

## Grades 9-12 Algebra 1

### Framework for **FORMATIVE/CLASSROOM** Instruction and Assessment Productive Domains of Speaking and Writing

#### **Example English Language Proficiency Standard**

English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Mathematics.

#### **Example PA Academic Standard(s)**

##### **Speaking and Listening**

**1.6.10.A** Listen critically and respond to others in small and large group situations. Respond with grade level appropriate questions, ideas, information or opinions.

##### **Mathematics**

**2.8.A1.B** Evaluate and simplify algebraic expressions, for examples: sums of polynomials, products/quotients of exponential terms and product of binomial times a trinomial; solve and graph linear equations and inequalities.

**2.8.A1.F** Interpret the results of solving equations, inequalities, systems of equations, and inequalities in the context of the situation that motivated the model.

<b>Cognitive Function:</b> Students at all levels of English proficiency will ANALYZE and SOLVE equations and inequalities.								
<b>Speaking</b>								
<b>Example Concepts</b>	<b>Example Competencies</b>	<b>Example Vocabulary</b>	<b>Proficiency Level 1 Entering</b>	<b>Proficiency Level 2 Emerging</b>	<b>Proficiency Level 3 Developing</b>	<b>Proficiency Level 4 Expanding</b>	<b>Proficiency Level 5 Bridging</b>	
Equations and inequalities	Write and/or identify linear equations in various forms (slope-intercept, point-slope, standard, etc.).	Equation	<b>Language Function</b>					
		Equivalent	Supply words	Sequence steps	Organize	Dispute or validate	Discuss	
		Expression						
		Forms	<b>Content Stem</b>					
		Inequality	<b>Grades 9-12</b> Mathematical sentences (equations and inequalities)					
			<b>Instructional Support</b>					
		Linear	Modeled language	Graphic support (graphing calculator)	Partner	Partner	As needed	
		Reciprocal	Sentence frame	Partner				
		Constraints						
				<b>Model Performance Indicator (MPI)</b>				
		Supply words about a system of linear equations as modeled by the teacher using a sentence frame.	Sequence the oral steps to graph a system using a graphing calculator with a partner.	Verbally organize a problem scenario into a system of linear equations with a partner.	Dispute or validate claims delivered verbally based on the solution to a system of equations in a problem scenario with a partner.	Discuss implications for a business model based on the system of equations and make recommendations to the business.		

<b>Cognitive Function:</b> Students at all levels of English proficiency will ANALYZE and SOLVE equations and inequalities.									
<b>Writing</b>									
<b>Example Concepts</b>	<b>Example Competencies</b>	<b>Example Vocabulary</b>	<b>Proficiency Level 1 Entering</b>	<b>Proficiency Level 2 Emerging</b>	<b>Proficiency Level 3 Developing</b>	<b>Proficiency Level 4 Expanding</b>	<b>Proficiency Level 5 Bridging</b>		
Equations and inequalities	Write and/or identify linear equations in various forms (slope-intercept, point-slope, standard, etc.).	Equation Equivalent Expression Forms Inequality Reciprocal	<b>Language Function</b>						
			Reproduce steps	Solve a system of inequalities	Solve a system of inequalities	Respond to a justification	Solve a word problem		
			<b>Content Stem</b>						
			<b>Grades 9-12</b> Mathematical sentences (equations and inequalities)						
			<b>Instructional Support</b>						
			Partner	Guided model	Graphic organizer	Word bank	As needed		
			<b>Model Performance Indicators (MPI)</b>						
			Copy the process used to solve a system of linear equations with a partner.	Solve a simple system of linear equations using a guided model.	Solve a system of linear equations that represents a real-world scenario using a graphic organizer.	Respond to a justification of the solution of an algebraic system of linear equations using a technical language word bank.	Solve a word problem based on a system of linear equations and explain the context of the answer.		