Course: Algebra I **Unit #/Name:** Unit #3 Systems of Equations	**Year of Implementation: 2019-2020**

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Stage One - Desired Results

Link(s) to New Jersey Student Learning Standards for this course:
https://www.state.nj.us/education/cccs/2016/math/standards.pdf

Unit Standards:

NJSLS.N-Q: A
- Reason quantitatively and use units to solve problems.

NJSLS.A-SSE: B
- Write expressions in equivalent forms to solve problems.

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NJSLS.A-CED: A
- Create equations that describe numbers or relationships.

NJSLS.A-REI:A; C; D
- Understand solving equations as a process of reasoning and explain the reasoning.
- Solve systems of equations.
- Represent and solve equations and inequalities graphically.

21st Century Themes:

___Global Awareness
_x_Financial, Economic, Business and Entrepreneurial Literacy
___Civic Literacy
___Health Literacy
___Environmental Literacy

21st Century Skills:

Learning and Innovation Skills:
_x_Creativity and Innovation
_x_Critical Thinking and Problem Solving
_x_Communication and Collaboration

Information, Media and Technology Skills:
___Information Literacy
___Media Literacy
_x_ICT (Information, Communications and
___Technology) Literacy

Life and Career Skills:
_x_Flexibility and Adaptability
_x_Initiative and Self-Direction
_x_Social and Cross-Cultural Skills
_x_Productivity and Accountability
_x_Leadership and Responsibility

Transfer Goal(s): *Students will be able to independently use their learning to* solve problems and effectively communicate their reasoning

Enduring Understandings	*Essential Questions*
Students will understand that. . . EU1	EU1

● real-world situations can be represented symbolically and graphically. EU2 ● a problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence. EU3 ● there are different strategies to solve a problem, but some are more efficient than others.	● How do I use algebraic equations to analyze or solve problems? EU2 ● How do I know where to begin when solving a problem? EU3 ● How do I decide what strategy will work best in a given problem situation?
Knowledge Students will know. . . EU1 ● real-world situations can be graphed and interpreted using an algebraic model. EU2 ● how to solve and graph systems of equations and inequalities. EU3 ● selecting and using the appropriate methods to solve systems of equations and inequalities demonstrates efficiency.	*Skills* Students will be able to. . . EU1 ● write algebraic equations that model real-world situations. EU2 ● find connections between each representation change from one representation to each of the other three representations. EU3 ● solve systems of equations in two variables by graphing, substitution and elimination.
Stage Two - Assessment	
Other Evidence: ● Tests and quizzes ● Performance task	

- Other teacher-graded evaluations
- Cumulative Benchmark Assessment at end of each marking period.
- **Systems Project** (Optional) (Google Drive)

Stage Three - Instruction

Learning Plan: **Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections: Each learning activity listed must be accompanied by a learning goal of A= Acquiring basic knowledge and skills, M= Making meaning and/or a T= Transfer.**

Activities:

- **Diver Problem** (T – EU1, 2, 3)
- **Graphs of Two Equations** (Google Drive) (A – EU1, 2)
- Review Systems of Equations Basketball Game - http://www.crctlessons.com/systems-of-equations-game.html (M – EU1, 2)
- **Systems of Equations Word Problems** (Google Drive) (M – EU2, 3)
- **Systems Applications Worksheet** (Google Drive) (M – EU2, 3)
- **Systems of Inequalities Word Problems** (Google Drive (M – EU2, 3)
- **Linear Systems and Football** (Google Drive) (T - EU2, 3)
- Solving Systems by Graphing TI-Nspire https://education.ti.com/en/timathnspired/us/detail?id=D5820E4B6F714B1D8F7B3366F7EA2415&t=5C1EA70802CC424088668908D7BF89CE

Critical Vocabulary:

The following terms should be utilized:

-absolute value	-elimination	-intersection	-reciprocal	-union
-algebraic expression	-equation	-literal equation	-set-builder notation	-variables
-boundary	-equivalent equations	-multi-step equations	-solution	
-closed half-plane	-formula	-open half-plane	-solve an equation	
-coefficient	-half-plane	-order of operations	-substitution	
-compound inequality	-identity	-proportion	-system of equations	
-consistent	-inconsistent	-ratio	-system of inequalities	
-dependent	-independent	-rate	-term	
-element				

The following is the suggested sequence of learning activities for the Algebra 1 ACC class.

- Graph Systems of Linear Equations
- Solve Systems of Equations (substitution and elimination)

- Graph Systems of Linear Inequalities
- Applications with Systems of Equations (ex: sum/difference, number, age, cost, quantity, and mixture)
- Applications with Systems of Inequalities