

Unit C - Rational Numbers

Overview

In this unit students will extend their knowledge about rational numbers by extending the concept to negative numbers. Students will use number lines to add and subtract rational numbers. Students will be encouraged throughout the unit to think about whether their answer will be positive or negative before they begin to compute solutions. Students will be encouraged to use tools to overcome obstacles to solve problems. Students will be encouraged to persevere as they learn by using tools and strategies to create solutions. Students will be encouraged to persevere in solving problems by using tools and strategies they have at their disposal to solve problems. Students will learn what to do when they are stuck.

21st Century Capacities: Perseverance, Analyzing

Stage 1 - Desired Results

ESTABLISHED GOALS/ STANDARDS

MP 1 Make sense sense of problems and persevere in solving them
MP2 Reason abstractly and quantitatively
MP4 Model with Mathematics
MP6 Attend to precision
MP8 Look for and express regularity in repeated reasoning.

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

CC.7.NS.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:

Transfer:

Students will be able to independently use their learning in new situations to...

1. Demonstrate fluency with math facts, computation and concepts.
2. Use appropriate tools to make reaching solutions more efficient, accessible and accurate. (Perseverance and Analyzing-)
3. Make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution. (Perseverance and Analyzing)

Meaning:

UNDERSTANDINGS: *Students will understand that:*

1. Mathematicians flexibly use different tools, strategies, and operations to build conceptual knowledge or solve problems.
2. Mathematicians use numbers, ways of

ESSENTIAL QUESTIONS: *Students will explore & address these recurring questions:*

- A. What math tools/models/strategies can I use to solve the problem?
- B. Does this solution make sense?
- C. What is the most efficient way to solve this problem?

Grade 7 Math Curriculum

<p>CC.7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers:</p> <p>CC.7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.</p>	<p>representing numbers, relationships among numbers, and number systems to build meaning.</p> <p>3. Mathematicians use number sense to compute fluently and make reasonable estimates.</p> <p>4. Mathematicians examine the impact of operations and how they relate to one another.</p>	
<p>CC.7.NS.2d 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</p> <p>CC.7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)</p>	<p style="text-align: center;">Acquisition:</p> <p><i>Students will know...</i></p> <ol style="list-style-type: none"> 1. That the decimal form of a rational number terminates in 0s or eventually repeats 2. The divisibility rules for 2,3,5,10 3. The trick of 9s 4. A number can be represented in several forms 5. Vocabulary: rational numbers, natural, whole, integers, reciprocal, irrational numbers, sets of numbers, mixed numbers, improper fractions 	<p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> 1. Adding rational numbers including negatives 2. Subtracting rational numbers including negatives 3. Multiplying rational numbers including negatives 4. Dividing rational numbers including negatives 5. Converting between fractions and decimals 6. Ordering rational numbers on a number line 7. Comparing rational numbers 8. Simplifying fractions 9. Finding the distance between two rational numbers 10. Choosing tools/strategies when they confront an obstacle