7th Grade Mathematics (Accelerated)

Rational Number Arithmetic

Unit 4 Pacing Calendar - Illustrative Mathematics

ORANGE PUBLIC SCHOOLS

OFFICE OF CURRICULUM AND INSTRUCTION

OFFICE OF MATHEMATICS

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From the New Jersey State Learning Standards:

Traditional Pathway Accelerated 7th Grade

In **Accelerated 7th Grade,** instructional time should focus on four critical areas: (1) Rational Numbers and Exponents; (2) Proportionality and Linear Relationships; (3) Introduction to Sampling Inference; (4) Creating, Comparing, and Analyzing Geometric Figures

1. Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems. They extend their mastery of the properties of operations to develop an understanding of integer exponents, and to work with numbers written in scientific notation.

2. Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y= mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \times A$. Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation.

3. Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences

4. Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity, they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross sections. They solve real- world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms. Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

Yearlong Pacing Guide
Accelerated 7

Grade	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
6	Unit 1 6.G		Unit 2 6.RP	Unit 3 6.RP	Unit 4 6.NS		Unit 5 6.NS	Unit 6 6.EE	Unit 7 6.NS	Unit 8 6.SP
Acc 7	Unit 1 7.RP	Unit 2 7.G	Unit 3 7.RP	Unit 4 7.NS	Unit 5 7.EE	Unit 6 7.G	Unit 7 8.G	Unit 8 8.G	Unit 9 8.EE	Unit 10 8.EE	Unit 11 7.SP

Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
7.RP: Scale Drawings & Proportional Relationships	**7.G:** Measuring Circles	**7.RP:** Proportional Relationships & Percentages	**7.NS:** Rational Number Arithmetic	**7.EE:** Expressions, Equations, & Inequalities

Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11
7.G: Angles, Triangles and Prisms	**8.G:** Rigid Transformations & Congruence	**8.G.** Dilations, Similarity, and Introducing Slope	**8.EE:** Linear Relationships	**8.EE:** Exponents and Scientific Notation	**7.SP:** Probability & Sampling

2019-2020 Accelerated Grade 7 (iM)										
Quarter 1			**Quarter 2**			**Quarter 3**			**Quarter 4**	
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11
iM 7.1 iM 7.2	iM 7.3	iM 7.4	iM 7.5	iM 7.6	iM 7.7	iM 8.1	iM 8.2	iM 8.3	iM 8.7	iM 7.8
7.G.1(A) 7.RP.2a(M) 7.RP.2b(M) 7.RP.2c(M) 7.RP.2d(M)	7.G.4(A)	7.RP.1(M) 7.RP.3(M)	7.NS.1(M) 7.NS.2(M) 7.NS.3(M)	7.EE.3(M) 7.EE.4(M) 7.EE.2(M) 7.EE.1(M)	7.G.5(A) 7.G.2(A) 7.G.3(A) 7.G.6(A)	8.G.1(M) 8.G.2(M) 8.G.5(M)	8.G.4(M) 8.G.3(M) 8.EE.6(M)	8.EE.5(M) 8.F.4(S) 8.EE.8(M)	8.EE.1(M) 8.EE.3(M) 8.EE.4(M)	7.SP.6(S) 7.SP.5(S) 7.SP.7(S) 7.SP.8(S) 7.SP.1(S) 7.SP.2(S) 7.SP.3(S) 7.SP.4(S)
20 Days	8 Days	11 Days	14 Days	18 Days	12 Days	13 Days	12 Days	12 Days	11 Days	15 Days
Oct. 9	Oct. 24	Nov. 15	Dec. 12	Jan. 22	Feb. 12	Mar. 11	Apr. 1	Apr. 29	May. 18	June 11

Major Work Supporting Content Additional Content

Table of Contents

I. Unit Overview

In grade 6, students learned that the rational numbers comprise positive and negative fractions. They plotted rational numbers on the number line and plotted pairs of rational numbers in the coordinate plane. In this unit, students extend the operations of addition, subtraction, multiplication, and division from fractions to all rational numbers, written as decimals or in the form a/b.

The unit begins by revisiting ideas familiar from grade 6: how signed numbers are used to represent quantities such as measurements of temperature and elevation, opposites (pairs of numbers on the number line that are the same distance from zero), and absolute value.

