Marking Period	Unit Title	Recommended Instructional Days 38 - 44		
1	The Number System			
	Domain			
Strand:				
7.NS.A.1 Apply and extend previous understanding on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities con round of the same game, she lost 20 points. What is he	gs of addition and subtraction to add and subtract rational number nbine to make 0. <i>For example, in the first round of a game, Mart</i> <i>r score at the end of the second round?</i>	ers; represent addition and subtraction ia scored 20 points. In the second		
 7.NS.A.1 Apply and extend previous understanding on a horizontal or vertical number line diagram. b. Understand <i>p</i> + <i>q</i> as the number located a distance that a number and its opposite have a sum of 0 (are additional distance). 	gs of addition and subtraction to add and subtract rational numbe $q $ from p , in the positive or negative direction depending on whe ditive inverses). Interpret sums of rational numbers by describing	ers; represent addition and subtraction ether q is positive or negative. Show g real-world contexts.		
7.NS.A.1 Apply and extend previous understanding on a horizontal or vertical number line diagram. c. Understand subtraction of rational numbers as addim number line is the absolute value of their difference an	gs of addition and subtraction to add and subtract rational numbers of the additive inverse, $p - q = p + (-q)$. Show that the distance be d apply this principle in real-world contexts.	ers; represent addition and subtraction etween two rational numbers on the		
7.NS.A.1 Apply and extend previous understanding on a horizontal or vertical number line diagram. d. Apply properties of operations as strategies to add a	gs of addition and subtraction to add and subtract rational numbe nd subtract rational numbers.	ers; represent addition and subtraction		
7.NS.A.2 Apply and extend previous understanding a Understand that multiplication is extended from frac	gs of multiplication and division of fractions to multiply and divisions to rational numbers by requiring that operations continue to	ide rational numbers.		

a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

7.NS.A.2 Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real world contexts.						
7.NS.A.2 Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers. c. Apply properties of operations as strategies to multiply and divide rational numbers.						
7.NS.A.2 Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.						
7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.						
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour; or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.						
Major Cluster O Additional Cluster						
Progress Indicator: ^o Tests ^o Homework / Classwork ^o Projects ^o Formative assessments ^o Summative assessments						
Mathematical Practices:						
 Make sense of problems and persevere in solving them. Reason abstractly and quantitatively. Construct viable arguments and critique the reason of others. 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.

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

Essential Questions:

Module 1:

How can you use addition and subtraction of integers to solve real-world problems? How do you add integers with the same sign?

How do you add integers with different signs? How do you subtract integers?

How do you subtract integers? How do you solve multistep problems involving addition and subtraction of integers?

Module 2:

How can you use multiplication and division of integers to solve real-world problems? How do you multiply integers? How do you divide integers? How can you use integer operations to solve real-world problems?

Module 3:

How can you use rational numbers to solve real-world problems? How can you convert a rational number to a decimal? How can you add rational numbers? How do you subtract rational numbers? How do you multiply rational numbers? How do you divide rational numbers? How do you use different forms of rational numbers & strategically choose tools to solve problems?

Essential Understandings:

Module 1:

What pattern do you notice when subtracting integers?

Module 2:

How do I know which mathematical operation to use?

Module 3:

What is the relationship between an integer and a rational number?

<u>Vocabulary:</u>

- additive inverse
- rational number
- terminating decimals
- repeating decimals
- complex fraction

*Encourage students to practice using the unit vocabulary as they talk and write about mathematics. Understanding vocabulary will aid their understanding of the concepts.

Suggested Activity Descriptions:

- Consider introducing both a horizontal and a vertical number line. Seeing the vertical number line (which is more intuitive to how we count) next to a horizontal vertical line may help students to make connections and provides another visual model.
- Modeling addition of integers can be a hands-on experience. Use counters, white and black beans, or colored pieces of cardstock.
- GoMATH 3.6 Fraction Challenge Game (GoMATH TB page 100A-100B)
- GoMATH Unit 1 Review Project: IT'S OKAY TO BE NEGATIVE!

