SPRING GROVE AREA SCHOOL DISTRICT

PLANNED COURSE OVERVIEW

Course Title: Algebra 1A	**Length of Course:** 30 cycles
Grade Level(s): 7-8	**Periods Per Cycle:** 6
Units of Credit: 1	**Length of Period:** 47 Minutes
Classification: Required	**Total Instructional Time:** 141 Hours

Course Description

This course is the first half of the Algebra 1 course. It will lead into the Algebra 1B course, which will include the Keystone Examination. Algebra 1A is the transition from the concrete to the abstract study of mathematics. After a review of simplifying expressions, the students will study the structures of algebra, multi-step equation solving, properties of real numbers, graphing of linear equations and functions, and writing linear equations. The students will also learn to solve systems of equations, which will lead into further study of systems of inequalities in Algebra 1B.

Instructional Strategies, Learning Practices, Activities, and Experiences

Anchor Charts
Anticipatory Sets
Assessments (Quizzes, Unit, Teacher-Created)
Bell Ringers
Calculators
Class Discussions
Closure (Exit Passes)
Computer Websites and/or Software
Cooperative Learning
Critical Thinking
Cross Curricular Connections
Drill and Practice
Graphic Organizers
Guided Practice
Higher-Level Questioning
Homework
Interaction Sequence
Journals
Manipulatives
Notes (Templates, Teacher or Student Generated)
Partners (Think-Pair-Share)
Posted and Numbered Objectives
Practice Exercises and Tests
Flexible Groups
Remediation
Review (Games, Study Guides)
Rocket Period
Simulations
Standardized Test Preparation
Teacher Demonstrations
Teacher Observations
Technology Integration (iPods, iPads, Clickers, Computer Labs)
Videos/DVDs
Vocabulary (Cards, Strategies, and Lists)
Wait Time and Wait Time Extended

Assessments

Assessments (Quizzes, Unit, Teacher-Created)	Evaluation (Summative and Formative)	Presentations
Bell Ringers	Higher-Level Questioning	State Standardized Assessments
Closure	Homework Review	Projects
Classroom Diagnostic Test (CDT)	Interaction Sequence	Teacher Observations

Materials/Resources

Anchor Charts	Internet Resources	Resource Books
Calculators	Journals	Technology Integration
Graphic Organizers	Literature	Videos/DVDs
Big Ideas Math: A Bridge to Success in Algebra 1 Larsen 1st Edition	Manipulatives	Vocabulary (Cards, Strategies, and Lists)

Adopted: 5/21/18
Revised:

Equations in One Variable	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Expressions, Equations, and Functions A. Expressions, Order of Operations, and Unit Rate B. Equations C. Functions, Domain, and Range Solving Linear Equations A. Solve Linear Equations B. Rewrite Equations/Formulas Properties of Real Numbers A. Order Real Numbers B. Operations with Real Numbers C. Find Square Roots and Compare Real Numbers	CC.2.1.HS.F.2 ~ Apply properties of rational and irrational numbers to solve real world or mathematical problems. CC.2.2.HS.D.1 ~ Interpret the structure of expressions to represent a quantity in terms of its context. CC.2.2.HS.D.2 ~ Write expressions in equivalent forms to solve problems. CC.2.2.HS.D.10 ~ Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. CC.2.1.HS.F.3 ~ Apply quantitative reasoning to choose and Interpret units and scales in formulas, graphs and data displays. CC.2.1.HS.F.4 ~ Use units as a way to understand problems and to guide the solution of multi-step problems. CC.2.1.HS.F.5 ~ Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. C.2.2.HS.D.2 ~ Write expressions in equivalent forms to solve problems. CC.2.2.HS.D.7 ~ Create and graph equations or inequalities to describe numbers or relationships. CC.2.2.HS.D.9 ~ Use reasoning to solve equations and justify the solution method. CC.2.2.HS.D.10 ~ Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. CC.2.2.HS.C.6 ~ Interpret functions in terms of the situation they model. CC.2.2.HS.D.2 ~ Write expressions in equivalent forms to solve problems. CC.2.2.HS.D.9 ~ Use reasoning to solve equations and justify the solution method. CC.2.1.HS.F.1 ~ Apply and extend the properties of exponents to solve problems with rational exponents. CC.2.1.HS.F.2 ~ Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Equations in Two Variables	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Graphing Linear Equations and Functions A. Graphing Linear Equations B. Find Slope and Graph Using Slope-Intercept Form C. Direct Variation D. Graph Linear Functions Writing Linear Equations A. Write the equation of a line in slope-intercept form B. Write the equation of a line using function notation C. Scatterplots Systems of Equations A. Solve a linear system by graphing B. Solve a linear system by substitution C. Solve a linear system by elimination D. Solve application problems using a system of equations E. Solve special types of linear systems	CC.2.2.HS.D.8 ~ Apply inverse operations to solve equations or formulas for a given variable. CC.2.2.HS.D.9 ~ Use reasoning to solve equations and justify the solution method. CC.2.2.HS.D.10 ~ Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. CC.2.2.HS.C.2 ~ Graph and analyze functions and use their properties to make connections between the different representations. CC.2.2.HS.C.5 ~ Construct and compare linear, quadratic, and exponential models to solve problems. CC.2.2.HS.C.6 ~ Interpret functions in terms of the situation they model. CC.2.2.HS.D.6 ~ Extend the knowledge of rational functions to rewrite in equivalent forms. CC.2.2.HS.D.7 ~ Create and graph equations or inequalities to describe numbers or relationships. CC.2.2.HS.C.1 ~ Use the concept and notation of functions to interpret and apply them in terms of their context. CC.2.2.HS.C.3 ~ Write functions or sequences that model relationships between two quantities. CC.2.4.HS.B.1 ~ Summarize, represent, and interpret data on a single count or measurement variable. CC.2.4.HS.B.2 ~ Summarize, represent, and interpret data on two categorical and quantitative variables. CC.2.4.HS.B.3 ~ Analyze linear models to make interpretations based on the data.

Exponential and Quadratic Functions	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Exponents and Exponential Functions A. Properties of Exponents B. Scientific Notation	CC.2.1.HS.F.1 ~ Apply and extend the properties of exponents to solve problems with rational exponents. CC.2.2.HS.D.10 ~ Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. CC.2.2.HS.C.6 ~ Interpret functions in terms of the situation they model. CC.2.2.HS.D.1 ~ Interpret the structure of expressions to represent a quantity in terms of its context.