

Number System: Grade 7

Stage 1 Desired Results		
ESTABLISHED GOALS: Competencies: - Students will demonstrate the ability to simplify numeric and algebraic expressions by applying the properties of operations and the arithmetic of real numbers. - Students will demonstrate the ability to model real world problems by building and analyzing the appropriate expression, equation, or function. - Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. Content Standards: 7.NS.A.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. 7.NS.A.1.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. 7.NS.A.1.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. 7.NS.A.1.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 real-world contexts. 7.NS.A.1.d - Apply properties of operations as strategies to add and subtract rational numbers. 7.NS.A.2 - Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 7.NS.A.2.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	Transfer	
	Students will be able to independently use their learning to compute fluently with numbers in any form.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... the rules of the number system provide us with multiple strategies for solving a problem.	ESSENTIAL QUESTIONS How do you know what strategy to use?
	Acquisition	
	Students will know... - the properties of operations can be used as strategies to operate with rational numbers. - every quotient of integers is a rational number, but the divisor cannot be zero. - a number and its opposite have a sum of zero - a rational number when converted to a decimal, eventually repeats or terminates. - that the subtraction of rational numbers is the same as adding the additive inverse. - how to interpret numerical expressions by describing real world contexts. <u>vocabulary:</u> distributive property, commutative property, associative property, additive inverse, rational numbers, complex fraction, numerical expression	Students will be skilled at... - computing fluently with rational numbers. - performing basic operations with rational numbers by applying the properties of operations. - converting rational numbers to decimals using long division - simplifying complex fractions - creating mathematical problems involving the four operations with rational numbers in order to solve real-world problems.

contexts. - o 7.NS.A.2.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. - o 7.NS.A.2.c - Apply properties of operations as strategies to multiply and divide rational numbers. - o 7.NS.A.2.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. • MP1 Make sense of problems and persevere in solving them. • MP2 Reason abstractly and quantitatively. • MP6 Attend to precision. • MP7 Look for and make use of structure. • MP8 Look for and express regularity in repeated reasoning.		
Content Area Literacy Standards		21st Century Skills
• RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6-8 texts and topics</i>. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually.		• <i>reason effectively</i> • <i>solve problems</i> • <i>use systems thinking</i>

Stage 2 - Evidence	
Evaluative Criteria	Assessment Evidence
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan
Summary of Key Learning Events and Instruction

<i>Language Arts Integration</i>	<i>Mathematics Integration</i>
• 1.OA.1 Use	• 1.OA.1 Use
<i>Technology Integration</i>	<i>District Materials</i>
• 1.OA.1 Use	