In the second section of the unit, students extend addition and subtraction from fractions to all rational numbers. They begin by considering how changes in temperature and elevation can be represented—first with tables and number line diagrams, then with addition and subtraction expressions and equations. Initially, physical contexts provide meanings for sums and differences that include negative numbers. Students work with numerical addition and subtraction expressions and equations, becoming more fluent in computing sums and differences of signed numbers. Using the meanings that they have developed for addition and subtraction of signed numbers, they write equivalent numerical addition and subtraction expressions, e.g., $-8+-3$ and $-8-3$; and they write different equations that express the same relationship.

The third section of the unit focuses on multiplication and division. It begins with problems about position, direction, constant speed, and constant velocity in which students represent quantities with number line diagrams and tables of numerical expressions with signed numbers. This allows products of signed numbers to be interpreted in terms of position and direction, using the understanding that numbers that are additive inverses are located at the same distance but opposite sides of the starting point. These examples illustrate how multiplication of how multiplication of fractions extends to rational numbers. The third lesson of this section focuses on computing products of signed numbers and is optional. In the fourth lesson, students use the relationship between multiplication and division to understand how division extends to rational numbers. In the process of solving problems set in contexts (MP4), they write and solve multiplication and division equations.

In the fourth section of the unit, students work with expressions that use the four operations on rational numbers, making use of structure (MP7), e.g., to see without calculating that the product of two factors is positive because the values of the factors are both negative. They extend their use of the “next to” notation (which they used in expressions such as $5x$ and $6(3+2)$ in grade 6) to include negative numbers and products of numbers, e.g., writing $-5x$ and $(-5)(-10)$ rather than $(-5)\cdot(x)$ and $(-5)\cdot(-10)$. They extend their use of the fraction bar to include variables as well as numbers, writing $\frac{-8.5}{x}$ as well as $-8.5/x$. They solve problems that involve interpreting negative numbers in context, for instance, when a negative number represents a rate at which water is flowing (MP2).

In the fifth section of the unit, students begin working with linear equations in one variable that have rational number coefficients. The focus of this section is representing situations with equations (MP4) and what it means for a number to be a solution for an equation, rather than methods for solving equations. Such methods are the focus of a later unit.

The last section of the unit is a lesson in which students use rational numbers in the context of stock-market situations, finding values of quantities such as the value of a portfolio or changes due to interest and depreciation (MP4).

Note. In these materials, an *expression* is built from numbers, variables, operation symbols (+, −, ·, ÷), parentheses, and exponents. (Exponents—in particular, negative exponents—are not a focus of this unit. Students work with integer exponents in grade 8 and non-integer exponents in high school.) An *equation* is a statement that two expressions are equal, thus always has an equal sign. *Signed numbers* include all rational numbers, written as decimals or in the form a/b.

II. Pacing Guide

Activity	New Jersey State Learning Standards (NJSLS)	Estimated Time (Blocks)
Lesson 1: Changing Temperatures and Elevations	7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d	1
Lesson 2: Money and Debts	7.NS.A.1	1
Lesson 3: Subtracting Rational Numbers	7.NS.A.1.c	1
Lesson 4: Adding and Subtracting to Solve Problems	7.NS.A.1.c, 7.NS.A.1, 7.NS.A.3	1
Lesson 5: Position, Speed, and Direction	7.NS.A.2.a, 7.RP.A	1
Lesson 6: Multiplying Rational Numbers	7.NS.A.2.a, 7.NS.A.2.c, 7.NS.A.2, 7.RP.A.2	1
Lesson 7: Dividing Rational Numbers	7.NS.A.2.b, 7.NS.A.2	1
Lesson 8: Negative Rates	7.EE.B.3, 7.NS.A.3, 7.RP.A.2	1
Lesson 9: Expressions with Rational Numbers	7.NS.A, 7.NS.A.3	1
Lesson 10: Solving Problems with Rational Numbers	7.NS.A.3, 7.RP.A.2	1
Lesson 11: Solving Equations with Rational Numbers	7.EE.B.4.a, 7.EE.B.4, 7.NS.A.3	1
Lesson 12: Representing Contexts with Equations	7.EE.B.4.a, 7.NS.A.3	1
Performance Task 1		**½**
Total Time		**12 ½ Blocks**