◊ Suggested Sample Tasks:

<u>Activity Description</u>: Distance between Ocean Depths Interdisciplinary Connections: Life Science Content: From Molecules to Organisms: Structures and Processes NJSLS#: MS-LS1-5

An oceanographer, Dr. Price, is studying the types of sea life at various depths.

Location	Sea Life	Depth Relative to Sea Level(m)	
А	Eels	-895.9	
В	Eels	-1,098	

		$\frac{3}{20}$
С	Shrimp	-2,784.7 5
D	Shrimp	$-3,259\frac{5}{8}$

Part A

Dr. Price uses a table to organize the types of sea life and the positions relative to sea level of each location.

Complete the sentences:

The difference between Location A and Location B is	meters.
The difference between Location B and Location C is	meters.
The difference between Location C and Location C is	meters.

Part B

After observing Location B, Dr. Price returns to Location A before descending to Location C. What is the total distance she travels?

Part C

Dr. Price descends to location D to observe the shrimp. She then ascends and stops to observe sea life that is halfway between Location B and Location C. What is the total distance between Location D and where Dr. Price stopped to observe?

KEY:

Part A

The difference between Location A and Location B is 202.25 meters.

The difference between Location B and Location C is 1,686.6 meters.

The difference between Location C and Location D is 474.875 meters.

Part B

202.25 + 202.25 + 1,686.6 = 2,091.1 meters

Part C

Halfway between Location B and Location C is at -1,941.45; -3,259.625 - (-1,941.45) = -1,318.175; |-1,318.175| = 1,318.175 meters.

Interdisciplinary Connections:

Science:

1. Real World Video: Death Valley contains the lowest point in North America, elevation –282 feet. The top of Mt. McKinley, elevation 20,320 feet, is the highest point in North America. To find the difference between

these elevations, you can subtract integers. (GoMATH page 3)

2. Curriculum Connection: Remind students that the net electrical charge of an atom is the sum of the charges of all the particles. Tell students that a hydrogen atom has two particles that carry a charge, a proton with an electrical charge of +1, and an electron with an electrical charge of

-1. Also tell students that a hydrogen atom has no neutrons. Ask students to describe the net electrical charge of a hydrogen atom and justify their reasoning. (GoMATH TE page 15)

3. Kyle pours out $\frac{3}{4}$ liter of liquid from a beaker. Then he pours out another $\frac{1}{2}$ liter of liquid. What is the overall change in the amount of liquid in the beaker? (GoMATH page 67)

4. The temperature in the morning was -3.5 °F. By noon, the temperature had dropped by 1.5 °F. What was the final temperature at noon? (GoMATH TE page 67)

5. During the day, the temperature increases by 4.5 degrees. At night, the temperature decreases by 7.5 degrees. What is the overall change in temperature? (GoMATH page 68)

6. At the beginning of a laboratory experiment, the temperature of a substance is -12.6°C. During the experiment, the temperature of the substance decreases 7.5°C. What is the final temperature of the substance? (GoMATH page 80)

7. The ground temperature at Brigham Airport is 12°C. The temperature decreases by 6.8 °C for every increase of 1 kilometer above the ground. What is the temperature outside a plane flying at an altitude of 5 kilometers above Brigham Airport? (GoMATH page 88)

8. Beginning in 1996, a glacier lost an average of 3.7 meters of thickness each year. Find the total change in its thickness by the end of 2012. (GoMATH page 94)

9. GoMATH Unit 1 Project: It's Okay to Be Negative

Social Studies:

1. Careers in Math (GoMATH page 1)

2. Euclid's Elements was published in about 300 BCE. The Magna Carta was signed in the year 1215 (CE). Ask students how many years passed between these two events. (GoMATH TE page 77)

