

Teacher: Susan Stamm	School Year: 2014-2015	
Course: Algebra 1	Intended Grade Level: 8 th	
Course Summary : The Algebra 1 class uses a Glencoe Common Core State Standards edition that follows a traditional approach to creative thinking and problem solving. The course uses problem based learning to explore relationships that are linear, quadratic and exponential. Students are asked to explain graphs, look for structure in various equations, apply Algebraic Properties when solving equations and model equations with graphs. Students are able to use technology and will have access to a TI-84 graphing calculator. The course is designed to give students the problem solving skills needed to pass the Algebra Keystone Exam and be prepared for 10 th grade Geometry.		
Course Outcomes: By the end of the course, students will know: How to interpret and solve Algebra problems to fulfill the Common Core State Standards and meet the requirements of the Keystone Exam. By the end of the course, students will be able to: Compute, analyze, interpret, create, compare and contrast Algebra problems that fulfill the Common Core State Standards and meet the Keystone Algebra requirements.		
Standards Targeted ¹ Common Core State Standards for Algebra 1 and Keystone Exam Guidelines		
Units of Study		
Units Topic	Primary Learning Outcome	
Chapter 1: Expressions, Equations and Functions	Students will be able to write algebraic expressions, write and solve algebraic equations, represent and interpret relations and functions, use function notation and find the value of a function; interpret function behavior on a graph.	
Chapter 2: Linear Equations	Students will be able to solve multi-step equations, solve for a specific variable in an equation and solve absolute value equations.	
Chapter 3: Linear Functions	Students will be able to identify linear functions, direct variations, interpret the intercepts and zero of a linear function and write linear functions using the rate of change and initial value.	

¹ Indicate primary Standards emphasis:

⁻ PA Core - Math / ELA / Science & Technology / History & Social Studies

⁻ Keystone Exam Module 1 and Module 2



Chapter 4: Equations of Linear Functions	Students will be able to write and interpret linear functions in slope-intercept form, standard form and point-slope form; create scatter plots and regressions lines on a graphing calculator.	
Chapter 5: Linear Inequalities	Students will be able to solve and graph multi-step inequalities, compound inequalities and solve and graph inequalities involving absolute value.	
Chapter 6: Systems of Linear Equations and Inequalities	Students will be able to solve systems of linear equations by graphing, substitution or elimination and use a graphing calculator to solve systems of inequalities.	
Chapter 7: Exponents and Exponential Functions:	Students will be able to simplify expression using the Properties of Exponents, extend the properties to scientific notation and graph and interpret exponential functions.	
Chapter 8: Quadratic Expressions and Equations	Students will be able to add, subtract and multiply polynomial expressions, factor quadratic expressions and solve quadratic equations by factoring.	
Chapter 9 Quadratic Functions and Equations	Students will be able to solve quadratic equations by completing the square or by applying the Quadratic Formula and identify and graph special functions.	
Chapter 10: Radical Functions and Geometry	Student will be able to graph and interpret square root functions and simplify radical expressions using the Product and Quotient Properties of Square Roots.	
Chapter 11: Rational Functions and Equations	Students will be able to identify inverse variations, excluded values and explore families of functions using a graphing calculator.	
Chapter 12: Statistics and Probability	Students will be able to analyze data sets using distributions and measures of central tendency and calculate experimental probabilities.	



South Williamsport Area School District Course Plan Template

Advanced Learner Recommendations		
 The 8th Grade Algebra 1 is an advanced class. Included are: Standardized Test Practice included in assignments More Higher Order thinking problems using error analysis Technology labs 		
Struggling Learner Recommendations		
 Vocabulary with each Chapter to clarify concepts Study Guide material Group study sessions for additional instruction time 		