Major Work Supporting Content Additional Content

III. Scope & Sequence

Accelerated Unit Lesson	Accelerated Lesson Name	Original Unit Lesson	Activity Name
4.1	Changing Temperatures and Elevations	7.5.2	Winter Temperatures
		7.5.3	Cliffs and Caves
		7.5.3	Adding Rational Numbers
		7.5.3	School Supply Number Line
		7.5.3	Add 'Em Up
4.2	Money and Debts	7.5.4	Concert Tickets
		7.5.4	Cafeteria Food Debt
		7.5.4	Bank Statement
		7.5.4	Buying a Bike
4.3	Subtracting Rational Numbers	7.5.5	Equivalent Equations
		7.5.5	Subtraction with Number Lines
		7.5.5	We Can Add Instead
		7.5.5	Same Value
4.4	Adding and Subtracting to Solve Problems	7.5.6	Number Talk: Missing Addend
		7.5.6	Equations with Altitude
		7.5.6	Does the Order Matter?
		7.5.6	A Subtraction Expression
		7.5.7	Difference and Distances
		7.5.7	Coffee Shop Cups
4.5	Position, Speed, and Direction	7.5.8	Distance, Rate, Time
		7.5.8	Going Left, Going Right
		7.5.8	Velocity
		7.5.8	Multiplication Expressions
4.6	Multiplying Rational Numbers	7.5.9	Before and After
		7.5.9	Backwards in Time
		7.5.9	Cruising
		7.5.9	Rational Numbers: Multiplication Grid
		7.5.9	True Statements
		7.5.10	Making Mistakes
4.7	Dividing Rational Numbers	7.5.11	Tell Me Your Sign
		7.5.11	Multiplication and Division
		7.5.11	Drilling Down
		7.5.11	Matching Division Expressions
4.8	Negative Rates	7.5.12	Grapes per Minutes
		7.5.12	Water Level in the Aquarium
		7.5.12	Up and Down with the Piccards
		7.5.12	Submarines
4.9	Expressions with Rational Numbers	7.5.13	True or False: Rational Numbers
		7.5.13	Card Sort: The Same But Different
		7.5.13	Near and Far From Zero
		7.5.13	Seagulls and Sharks Again
		7.5.13	Make Them True
4.10	Solving Problems with Rational Numbers	7.5.14	Which One Doesn't Belong: Equations
		7.5.14	Draining and Filling a Tank
		7.5.14	Buying and Selling Power
		7.5.14	Charges and Checks

4.11	Solving Equations with Rational Numbers	7.5.15	Number Talk: Opposites and Reciprocals
		7.5.15	Match Solutions
		7.5.15	Trip to the Mountains
		7.5.15	Card Sort: Matching Inverses
		7.5.15	Hiking Trip
4.12	Representing Contexts with Equations	7.5.16	Don't Solve it
		7.5.16	Warmer or Colder Than Before?
		7.5.16	Animals Changing Altitudes
		7.5.16	Equations Tell a Story
		7.5.16	Floating Above a Sunken Canoe

III. Pacing Calendar

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 2)*.

DECEMBER

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	**2**	**3**	**4**	**5**	**6**	**7**
8	**9**	**10**	**11**	**12**	**13**	**14**
15	**16**	**17**	**18**	**19**	**20**	**21**
22	**23**	**24**	**25**	**26**	**27**	**28**
29	**30**	**31**				

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 2)*.

JANUARY

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

IV. PARCC Assessment Evidence Statements

Type I Type II Type III

NJSLS	Evidence Statement	Clarification	Math Practices	Calculator ?
7.NS.1a	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.	-	MP. 5	No
7.NS.1b-1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. b. Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative.	i) Tasks do not have a context. ii) Tasks are not limited to integers. iii) Tasks involve a number line. iv) Tasks do not require students to show in general that a number and its opposite have a sum of 0; for this aspect of 7.NS.1b-1, see 7.C.1.1 and 7.C.2.	MP. 5 MP. 7	No
7.NS.1b-2	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. b. Interpret sums of rational numbers by describing real-world contexts.	i) Tasks require students to produce or recognize real-world contexts that correspond to given sums of rational numbers. ii) Tasks are not limited to integers. iii) Tasks do not require students to show in general that a number and its opposite have a sum of 0; for this aspect of 7.NS.1b-1, see 7.C.1.1 and 7.C.2	MP. 2 MP. 3 MP. 5	No