3. GoMATH Unit 1 Project: It's Okay to Be Negative

Language Arts: 1. Vocabulary Preview Activity on GoMATH page 2. 2. Reading Startup Activities on GoMATH pages 5, 35, and 59.						
*Grade 7 Math/Science Connection Marking Period: 1 Science Module: J Math Module(s): 1 Topics that Overlap: Atoms and Integers Virtual Lab: How are Atoms Structured? Unit 1 Lesson 2 Science Aspects: Explore the structure of an atom and the charges of the particles. Skills: atomic structure, periodic table Math Aspects: Remind students that the net electrical charge of an atom is the sum of the charges of all the particles. Tell students that a hydrogen atom has two particles that carry a charge, a proton with an electrical charge of +1, and an electron with an electrical charge of -1. Also tell students that a hydrogen atom has no neutrons. Ask students to describe the net electrical charge of a hydrogen atom and justify their reasoning. (GoMATH TE page 15) Give students a list of atoms and have them find the net electrical charge of each. Skills: Adding positive and negative integers						
-ForBor o						
Social and Emotional Learning: Competencies	Social and Emotional Learning: Sub-Competencies					

Grade 7	Mathematics
Unit 1: The	Number System

Assessments To show evidence of meeting the s engage	s (Formative) tandard/s, students will successfully e within:	Assessments (Summative) To show evidence of meeting the standard/s, students will successfully complete:				
Formative Assessments:• Teacher Observations • Exit TicketsJournals • Homework/Classwork • Te	• Quizzes • Self Assessments • Math eacher created assessments	Benchmarks & Summative Assessments: • Chapter/Unit Assessments • Standardized Tests • District Assessments • Project-based Assessments				
	Differentiated Studer Teaching and Learnir	nt Access to Content: ng <u><i>Resources/Materials</i></u>				
Core Resources	Alternate Core Resources IEP/504/At-Risk/ESL	ELL Core Resources	Gifted & Talented Core Resources			
Go Math Workbook, IXL, Personal Math Trainer, Math on the Spot Videos, My HRW, Khan Academy, Illustrative Mathematics, Learn360, TeacherTube, BrainPOP, Freckle, LearnZillion, MobyMax, 60 minutes of weekly ST Math, Edulastic, Achieve the Core, Desmos	ath Workbook, IXL, Personal Trainer, Math on the Spot s, My HRW, Khan Academy, ative Mathematics, Learn360, erTube, BrainPOP, Freckle, Zillion, MobyMax, 60 es of weekly ST Math, stic, Achieve the Core, osReteaching worksheets, Skill building workbook, Math manipulatives, Leveled practice worksheets		ST Math Challenge Objectives, G&T tasks, Enrichment worksheets, Art of Problem Solving, Leveled assessments, GoMATH Teaching for Depth, Math Olympiad			
	Supplement	al Resources				
 Technology: Chromebooks • Scientific/Graphing Calculators (upper grades only) • Online math manipulatives Other: Google Classroom, Google Meets, Schoology, Interactive Workbooks • Illustrative Mathematics • insidemathematics.org • National Library of Virtual Manipulatives 						

Differentiated Student Access to Content: Recommended <u>Strategies & Techniques</u>								
Core Resources		Alternate Core Resources IEP/504/At-Risk/ESL	ELL Core Resources	Gifted & Talented Core				
Deliver instruction utilizing varied learning styles including audio, visua and tactile/kinesthetic, provide individual instruction as needed, mod assessments and/or rubrics.	ıl, lify	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 content.				
	Dise	ciplinary Concept(s): Planning	and Budgeting					
NJSLS CAREER	Core Ideas:		A budget aligned with an individual's financial goals can help prepare for life events.					
READINESS, LIFE LITERACIES & KEY		formance Expectation/s:	9.1.8.PB.1: Predict future expenses or opportunities that should be included in the budget planning process.					
SKILLS	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 effectivel Work productively in teams while using cultural/global competence.	ly.
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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-88Holocaust Law: N.J.S.A. 18A:35-28XLGBT and Disabilities Law: N.J.S.A. 18A:35-4.35XDiversity & Inclusion: 								