Curriculum Sample Template
Max. 8 Pages

Grade Level	High School	**Content Area**	Math
Course Title (grades 9-12 Only)	Algebra I		
Length of Unit	5 Days	**Time of Year**	2nd quarter
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students can create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales (A-CED.2). Students can solve linear equations and inequalities in one variable, including equations with coefficients represented by letters (A-REI.3). Students work through standards of mathematical practice in every mathematics lesson throughout the year.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	The following methods of instruction are aligned to the program of instruction: *RTI*: Notes in CLOZE form are provided for Tier 2 and Tier 3 students as needed. Teacher will organize small group guided instruction for students as needed. Teacher will re-teach objectives focusing on multiple learning styles (verbal, visual, kinesthetic, etc.) as needed. *What Works Strategies*: Objectives are clearly communicated to students at the beginning of every lesson. Cooperative learning is used regularly in lessons emphasizing the thought process used as problems are solved (think-alouds). Homework is assigned for independent practice. Students will regularly receive criterion-referenced, timely and specific feedback on their performance. *SIOP*: Students regularly work with partners and small groups. Scaffolding involves significant teacher modeling and guided practice. Students will verbalize their thought processes as related to the problems they have solved (think-alouds). Notes in CLOZE form are provided for students as needed. When appropriate, mathematics vocabulary will be broken down and analyzed to help with comprehension of unfamiliar terms (e.g.: elimination, linear, etc.). *Culturally Relevant Pedagogy*: Students will solve real-world problems that include topics relevant to them and their community.		
Standard Number and Description *List the Number* and full description for the required Standard.*	A-REI.6 - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations with two variables.		
Summative Assessment	The summative assessment for this objective is in the form of a quiz. The quiz contains six problems. Questions 1 – 4 has students solve a given system of two linear equations using the specific method indicated (i.e.: graphing, substitution, or elimination). Question 5 asks students to reason about systems of		

	linear equations. Question 6 is open-ended, asking students to create and solve two separate systems of linear equations.
Scoring Scale and Mastery Level	The summative assessment will be scored using an answer key. Each of the six questions is assigned a point value. Mastery is demonstrated with a score of 80% or above. A score of 20 = 100%, a score of 19 = 95%, a score of 18 = 90%, a score of 17 = 85%, a score of 16 = 80%, a score of 15 = 75%, etc.
Materials/Resources Needed	Materials and Technology: Textbook (*Prentice Hall, Algebra, Foundations Series), graphing calculator, notes in CLOZE form, homework starters for Tier 3 students. **Note: 2013-2014 Pearson textbooks, as mentioned in A.3 Program of Instruction, were not available at time of planning and publication, so earlier editions of Pearson/Prentice Hall textbooks were used.*

	Instruction	Student Activities
1	Objective: Students solve systems of linear equations by graphing. (written on board) 1) Teacher reads objective aloud to students. 2) Teacher reviews how to graph a single linear equation on a graphing calculator. 3) Teacher introduces the definition for a system of linear equations. Using a graphing calculator on an overhead, teacher will show students three examples of systems of linear equations. Teacher models correct use of vocabulary and verbalizes the thought process used to calculate solutions (think alouds). 4) Through class discussion, teacher leads the students into discovering that there are three types of solutions for a system of liner equations: no solution, an infinite number of solutions, and a single solution. Teacher models correct use of vocabulary and verbalizes the thought process used to calculate solutions (think alouds). 5) Teacher gives students a system of linear equations to solve with a	1) Students follow along with the teacher and the write objective into their notes. (A set of notes in CLOZE form will be provided to students who have been identified as needing them, Tier 3 and some Tier 2.) 2) Students actively follow along with the example and graph the equation on their graphing calculator. 3) and 4) Students write down definition and examples in their notes, asking questions asking clarifying questions as needed. 5) Students work in pairs to solve the given system of linear equations by graphing. They will record their results in their notes. 6) Students (in pairs) solve a system of linear equations on a graphing calculator. Different pairs of students receive different systems of linear equations. Students present their solution to the class using appropriate vocabulary. (The number of students who can present will be dependent on time remaining in the

