

Updated:
November 2021

Marking Period	Unit Title	Recommended Instructional Days
1	Modeling with Linear Equations and Inequalities	8 - 18 days
Domain: NJSLS Strand: Standards (Taught and Assessed): N.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling. A.CED.A.1 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. N.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; Choose and interpret units consistently in formulas; Choose and interpret the scale and the origin in graphs and data displays. A.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. A.REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. A.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. <i>For example,</i>		Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit Essential Question/s: 1. What is the difference between a variable and a constant? 2. How are the addition and subtraction properties of equality used to solve equations? 3. What steps need to be taken to isolate the variable? Why? 4. What is the difference between solving an equation that has all real numbers as solutions and solving an equation that has no solution? 5. What does rate of change mean and how do you find it? 6. What kind of slope represents a negative rate of change? A positive rate of change? 7. What is the first step when graphing a line given the slope and y-intercept? 8. What is true about the slopes of perpendicular lines? Parallel lines? Activity Description: • Variables and Expressions • One-step equations • Solving equations by adding or subtracting • Solving equations by multiplying or dividing • Solve equations by graphing • Solving two-step equations • Solving multi-step equations • Solving equations with variables on both sides • Solving for a variable • Identifying Linear functions • Using intercepts
Progress Indicator: Tests • Quizzes • Practice problems for homework • Workbook pages • Worksheets • Focus Packet • Leveled assessments		

<i>rearrange Ohm's law $V = IR$ to highlight resistance R.</i> N.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; Choose and interpret units consistently in formulas; Choose and interpret the scale and the origin in graphs and data displays. N.RN.B.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. N.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	● Rate of change and slope ● The slope formula ● Slope intercept form ● Line of best fit ● Slope of parallel and perpendicular lines
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• **Example tasks below**

Task 1:

Last year, the area of Jamie's garden was 32 square feet. This year, she added a new rectangular-shape section to her garden. The length of the new section of the garden is 12 feet. The total area of her garden now, last year's garden plus the new section is 116 square feet.

- Write an equation that can be used to determine the width (w) in feet of the garden.
- What is the width, in feet, of the new section of the garden?

Answer:

- $32 + 12W = 116$
- 7 Feet

Task 2:

$$\begin{aligned} \text{a. } 24 &= \frac{2}{3}x + 12 & 24 &= \frac{2}{3}x + 12 \\ \text{b. } 0.5(y + 12) &= -2.5y - 8 & 0.5(y + 12) &= -2.5y - 8 \\ \text{c. } \frac{x-1}{5} &= \frac{1x-1}{7} & \frac{x-1}{5} &= \frac{1x}{7} \end{aligned}$$

Answer:

- a. 18
- b. -7
- c. -2.625

Task 3

Becky is competing in an 8-mi road race. She runs at a constant speed of 6mi/h. Write an equation in slope-intercept form to represent the distance Becky has left to run.

Answer

$$y = -6x + 8$$

Interdisciplinary Connections: Career Readiness, life Literacies and Key Skills **Content:** Money Management ;NJSLS#: 9.4.12.PB.2

		Arabica coffee cost \$28 per pound and Robusta coffee cost \$8.75 per pound. How many pounds of Arabica coffee must you mix with 3 pounds of Robusta coffee to make a blend that costs \$15.50 per pound? Answer: Write an equation to represent the situation $28a + 26.25 = 15.5(a + 3)$ $a = 1.62$ You must mix 1.62 pounds of Arabica coffee with 3 pounds of Robusta coffee to make a blend that cost \$15.50 Spot Light on: Sally Ride: First American woman in space.
Mathematics Practices		
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>	

Self- awareness	Recognizing the importance of self-confidence in handling daily tasks and challenges. Demonstrate an awareness of the expectations for social interactions in a variety of ways. Demonstrate an understanding of the need for mutual respect when viewpoints differ. Recognize the skills needed to establish and achieve personal and educational goals. Utilize positive communication and social skills to interact effectively with others. Develop, implement, and model effective problem solving and critical thinking skills.		
Social Awareness			
Self- Management			
Relationship Skills			
Responsible Decision-Making			
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
<u>Formative Assessments:</u> ● Entry and Exit Slips ● Quizzes ● Self Assessments		<u>Benchmarks:</u> ● Chapter Tests ● Projects <u>Summative Assessments:</u> ● 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

- Textbooks websites - Achieve the core - Khan Academy - Desmos	- Skill building worksheets - Math Manipulatives	- Dictionary for native languages - Videos in their native language.	- Leveled Assessments - Enrichment worksheets
Supplemental Resources			
Technology: - Chromebooks, Graphing Calculators, Online math manipulatives Other: - Zoom and Google Meets, Google Classroom, Interactive Textbooks			
Differentiated Student Access to Content: Recommended <i>Strategies & Techniques</i>			
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, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat	Utilize a multi-sensory (VAKT) approach during instruction, 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.	Extend time requirements, preferred seating, positive reinforcement, check 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.	Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	Disciplinary Concept: Creativity and Innovation	
	<i>Core Ideas:</i>	With a growth mindset, failure is an important part of success
	<i>Performance Expectation/s:</i>	9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
	Career Readiness, Life Literacies, & Key Skills Practices	
	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. 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.	

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>	X	LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>		Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>		Standards in Action: <i>Climate Change</i>