RIDGECROFT SCHOOL
ALGEBRA I - 8TH GRADE

Algebra I in the 8th grade is an accelerated course that addresses both the objectives from the NC Standard Course of Study Algebra I and the Grade 8 NC Standard Course of Study. Students will take the 8th grade end-of-course test at the end of the course.

PACING GUIDE

TOPICS/CONCEPTS	TIME	CURRICULUM OBJECTIVES	RESOURCE(S) TEXTBOOK: Algebra I (McDougal)
FIRST GRADING PERIOD	**30 Days**		
CONNECTIONS TO ALGEBRA • Variables, exponents, powers • Equations and inequalities • Solving Equations	15	**ALGEBRA I OBJECTIVES:** 1.01a, 1.02, 4.01a,b SUPPLEMENT: 1.02 including recursive **GRADE 8 OBJECTIVES:** **1.02**	TEXTBOOK: Chapter 1
PROPERTIES OF REAL NUMBERS • Operations with real numbers • Matrices	15	**ALGEBRA I OBJECTIVES:** 3.01, 3.02, 4.01a SUPPLEMENT: 1.02 including recursive **GRADE 8 OBJECTIVES:** 1.01, 1.02	TEXTBOOK: Chapter 2
SECOND GRADING PERIOD	**30 Days**		
SOLVING LINEAR EQUATIONS • Formulas and Functions	13	**ALGEBRA I OBJECTIVES:** 1.02, 4.01a,b **GRADE 8 OBJECTIVES:** 1.02, 5.01, 5.02, 5.03, 5.04	TEXTBOOK: Chapter 3
GRAPHING LINEAR EQUATIONS AND FUNCTIONS • Scatter plots	17	**ALGEBRA I OBJECTIVES:** 2.02, 3.03, 4.01 SUPPLEMENT: 1.02 including recursive EXTEND 3.02 **GRADE 8 OBJECTIVES:** 1.02, 5.01, 5.02	TEXTBOOK: Chapter 4
THIRD GRADING PERIOD	**30 Days**		
WRITING LINEAR EQUATIONS • Fitting a line to data • Predicting with linear models	15	**ALGEBRA I OBJECTIVES:** 3.03, 4.01 SUPPLEMENT: 1.02 including recursive **GRADE 8 OBJECTIVES:** 1.02, 3.01, 3.02, 4.01, 4.02, 4.03, 5.02	TEXTBOOK: Chapter 5
SOLVING AND GRAPHING LINEAR INEQUATIONS	15	**ALGEBRA I OBJECTIVES:** 1.01, 4.01 SUPPLEMENT: 1.02 including recursive **GRADE 8 OBJECTIVES:** 1.02, 5.01, 5.03	TEXTBOOK: Chapter 6
FOURTH GRADING PERIOD	**30 Days**		

SYSTEMS OF LINEAR EQUATIONS AND INEQUALITIES • Applications	15	**ALGEBRA I OBJECTIVES:** 4.01, 4.03 **GRADE 8 OBJECTIVES:** 1.02, 5.03, 5.04	TEXTBOOK: Chapter 7
EXPONENTS AND EXPONENTIAL FUNCTIONS • Growth and decay functions	15	**ALGEBRA I OBJECTIVES:** 1.01a, 4.04 SUPPLEMENT: 1.02 including recursive **GRADE 8 OBJECTIVES:** 5.01	TEXTBOOK: Chapter 8
FIFTH GRADING PERIOD	**30 Days**		
QUADRATIC EQUATIONS AND FUNCTIONS • Simplifying radicals • Graphing quadratics and quadratic inequalities • Comparing linear, exponential, and quadratic functions	15	**ALGEBRA I OBJECTIVES:** 1.01, 3.03, 4.01, 4.02, 4.03 **GRADE 8 OBJECTIVES:** 5.01	TEXTBOOK: Chapter 9
POLYNOMIALS AND FACTORING	15	**ALGEBRA I OBJECTIVES:** 1.01b,c, 4.02 **GRADE 8 OBJECTIVES:**	TEXTBOOK: Chapter 10
SIXTH GRADING PERIOD	**30 Days**		
RATIONAL EQUATIONS AND FUNCTIONS • Direct Variation	12	**ALGEBRA I OBJECTIVES:** 1.03, 3.03, 4.01 **GRADE 8 OBJECTIVES:**	TEXTBOOK: Chapter 11
RADICALS AND CONNECTIONS TO GEOMETRY • Distance and Midpoint Formulas	13	**ALGEBRA I OBJECTIVES:** 2.01 **GRADE 8 OBJECTIVES:** 1.02, 2.01,. 2.02, 3.01, 3.02, 3.03	TEXTBOOK: Chapter 12
ASSESSMENT	5		