7.NS.1c-1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. c. Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Apply this principle in real-world contexts.	i) Tasks may or may not have a context. ii) Tasks are not limited to integers. iii) Contextual tasks might, for example, require students to create or identify a situation described by a specific equation of the general form p – q = p + (–q) such as 3 – 5 = 3 + (–5). iv) Non-contextual tasks are not computation tasks but rather require students to demonstrate conceptual understanding, for example, by identifying a difference that is equivalent to a given difference. For example, given the difference –1/3 – (1/5 + 5/8), the student might be asked to recognize the equivalent expression –1/3 + –(1/5 + 5/8).	MP. 2 MP. 5 MP. 7	No
7.NS.1d	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. d. Apply properties of operations as strategies to add and subtract rational numbers	i) Tasks do not have a context. ii) Tasks are not limited to integers. iii) Tasks may involve sums and differences of 2 or 3 rational numbers. iv) Tasks require students to demonstrate conceptual understanding, for example, by producing or recognizing an expression equivalent to a given sum or difference. For example, given the sum –8.1 + 7.4, the student might be asked to recognize or produce the equivalent expression –(8.1 – 7.4).	MP. 7 MP. 5	No

7.NS.2a-1	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide 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.	i) Tasks do not have a context. ii) Tasks require students to demonstrate conceptual understanding, for example by providing students with a numerical expression and requiring students to produce or recognize an equivalent expression using properties of operations. For example, given the expression $(-3)(6 + -4 + -3)$, the student might be asked to recognize that the given expression is equivalent to $(-3)(6 + -4) + (-3)(-3)$.	MP. 7	No
7.NS.2a-2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Interpret products of rational numbers by describing real-world contexts.	-	MP. 2 MP. 4	No
7.NS.2b-1	Apply and extend previous understandings of multiplication and division and 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).	i) Tasks do not have a context. ii) Tasks require students to demonstrate conceptual understanding, for example, by providing students with a numerical expression and requiring students to produce or recognize an equivalent expression.	MP. 7	No
7.NS.2b-2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. c. Interpret quotients of rational numbers by describing real-world contexts.	-	MP. 2 MP. 4	No

7.NS.2c	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. c. Apply properties of operations as strategies to multiply and divide rational numbers.	i) Tasks do not have a context. ii) Tasks are not limited to integers. iii) Tasks may involve products and quotients of 2 or 3 rational numbers. iv) Tasks require students to compute a product or quotient, or demonstrate conceptual understanding, for example, by producing or recognizing an expression equivalent to a given expression. For example, given the expression (−8)(6)/(−3), the student might be asked to recognize or produce the equivalent expression −(8/3)(−6).	MP. 7	No
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.	i) Tasks are one-step word problems. ii) Tasks sample equally between addition/subtraction and multiplication/division. iii) Tasks involve at least one negative number. iv) Tasks are not limited to integers.	MP. 1 MP. 4	No
7.EE.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.	-	MP. 5	Yes

7.EE.4b	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.	i) Tasks may involve , ≤ or ≥	MP. 1 MP. 2 MP. 5 MP. 6 MP. 7	No
7.C.1.1	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 7.NS.1 and 7.NS.2	i) Tasks should not require students to identify or name properties.	MP. 1 MP. 2 MP. 3 MP. 5 MP. 6 MP. 7	Yes
7.C.2	Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 7.NS.1 and 7.NS.2	-	MP. 1 MP. 2 MP. 3 MP. 5 MP. 6 MP. 7	Yes
7.C.3	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 7.NS.A	-	MP. 1 MP. 2 MP. 3 MP. 5 MP. 6 MP. 7	Yes
7.C.5	Given an equation, present the solution steps as a logical argument that concludes with the set of solutions (if any). Content Scope: Knowledge and skills articulated in 7.EE.4a	-	MP. 1 MP. 2 MP. 3 MP. 6 MP. 7	Yes

7.C.7.2	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.NS.2d	i) Tasks focus on demonstrating understanding that a number is rational. ii) Tasks do not directly assess the ability to divide two whole numbers.	MP.1 MP.3 MP.6 MP.7 MP.8	Yes
7.C.7.3	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.NS.3	-	MP.1 MP.3 MP.6 MP.7 MP.8	Yes
7.C.7.4	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.EE.3	-	MP.1 MP.3 MP.6 MP.7 MP.8	Yes
7.C.8	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 6.NS.C, 6.EE.A, 6.EE.B.	i) Tasks may have scaffolding , if necessary, in order to yield a degree of difficulty appropriate to Grade 7.	MP.3 MP.6	Yes

7.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 7, requiring application of knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements.	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to grade 7. ii) Tasks involving writing or solving an equation should not go beyond the equation types described in 7.EE.4a. ($px + q = r$ and $p(x + q) = r$ where p, q, and r are specific rational numbers.	MP.1 MP.2 MP.4 MP.5 MP.7	Yes
7.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to grade 7, requiring application of knowledge and skills articulated in 6.RP.A, 6.EE.C, 6.G.	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to grade 7.	MP.1 MP.2 MP.4 MP.5 MP.7	Yes

