

Updated August 2024

Marking Period	Unit Title:	Recommended Instructional Days
2	Solving System of Linear Equations	8-18 days
Domain: Algebra		<p>Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLs-CLKS within Unit</p> <p><u>Essential Question/s:</u></p> <ol style="list-style-type: none"> 1. What does the solution of the system represent? 2. What does the intersection of two lines represent? 3. How do you know if an ordered pair is not a solution of a linear inequality? 4. How do you determine which inequality symbol to use? <p><u>Activity Description:</u></p> <ul style="list-style-type: none"> • Solving systems of linear equations by graphing • Solving systems of linear equations by substitution • Solving systems of linear equations by elimination • Solving special systems of linear equations • Graphing linear inequalities in two variables • Systems of linear inequalities <p>Interdisciplinary Connections: Physical Education: 2.2 Physical Wellness; Physical Fitness; NJSLs#: 2.2.12.PF.2</p> <p>In a basketball game, Marlene made 16 baskets. Each of the baskets was worth either 2 or 3 points and she scored a total of 39 points. Let x represent the number of two-point shots and y represent the number of 3-point shots. Write a system of equations in terms of x and y to model the situation.</p> <p><u>Answer:</u></p> $x + y = 16$ $2x + 3y = 39$
<p><i>NJSLs Strand:</i> Standards (Taught and Assessed): Key:</p> <ul style="list-style-type: none"> ■ Major Cluster □ Supporting Cluster ○ Additional Cluster <p>■ A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i> 🌱</p> <p>■ A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.</p>	<p><i>Progress Indicator:</i> <i>Tests • Quizzes • Practice problems for homework • Workbook pages • Worksheets • Focus Packet • Leveled assessments</i></p>	

■ **A.CED.A.3** Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*



○ **A.REI.C.5 (+)** Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

○ **A.REI.C.6** Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

■ **A.REI.D.12** Graph the solutions to a linear inequality in two variables as a half plane

Highlight on:

Text Resource:

“Information Technology and the U.S. Workforce: Where Are We and Where Do We Go from Here?”

Recent years have yielded significant advances in computing and communication technologies, with profound impacts on society. Technology is transforming the way we work, play, and interact with others. From these technological capabilities, new industries, organizational forms, and business models are emerging.



Climate Change Examples:

- Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. Climate Change Example: Students may create equations and/or inequalities to represent the economic impact of climate change.
- Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. Climate Change Example: Students may represent constraints describing the economic impact of climate change by equations, inequalities, and/or by systems of inequalities, and interpret solutions as viable or nonviable options.

Example Tasks below

Task 1:

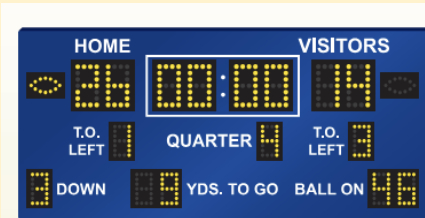
You plant a spruce tree that grows 4 inches per year and a hemlock tree that grows 6 inches per year. The initial heights of the trees are shown. After how many years will the trees be the same height?

(excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.



Task 2:

In a football game, all of the home team's points are from 7-point touchdowns and 3-point field goals. The team scored six times. Find the numbers of touchdowns and field goals that the home team scores.



Task 3:

You spend \$20 total on tubes of paint and disposable brushes for an art project. Tubes of paint cost \$4.00 each and brushes cost \$0.50 each. You purchase twice as many brushes as tubes of paint. How many brushes and tubes of paint do you purchase?

<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reason of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 		
Social and Emotional Learning: <i>Competencies</i>	Social and Emotional Learning: <i>Sub-Competencies</i>	
<p style="text-align: center;">Self- awareness</p> <p style="text-align: center;">Social Awareness</p> <p style="text-align: center;">Self- Management</p> <p style="text-align: center;">Relationship Skills</p> <p style="text-align: center;">Responsible Decision-Making</p>	<p>Recognizing the importance of self-confidence in handling daily tasks and challenges.</p> <p>Demonstrate an awareness of the expectations for social interactions in a variety of ways.</p> <p>Demonstrate an understanding of the need for mutual respect when viewpoints differ.</p> <p>Recognize the skills needed to establish and achieve personal and educational goals.</p> <p>Utilize positive communication and social skills to interact effectively with others.</p> <p>Develop, implement, and model effective problem solving and critical thinking skills.</p>	
Assessments (Formative)		Assessments (Summative)

<i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		<i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
Formative Assessments: <ul style="list-style-type: none"> • Entry and Exit Slips • Quizzes • Self Assessments 		Benchmarks: <ul style="list-style-type: none"> • Chapter Tests • Projects Summative Assessments: <ul style="list-style-type: none"> • District Assessments • Midterms • Standardized Tests 	
Differentiated Student Access to Content: Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> • Big Ideas • Achieve the core • Khan Academy • Desmos 	<ul style="list-style-type: none"> • Skill building worksheets • Math Manipulatives 	<ul style="list-style-type: none"> • Dictionary for native languages • Videos in their native language. 	<ul style="list-style-type: none"> • Leveled Assessments • Enrichment worksheets
Supplemental Resources			
Technology: <ul style="list-style-type: none"> • Chromebooks, Graphing Calculators, Online math manipulatives Other: <ul style="list-style-type: none"> • Zoom and Google Meets, Schoology, Interactive Textbooks 			
Differentiated Student Access to Content: Recommended Strategies & Techniques			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
Deliver instruction utilizing varied learning styles including audio, visual,	Utilize a multi-sensory (VAKT) approach during instruction,	Extend time requirements, preferred seating, positive reinforcement, check	Create an enhanced set of introductory activities, integrate

<p>and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat</p>	<p>provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.</p>	<p>often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.</p>	<p>active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related</p>
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<p>NJSLs CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p>	<p>Disciplinary Concept: Digital Citizenship</p>	
	<p><i>Core Ideas:</i></p>	<p>Digital communities influence many aspects of society, especially the workforce. The increased connectivity between people in different cultures and different career fields have changed the nature, content, and responsibilities of many careers.</p>
	<p><i>Performance Expectation/s:</i></p>	<p>9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).</p>
	<p>Career Readiness, Life Literacies, & Key Skills Practices</p>	
	<p>Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management.</p>	

	<p>Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.</p>
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New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	x	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	X	Standards in Action: <i>Climate Change</i>