8/29/06

NC STANDARD COURSE OF STUDY

NC STANDARD COURSE OF STUDY ALGEBRA I	NC STANDARD COURSE OF STUDY GRADE 8 MATHEMATICS
Algebra 1 continues the study of algebraic concepts. It includes operations with polynomials and matrices, creation and application of linear functions and relations, algebraic representations of geometric relationships, and an introduction to nonlinear functions. Students will be expected to describe and translate among graphic, algebraic, numeric, tabular, and verbal representations of relations and use those representations to solve problems. Appropriate technology, from manipulatives to calculators and application software,	**MAJOR CONCEPTS/SKILLS** • Real numbers • Linear functions • Pythagorean theorem, indirect measurement • Scatter plots • Slope • Equations and inequalities • Students will solve relevant and authentic problems using appropriate technology and apply these concepts as well as those developed in earlier year. **CONCEPTS/SKILLS TO MAINTAIN**

should be used regularly for instruction and assessment. Prerequisites: • Operate with the real numbers to solve problems. • Find, identify, and interpret the slope and intercepts of a linear relation. • Visually determine a line of best fit for a given scatterplot; explain the meaning of the line; and make predictions using the line. • Collect, organize, analyze, and display data to solve problems. • Apply the Pythagorean Theorem to solve problems.	• Ratio, proportion, and percent • Factors and multiples • Box plots and histograms • Volume and surface area
GOAL 1: THE LEARNER WILL PERFORM OPERATIONS WITH NUMBERS AND EXPRESSIONS TO SOLVE PROBLEMS.	**GOAL 1: THE LEARNER WILL UNDERSTAND AND COMPUTE WITH REAL NUMBERS.**
1.01 Write equivalent forms of algebraic expressions to solve problems. (a) Apply the laws of exponents. (b) Operate with polynomials. (c) Factor polynomials. 1.02 Use formulas and algebraic expressions, including iterative and recursive forms, to model and solve problems. 1.03 Model and solve problems using direct variation.	1.01 Develop number sense for the real numbers. (a) Define and use irrational numbers. (b) Compare and order. (c) Use estimates of irrational numbers in appropriate situations. 1.02 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators, or computers, and paper and pencil.
GOAL 2: THE LEARNER WILL DESCRIBE GEOMETRIC FIGURES IN THE COORDINATE PLANE ALGEBRAICALLY.	**GOAL 2: THE LEARNER WILL UNDERSTAND AND USE MEASUREMENT CONCEPTS.**
2.01 Find the lengths and midpoints of segments to solve problems. 2.02 Use the parallelism or perpendicularity of lines and segments to solve problems.	2.01 Determine the effect on perimeter, area or volume when one or more dimensions of two- and three-dimensional figures are changed. 2.02 Apply and use concepts of indirect measurement.
GOAL 3: THE LEARNER WILL COLLECT, ORGANIZE, AND INTERPRET DATA WITH MATRICES AND LINEAR MODELS TO SOLVE PROBLEMS.	**GOAL 3: THE LEARNER WILL UNDERSTAND AND USE PROPERTIES AND RELATIONSHIPS IN GEOMETRY.**
3.01 Use matrices to display and interpret data. 3.02 Operate (addition, subtraction, scalar multiplication) with matrices to solve problems. 3.03 Create linear models for sets of data to solve problems. (a) Interpret constants and coefficients in the context of the data. (b) Check the model for goodness-of-fit and use the model, where appropriate, to draw conclusions or make predictions.	3.01 Represent problem situations with geometric models. 3.02 Apply geometric properties and relationships, including the Pythagorean Theorem, to solve problems. 3.03 Identify, predict, and describe dilations in the coordinate plane.
GOAL 4: THE LEARNER WILL USE RELATIONS AND FUNCTIONS TO SOLVE PROBLEMS.	**GOAL 4: THE LEARNER WILL UNDERSTAND AND USE GRAPHS AND DATA ANALYSIS.**
4.01 Use linear functions or inequalities to model and solve problems; justify results. (a) Solve using tables, graphs, and algebraic properties. (b) Interpret constants and coefficients in the context of the problem. 4.02 Graph, factor, and evaluate quadratic functions to solve problems. 4.03 Use systems of linear equations or inequalities in two variables to model and solve problems. Solve using tables, graphs, and algebraic properties; justify results. 4.04 Graph and evaluate exponential functions to solve problems.	4.01 Collect, organize, analyze, and display data (including scatterplots) to solve problems. 4.02 Approximate a line of best fit for a given scatterplot; explain the meaning of the line as it relates to the problem and make predictions. 4.03 Identify misuses of statistical and numerical data.
	GOAL 5: THE LEARNER WILL UNDERSTAND AND USE LINEAR RELATIONS AND FUNCTIONS.

	5.01 Develop an understanding of function. (a) Translate among verbal, tabular, graphic, and algebraic representations of functions (b) Identify relations and functions as linear or nonlinear. Find, identify and interpret the slope (rate of change) and intercepts of a linear relation. (c) Interpret and compare properties of linear functions from tables, graphs, or equations. 5.02 Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept. 5.03 Solve problems using linear equations and inequalities; justify symbolically and graphically. 5.04 Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.