V. Differentiated Instruction

Supporting English Language Learners

The purpose of this document is to nudge the field forward by offering support to the next generation of mathematics learners and by challenging persistent assumptions about how to support and develop students' disciplinary language. The goal is to provide guidance to mathematics teachers for recognizing and supporting students' language development processes in the context of mathematical sense making. UL/SCALE provides a framework for organizing strategies and special considerations to support students in learning mathematics practices, content, and language. The framework is intended to help teachers address the specialized academic language demands in math when planning and delivering lessons, including the demands of reading, writing, speaking, listening, conversing, and representing in math (Aguirre & Bunch, 2012). Therefore, while the framework can and should be used to support all students learning mathematics, it is particularly well-suited to meet the needs of linguistically and culturally diverse students who are simultaneously learning mathematics while acquiring English.

For more information, click the link below:

Supporting ELL Learners

Supporting Students with Disabilities

The philosophical stance that guided the creation of these materials is the belief that with proper structures, accommodations, and supports, all children can learn mathematics. Lessons are designed to maximize access for all students and include additional suggested supports to meet the varying needs of individual students. While the suggested supports are designed for students with disabilities, they are also appropriate for many children who struggle to access rigorous, grade-level content. Teachers should use their professional judgment about which supports to use and when, based on their knowledge of the individual needs of students in their classroom.

For more information, click the link below:

Supporting Students with Disabilities

VI. Vocabulary

Deposit: When you put money into a bank account, it is called making a deposit into the account, or depositing money in the account.

Withdrawal: When you take money out of a bank account, it is called making a withdrawal from the account, or withdrawing money from the account.

VII. Assessment Framework

Unit 4 Assessment Framework				
Assessment	**NJSLS**	**Estimated Time**	**Format**	**Graded ?**
Pre-Unit 5 Diagnostic Assessment (Beginning of Unit – Optional) *Illustrative Mathematics*	6.NS.C.5, 6.NS.C.6, 6.NS.C.7, 6.NS.C.5, 6.NS.C.8, 6.NS.C.6.b	½ Block	Individual	Yes (No Weight)
End-of-Unit 5 Assessment (End of Unit – Optional) *Illustrative Mathematics*	7.NS.A.1, 7.NS.A.1.c, 7.NS.A, 7.NS.A.3, 7.NS.A.1.b, 7.NS.A.2 .b, 7.EE.B.4.a, 7.NS.A.2	1 Block	Individual	Yes

Unit 4 Performance Assessment Framework				
Assessment	**NJSLS**	**Estimated Time**	**Format**	**Graded ?**
Unit 4 Performance Task 1 (Early February) *Distances Between Houses*	7.NS.A.1	½ Block	Individual	Yes; Rubric
Unit 4 Performance Task Option 1 (Optional) *Comparing Freezing Points*	7.NS.A.1	Teacher Discretion	Teacher Discretion	Yes, if administered

Name _____ Block _____ Date _____

Distances Between Houses (7.NS.A.1)

Aakash, Bao Ying, Chris, and Donna all live on the same street as their school, which runs from east to west.

- Aakash lives $5\frac{1}{2}$ blocks to the west.
- Bao Ying lives $4\frac{1}{4}$ blocks to the east.
- Chris lives $2\frac{3}{4}$ blocks to the west.
- Donna lives $6\frac{1}{2}$ blocks to the east.

a. Draw a picture that represents the positions of their houses along the street.

b. Find how far is each house from every other house?

From Aakash to Bao Ying: _____

From Aakash to Chris: _____

From Aakash to Donna: _____

From Bao Ying to Chris: _____

From Bao Ying to Donna: _____

From Chris to Donna: _____

c. Represent the relative position of the houses on a number line, with the school at zero, points to the west represented by negative numbers, and points to the east represented by positive numbers.

