Updated August 2024

Marking Period	Unit Title	Recommended Instructional Days
1	**Solving Linear Inequalities**	**8-18**

Domain: Number and Quantity, Algebra,

Key:

■ Major Cluster
□ Supporting Cluster
◎ Additional Cluster

NJSLS .Strand: *Quantities, Creating Equations, Reasoning with Equations and Inequalities*

Standards (Taught and Assessed):

□ **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.CED.A.2** Create equations in two or more variables to represent

Progress Indicator:
Tests ● Quizzes ● Practice problems for homework ● Workbook pages ● Worksheets ● Focus Packet ● Leveled assessments

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

<u>Essential Question/s:</u>

1. **What is the difference between simplifying and solving?**
2. **How do you write a compound inequality as two simple inequalities?**
3. **What is the difference between intersection and union?**
4. **How do you know whether a graph represents a compound inequality that involves And or Or?**

<u>Activity Description</u>:

- **Writing and graphing inequalities**
- **Solving inequalities using addition or subtraction**
- **Solving inequalities using multiplication or division**
- **Solving multi-step inequalities**

Interdisciplinary Connections: Social Studies Domain; Geography, People, and the Environment

Content:
Planning a trip on a budget - $200

- Students choose a place they would realistically like to visit.
- Students research the location to complete a spreadsheet including

relationships between quantities; graph equations on coordinate axes with labels and scales. **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.D.10** Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). **A.REI.D.12** Graph the solutions to a linear inequality in two variables as a half-plane (excluding		o travel expenses (plane, train, rental car, gas) o lodging expenses o food expenses (breakfast, lunch, dinner, snack) o include at least 1 activity • Complete the inequality: travel + lodging + food + activity(s) > or = $200 • Based on research and the inequality, students assign an amount of money for each event category. • Students will write a word equations under each event category showing how the money will be dispersed (miles / miles per gallon = # of gallons x cost per gallon less than or equal to _____ dollars. • Add numeric values to word inequalities in order to solve to make sure you come in under budget. • Discussion questions o What were some problems you came across when doing this activity? o How did you solve them? o What was helpful throughout this activity. o What would have been more helpful? • Extension questions o What would you do differently if you had $400? or What would your ideal budget be? o How was this activity helpful? Can you think of other times you might need to create a budget? **NJSLS#: 6.2.9-12.B**

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.		**Highlight on Climate Change:** Data Analysis and Probability Standards: S-ID.A.1-4, S-ID.C.7 Personal and Social Perspectives: NS.9-12.6 Activity: Increasing students' general knowledge of climate change on local, national, and global scales, and how such changes in climate will affect humans. Students will use the following information to practice their math and analytical skills and relate to average temperature change over time. https://www.tigurl.org/images/tiged/docs/activities/1131.pdf Climate Change Examples: ● Students may use units to guide the solution of multi-step problems about how variations in the flow of energy into and out of the Earth's systems result in climate change. Note: Changes in climate are limited to changes in surface temperatures, precipitation patterns, glacial ice volumes, sea levels, and biosphere distribution. ● 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:** **Task 1:** Three requirements for a lifeguard training course are shown. a. Write and graph three inequalities that represent the requirements. b. You can swim 250 feet, tread water for 6 minutes, and swim 35 feet underwater without taking a breath. Do you satisfy the requirements of the course? Explain

Task 2:

The Douglas Sea Scale describes the roughness of a sea for navigation. Waves currently reach a height of 12.82 meters. By what amounts can the wave heights increase for the sea to be described as *phenomenal*?

Wave height (m)	2.50–4.00	4.01–6.00	6.01–9.00	9.01–14.00	> 14.00
Description	Rough	Very Rough	High	Very High	Phenomenal

Task 3:

You want to subscribe to an online streaming service for live television. For what numbers of months is the total cost of Channel Champ less than the total cost of TV Mania?

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: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***
Self- awareness Social Awareness Self- Management Relationship Skills Responsible Decision-Making	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.	

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
<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** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
● Big Ideas ● 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, Schoology, Interactive Textbooks**			
Differentiated Student Access to Content: **Recommended *Strategies & Techniques***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**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**

<table>
<tr><td rowspan="5">NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS</td><td colspan="2">Disciplinary Concept: Critical Thinking and Problem-solving</td></tr>
<tr><td>Core Ideas:</td><td>Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.</td></tr>
<tr><td>Performance Expectation/s:</td><td>• 9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
• 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
• 9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).
• 9.4.12.CT.4: Participate in online strategy and planning sessions for course-based, school-based, or other projects and determine the strategies that contribute to effective outcomes.</td></tr>
<tr><td colspan="2">Career Readiness, Life Literacies, & Key Skills Practices</td></tr>
<tr><td colspan="2">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.</td></tr>
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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: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	X	Standards in Action: *Climate Change*