Mohawk Local Schools Grade 7 Math

Quarter 2 Curriculum Guide

Mathematical Practices

1. Make Sense of Problems and Persevere in Solving them
2. Reasoning Abstractly & Quantitatively
3. Construct Viable Arguments and Critique the Reasoning 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

Critical Areas of Focus Being Addressed:

- Expressions and Equations
- Number System

Content Statements Addressed and Whether they are Knowledge, Reasoning, Performance Skill, or Product: (DOK1) (DOK2) (DOK3) (DOK4)	Underpinning Targets Corresponding with Standards and Whether they are Knowledge, Reasoning, Performance Skill, or Product: "I can…..", "Students Will Be Able To……."
7.NS.1abc 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	(DOK 1) I can: • Describe situations in which opposite quantities combine to make 0. • Represent and explain how a number and its opposite have a

quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. 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. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in realworld contexts (DOK 2)	sum of 0 and are additive inverses. • Demonstrate and explain how adding two numbers, p + q, if q is positive, the sum of p and q will be |q| spaces to the right of p on the number line. • Demonstrate and explain how adding two numbers, p + q, if q is negative, the sum of p and q will be |q| spaces to the left of p on the number line. • Identify subtraction of rational numbers as adding the additive inverse property to subtract rational numbers, p-q = p +(-q). (DOK 2) I can: • Apply and extend previous understanding to represent addition and subtraction problems of rational numbers with a horizontal or vertical number line. • Interpret sums of rational numbers by describing real world contexts. • Explain and justify why the sum of p + q is located a distance of |q| in the positive or negative direction from p on a number line. • Represent the distance between two rational numbers on a number line is the absolute value of their difference and apply this principle in real-world contexts. • Apply the principle of subtracting rational numbers in real world contexts. • Apply properties of operations as strategies to add and subtract rational numbers.
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. Properties are listed in the Common Core State Standards Glossary, Table 3, Properties of	(DOK 1) I can: • Identifies properties of addition and subtraction when adding and subtracting rational numbers. (DOK 2) I can: • Apply properties of operations as strategies to add and subtract

Operations. (DOK 2)	rational numbers.
7.NS.2a 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. Interpret products of rational numbers by describing real-world contexts. (DOK 2)	(DOK 1) I can: • Recognize that the process for multiplying fractions can be used to multiply rational numbers including integers. • Know and describe the rules when multiplying signed numbers. (DOK 2) I can: • Apply the properties of operations, particularly distributive property, to multiply rational numbers. • Interpret the products of rational numbers by describing real-world contexts.
7.NS.2b 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 nonzero 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 (DOK 2)	(DOK 1) I can: • Explain why integers can be divided except when the divisor is 0. • Describe why the quotient is always a rational number . • Know and describe the rules when dividing signed numbers, integers. • Recognize that –(p/q) = -p/q = p/- q (DOK 2) I can: • Interpret the quotient of rational numbers by describing real-world contexts.
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. (DOK 2)	(DOK 1) I can: • Identify how properties of operations can be used to multiply and divide rational numbers (such as distributive property, multiplicative inverse property, multiplicative identity, commutative property for multiplication, associative property for multiplication, etc.)

	(DOK 2) I can: • Apply properties of operations as strategies to multiply and divide rational numbers.
7.NS.2d 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 zeroes or eventually repeats. (DOK 1)	(DOK 1) I can: • Convert a rational number to a decimal using long division. • Explain that the decimal form of a rational number terminates (stops) in zeroes or repeats.
7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (DOK 2)	(DOK 1) I can: • Add rational numbers. • Subtract rational numbers. • Multiply rational numbers. • Divide rational numbers. (DOK 2) I can: Solve real-world mathematical problem by adding, subtracting, multiplying, and dividing rational numbers, including complex fractions.
7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. (DOK 2)	(DOK 1) I can: • Combine like terms with rational coefficients. • Factor and expand linear expressions with rational coefficients using the distributive property. (DOK 2) I can: • Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EE.2 Understand that rewriting an expression in	(DOK 1)

different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05." (DOK 2)	I can: • Write equivalent expressions with fractions, decimals, percents, and integers. (DOK 2) I can: • Rewrite an expression in an equivalent form in order to provide insight about how quantities are related in a problem context
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 (DOK 2)	(DOK 1) I can: • Convert between numerical forms as appropriate. (DOK 2) I can: • 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. • Assess the reasonableness of answers using mental computation and estimation strategies.
7.EE.4ab 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. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the	(DOK 1) I can: • Fluently solve equations of the form px + q = r and p(x + q) = r with speed and accuracy. • Identify the sequence of operations used to solve an algebraic equation of the form px + q = r and p(x + q) = r. • Graph the solution set of the inequality of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. (DOK 2)

perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? 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. (DOK 2)	I can: • Use variables and construct equations to represent quantities of the form $px + q = r$ and $p(x + q) = r$ from real-world and mathematical problems. • Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. • Compare an algebraic solution to an arithmetic solution by identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? This can be answered algebraically by using only the formula for perimeter ($P=2l+2w$) to isolate w or by finding an arithmetic solution by substituting values into the formula. • 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. • Interpret the solution set of an inequality in the context of the problem.