

Unit 4: Systems of Linear Equations

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

UNIT RATIONALE

The purpose of this unit is to analyze and solve pairs of simultaneous linear equations to solve real-world problems.

ESSENTIAL QUESTIONS

- Why is finding the number of solutions to a system of equations important for helping us to understand and solve real-world problems?
- How do various representations of systems of linear equations help us to understand two-variable relationships?
- How does finding the intersection of two linear equations help us to solve real-world problems?

STANDARDS

NEW JERSEY STUDENT LEARNING STANDARDS: CONTENT AREA

New Jersey (NJSL) - Grade 8 - Mathematics (2020)

MA.8.EE.C.8	Analyze and solve pairs of simultaneous linear equations.
MA.8.EE.C.8a	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
MA.8.EE.C.8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
MA.8.EE.C.8c	Solve real-world and mathematical problems leading to two linear equations in two variables.

New Jersey (NJSL) - K-12 - Math Practice Standards (2020)

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.

NEW JERSEY STUDENT LEARNING STANDARDS: CAREER READINESS, LIFE LITERACIES AND KEY SKILLS

TECH.9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
TECH.9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
TECH.9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.
TECH.9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.

NEW JERSEY STUDENT LEARNING STANDARDS: COMPUTER SCIENCE AND DESIGN THINKING

CS.6-8.2.8.ED.2	Identify the steps in the design process that could be used to solve a problem.
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PRE-ASSESSMENTS

None given for this unit.

INSTRUCTIONAL PLAN

MODULE 1

Student Learning Intentions (SLI) WALT: (We are learning to...)

We are learning how to solve a system of linear equations by graphing so that we can apply systems of equations to real-world problems.

Student Learning Strategies	-Peardeck Lesson on Graphing Method. -IXL Lessons CC.2 through CC.5
Success Criteria	I can solve a system of equations by graphing. I can identify the number of solutions of a system equations by inspection. I can explain what it means to find the solution to system of equations. I can check the solution to a system of equations
Formative Assessment (drives instructional decisions)	-Peardeck lesson interaction & feedback. -Quizizz, Kahoot!, or Blooket results. -Whiteboard practice problems. -Exit ticket.
Activities and Resources	Interactive notebooks.
Suggested Modifications	Students can work in groups.

[Solving Systems of Equations by Graphing](#)

MODULE 2

Student Learning Intentions (SLI) WALT: (We are learning to...)	We are learning how to solve a system of equations by using substitution so that we can apply system to real-world problems.
Student Learning Strategies	-Peardeck Lesson on Substitution Method -IXL Lessons CC.8 and CC.9
Success Criteria	I can solve a system of equations by using the substitution method. I can check the solution to a system of equations substitution. I can determine whether a system of equations is itself to being solved by graphing or substitution.
Formative Assessment (drives instructional decisions)	-Peardeck lesson interaction & feedback. -Quizizz, Kahoot!, or Blooket results. -Whiteboard practice problems. -Exit ticket.

Activities and Resources	Interactive notebooks.
Suggested Modifications	Students can work in groups.

[Solving Systems of Equations by Substitution](#)

MODULE 3

Student Learning Intentions (SLI) WALT: (We are learning to...)	We are learning how to solve a system of equations by elimination so that we can apply systems of equations to real-world problems.
Student Learning Strategies	-Peardeck Lesson on Elimination Method -IXL Lessons CC.10 and CC.11
Success Criteria	I can solve a system of equations using the elimination method. I can check the solution to a system of equations substituting my answer into each equation. I can determine the best method to use for solving a system of equations given the situation.
Formative Assessment (drives instructional decisions)	-Peardeck lesson interaction & feedback. -Quizizz, Kahoot!, or Blooket results. -Whiteboard practice problems. -Exit ticket.
Activities and Resources	Interactive notebooks.
Suggested Modifications	Students can work in

[Solving Systems of Equations By Elimination](#)

[Solving Systems of Equations by Multiplication & Elimination](#)

MODULE 4

Student Learning Intentions (SLI) WALT: (We are learning to...)	We are learning to write and solve systems of equations using various methods so that we can apply systems of equations to real-world situations.
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	and problems.
Student Learning Strategies	-Peardeck Lesson on Applying Systems of Equations -IXL Lessons CC.9 through CC.13
Success Criteria	I can write a system of equations for a word problem. I can solve a system of equations using any method depending on the form of the equations that have been written for a word problem. I can determine if the solution to a system of equations makes sense in the context of the word problem for which it was written.
Formative Assessment (drives instructional decisions)	-Peardeck lesson interaction & feedback. -Quizizz, Kahoot!, or Blooket results. -Whiteboard practice problems. -Exit ticket.
Activities and Resources	Interactive notebooks.
Suggested Modifications	Students can work in groups.

[Applying Systems of Equations to Word Problems](#)

REFLECTIONS

The students did really well with this unit and seemed to enjoy it.

INTERDISCIPLINARY CONNECTIONS: NEW JERSEY STUDENT LEARNING STANDARDS FOR ELA, SOCIAL STUDIES, SCIENCE AND/OR MATHEMATICS

LA.K-12.NJSLSA.W1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
LA.K-12.NJSLSA.W2	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
LA.W.8.1	Write arguments to support claims with clear reasons and relevant evidence.
LA.W.8.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.