	partner by graphing. Teacher roams around the classroom monitoring discussions and making notes of observations to be shared with the class. 6) Teacher hands out different systems of linear equations to pairs of students to solve by graphing. Teacher actively roams around the classroom monitoring the discussions making notes of observations to be shared with the class. When it is time for students to share their solutions with the entire class, the teacher makes sure to cover each of the three types of solutions. 7) Teacher assigns homework: Students are given three systems of linear equations to solve independently by graphing. For each solution, they will explain in writing why their solution makes sense (i.e.: there is no solution because the lines are parallel). (Additional problems are made available for enrichment when appropriate for individual students.)	class session.) 7) Students complete homework problems independently. (For Tier 3 students, the first two problems are in hand-out form with the first problem completed and the second problem partially completed.)
2	Objective: Students solve systems of linear equations using the substitution method. (written on board) 1) Teacher instructs students to check their homework with their table groups (4 students). Teacher actively roams around the classroom monitoring discussions making notes of any observations to be shared with the class. 2) Teacher facilitates whole-class discussion about individual homework problems, if necessary, asking for volunteers to share their solutions/thought processes with the class. Teacher shares observations when appropriate. 3) Teacher reads objective aloud to students. 4) Teacher begins lesson using one of the homework problems that was solved by graphing. Using the same system of two linear equations, the teacher will model how the substitution method for solving a system of linear equations can be used to find a solution. Teacher models correct use of vocabulary and verbalizes the thought process used to calculate the solution (think aloud). 5) Teacher models a second example using substitution.	1) Students cooperatively share their answers. They will discuss any solutions that they did not agree on and attempt to come to a group consensus on the solutions to these problems. If there is a solution they do not agree on, they will note that problem to share with the whole class to see if someone else in the room can explain how they got their solution. 2) Selected students share their solutions/thought processes if needed. Students are the teachers at this point. 3) Students follow along as with teacher and write objective into their notes. (A set of notes in CLOZE form will be provided to students who have been identified as needing them, Tier 3 and some Tier 2.) 4) and 5) Students write examples in their notes and ask clarifying questions as needed. 6) Students discuss and solve given system of linear equations with their partners. 7) Students solve given systems of linear equations using the substitution method.

	6) Teacher provides a third example directing students to solve with their partners using the substitution method. Teacher actively roams around the classroom monitoring discussions and making notes of observations to be shared with the class. 7) Teacher gives students one more problem for them to practice on their own then asks for a volunteer to share their solution with the class. Teacher will continue to actively monitor. 8) Teacher assigns homework: Solve three systems of linear equations , first by substitution, and then verify each solution by graphing. Then, explain in writing why each solution makes sense. (Additional problems are available for enrichment when appropriate for individual students.)	8) Students complete homework problems independently. (For Tier 3 students, the first two problems will be in hand-out form with the beginning of the problems already started.)
3	Objective: Students will solve systems of linear equations by using the elimination method. (written on board) 1) Teacher instructs students to check their homework with their table groups (4 students). Teacher actively roams around the classroom monitoring discussions and making notes of any observations to be shared with the class. 2) Teacher facilitates whole-class discussion about individual homework problems, if necessary, asking for volunteers to share their solutions/though processes with the class. Teacher shares observations when appropriate. 3) Teacher reads objective aloud to students. 4) Teacher begins lesson using one of the homework problems that was solved by graphing. Using the same system of two linear equations, the teacher models the elimination method for solving a system of linear equations. Teacher models correct use of vocabulary and verbalizes the thought process used to calculate solutions (think alouds). 5) Teacher models a second example using the elimination method. 6) Teacher provides a third example for students to solve with their partners using the elimination method. Teacher will actively roam around the classroom monitoring discussions and making notes of any	1) Students cooperatively share their answers. They discuss any solutions that they did not agree on and attempt to come to a group consensus on the solutions to the problems. If there is a problem they do not agree on, they will note that problem to share with the whole class to see if someone else in the room can explain how they got their solution. 2) Selected students will share their solutions/thought processes if needed. Students are the teachers at this point. 3) Students follow along with teacher and write objective into their notes. (A set of notes in CLOZE are provided to students who have been identified as needing them, Tier 3, possibly Tier 2.) 4) and 5) Students will write examples into their notes and ask clarifying questions as needed. 6) Students discuss and solve given problem with their partners. 7) Students solve final problem independently. A volunteer will present their solution to the class, using correct vocabulary and verbalizing their thought process (think aloud). 8) Students complete homework problems independently. (For Tier 3 students, the first two problems will be in hand-out form