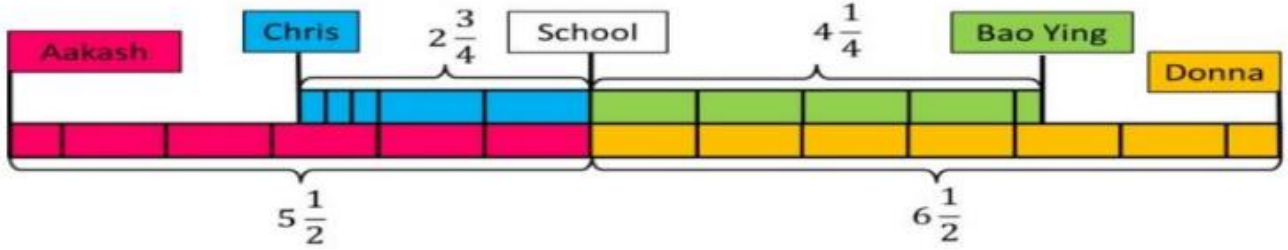
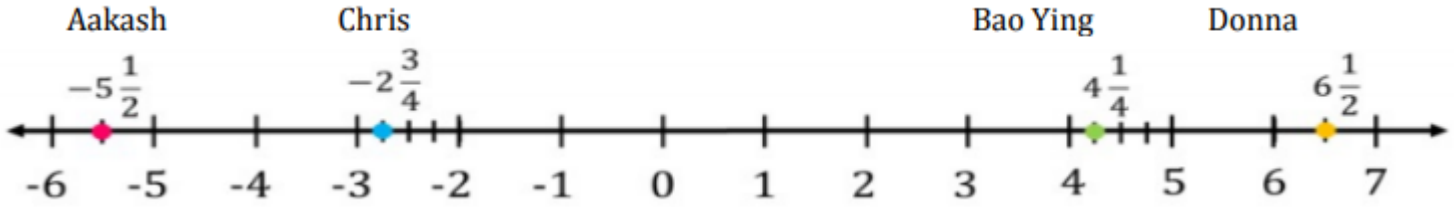
d. How can you see the answers to part (b) on the number line? Using the numbers (some of which are positive and some negative) that label the positions of houses on the number line, represent these distances using sums or differences.

7th Grade Distances Between Houses Task – Rubric Name: _____ Date: _____

NJSLS: 7.NS.A.1 Type: _____ Teacher: _____

Task Description	• Clearly constructs and communicates a complete response based on concrete referents provided in the prompt or constructed by the student such as diagrams that are connected to a written (symbolic) method, number line diagrams or coordinate plane diagrams. • Clearly constructs and communicates a complete response by ➢ using a logical approach based on a conjecture and/or stated assumptions ➢ providing an efficient and logical progression of steps ➢ using grade-level vocabulary, symbols, and labels ➢ providing a justification of a conclusion with minor computational error ➢ evaluating, interpreting and critiquing the validity and efficiency of others' responses				
Command Level Description	***Level 5:*** ***Distinguished Command*** Perform the task items accurately or with minor computation errors.	***Level 4:*** ***Strong Command*** Perform the task items with some non-conceptual errors	***Level 3:*** ***Moderate Command*** Perform the task items with minor conceptual errors and some computation errors.	***Level 2:*** ***Partial Command*** Perform the task items with some errors on both math concept and computation.	***Level 1:*** Perform the task items with serious errors on both math concept and computation.
Score range	*27-31 pts*	*19-26 pts*	*13-18 pts*	*6-12 pts*	*0-5 pts*
Task Score & PLD Assigned					

7th Grade Distances Between Houses Task – Scoring Guide **NAME: _____**

#	Answer	Scoring
Part A	 **** There are many ways to draw a picture that represents this situation	2 points: 1 point for the correct location away from the school and 1 point for the correct distance representation (correct fraction representation) **8 TOTAL POINTS**
Part B		2 points: 1 point for the correct answer and 1 point for showing work **12 TOTAL POINTS**
Part C		2 points: 1 point for the correct location away from the school and 1 point for the correct distance representation (correct fraction representation) **8 TOTAL POINTS**
Part D	The distance between the houses is represented by the distance between the points that correspond to the houses on the number line. This can be computed by subtracting the numbers that represent the position of the house relative to the school. For example, to find the distance between Bao Ying and Chris, we subtract –2 ¾ from 4¼ . We can communicate this more clearly by labeling the distance between the points with the difference of the numbers on the number line.	3 points: 2 points for correct explanation and 1 point for using an example **3 TOTAL POINTS**

Name _____ Block _____ Date _____

Comparing Freezing Points (7.NS.A.1)

Ocean water freezes at about −212◦C. Fresh water freezes at 0◦C. Antifreeze, a liquid used in the radiators of cars, freezes at −64◦C.

Imagine that the temperature has dropped to the freezing point for ocean water. How many degrees more must the temperature drop for the antifreeze to turn solid?

IX. 21st Century Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.
CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.
CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

For additional details see **21st Century Career Ready Practices** .

References

"Illustrative Mathematics" *Open Up Resources.* 2018

<https://auth.openupresources.org/register/complete>