7, 6.EE.9 NCTM Number and Operations, Algebra, Problem Solving, Communication, Connections, Representation, Reasoning and Proof	CCSS 6.NS.5, 6.NS.6abc, 6.NS.7abcd, 6.EE.1, 6.EE.2ab, 6.EE.6, 6.EE.7, 6.EE.9 NCTM Number and Operations, Algebra, Problem Solving, Communication, Connections, Representation, Reasoning and Proof	CCSS 6.NS.5, 6.NS.6abc, 6.NS.7abcd, 6.EE.1, 6.EE.2ab, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9 NCTM Number and Operations, Algebra, Problem Solving, Communication, Connections, Representation, Reasoning and Proof	CCSS 6.NS.5, 6.NS.6abc, 6.NS.7abcd, 6.EE.1, 6.EE.2ab, 6.EE.6, 6.EE.7, 6.EE.9 NCTM Number and Operations, Algebra, Problem Solving, Communication, Connections, Representation, Reasoning and Proof	Links with CCSS/NCTM