	observations to be shared with the class. 7) Teacher gives students one more problem to practice on their own then asks for a volunteer to share their solution/thought process with the class. 8) Teacher assigns homework: three systems of linear equations to solve using the elimination method. For each solution, explain in writing why the solution makes sense. (Additional problems will be made available for enrichment when appropriate for individual students.)	with the beginning of the problems already started.)
4	Objective: Given a real world situation, students will solve systems of linear equations by graphing, the substitution method, and/or the elimination method. (written on board) 1) Teacher instructs students to check their homework with their table groups (4 students). Teacher actively roams around the classroom monitoring discussions and making notes of any observations to be shared with the class. 2) Teacher facilitates whole-class discussion about individual homework problems, if necessary, asking for volunteers to share their solutions/thought processes with the class. Teacher shares observations when appropriate. 3) Teacher reads objective aloud to students. 4) Teacher models how to solve a system of linear equations when given a real world situation. Teacher models correct use of vocabulary and verbalizes the thought process used to calculate solutions (think alouds). 5) Teacher provides students with various real world situations to solve using systems of linear equations and the method of their choice. When it is time for students to share their solutions with the entire class, the teacher makes sure to cover each of the three types of solutions. 6) Teacher assigns homework: Three situations where they can write a system of linear equations and solve each system. For each solution, explain in writing why the solution makes sense (i.e.: there is no solution because the lines are parallel). (Additional problems are made available	1) Students cooperatively share their answers. They discuss any solutions that they do not agree on and attempt to come to a group consensus on their solutions. If there is a solution they do not agree on, they will note that problem to share with the whole class to see if someone else in the room can explain/model the solution. 2) Selected students share their solutions/processes if needed. Students are the teachers at this point. 3) Students follow along with teacher and write objective into their notes. (A set of notes in CLOZE form will be provided to students who have been identified as needing them, Tier 3, possibly Tier 2.) 4) and 5) Students write examples in their notes and ask clarifying questions as needed. 6) Students complete homework problems independently. (For Tier 3 students, the first two problems will be in hand-out form with the beginning of the problems already started.)

	for enrichment when appropriate for individual students.)	
5	Objective: Students will solve systems of linear equations exactly and approximately (e.g., with graphs) focusing on pairs of linear equations with two variables. 1) Teacher instructs students to check their homework with their table groups (4 students). Teacher actively roams around the classroom monitoring discussions and making notes of any observations to be shared with the class 2) Teacher facilitates whole-class discussion about individual homework problems, if necessary, asking for volunteers to share their solutions/thought processes with the class. 3) Teacher gives summative assessment.	1) Students cooperatively share their answers. They discuss any solutions that they did not agree on and attempt to come to a group consensus on the solutions to the problems. If there is a solution they do not agree on, they will note that problem to share with the whole class to see if someone else in the room can explain/model how they got their solution. 2) Selected students share their solutions/thought processes if needed. Students are the teachers at this point. 3) Students complete summative assessment.

Paste Summative Assessment Here:

Quiz – Solving Systems of Equations

For #1 – 4, solve the system of two linear equations using the method given.

1. Solve by graphing on a coordinate plane. $y = 2x$
$y = x - 1$

2. Solve by elimination. $y = x + 2$
$y = -2x + 3$

3. Solve using substitution. $5y = x$
$2x - 3y = 7$

4. Solve using elimination. Suppose the band sells cans of popcorn for $5 per can and cans of mixed nuts for $8 per can. The band sells a total of 240 cans and receives a total of $1614. Find the number of cans of popcorn and the number of cans of mixed nuts sold.

5. If a system of linear equations has no solution, what does that tell you about the graphs of the equations?

6. Write a system of linear equations that has no solution and a system of equations that has infinitely many solutions.

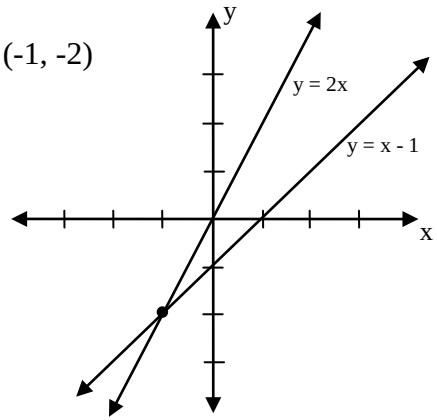
Paste Answer Key/Scoring Rubric Here:

Quiz – Solving Systems of Equations. ANSWER KEY

Quiz total points 20. Mastery is determined by a score of 16/20 (80%) or above.

Problems 1 – 4: three points each (one point for correct x, one point for correct y, one point for correct method)
Problem 5: two points (one point for slope, one point for y-intercepts)
Problem 6: six points (three points for no solution, three points for infinitely many solutions)

1. Solution: (-1, -2)



2. $\left(\frac{1}{3}, \frac{7}{3}\right)$

3. (5, 1)

4. 102 cans of popcorn, 138 cans of nuts

5. The lines have the same slope with different y-intercepts.

6. Answers may vary. Sample: no solution: $x + y – 4$ and $x + y – -3$;
infinitely many solutions: $6x + 2y – 5$ and $y – -3x + 2.5$