Number Systems--Rational Number Operations 7.NS.A.3

Grade Level Progression:

6th Grade	7th Grade	8th Grade

Compute and interpret quotients of positive fractions.
    a. Solve problems involving division of fractions by fractions.
	Solve problems involving the four arithmetic operations with rational numbers.	Explore the real number system.
		    b. Understand that all rational numbers have a decimal expansion that terminates or repeats.
		    c. Convert decimals which repeat into fractions and fractions into repeating decimals.
		    d. Generate equivalent representations of rational numbers.

Common Sector Competencies	Use basic applied mathematics.

Step 1 **Identify Nouns and Verbs**
Solve problems involving the four arithmetic operations with rational numbers.

Step 2	
Vocabulary	
Tier 2	**Tier 3**
Add Subtract Multiply Divide Fraction Decimal Divide Pattern Numerator Denominator	Rational number Integer Absolute value Additive inverse Multiplicative inverse Sum Difference Product Quotient Commutative, associative and distributive properties Reciprocal

Step 3
Learning Targets and Success Criteria
I can calculate values using four operations on positive rational numbers. (Level 1)   ● I can add, subtract, multiply or divide rational numbers including whole numbers, fractions and decimals.

I can calculate values using four operations on rational numbers. (Level 2)
- I can add, subtract, multiply or divide rational numbers including whole numbers, integers, positive fractions and positive decimals.

I can calculate values using four operations on all rational numbers. (Level 3)
- I can add, subtract, multiply or divide rational numbers including whole numbers, integers, fractions and decimals. (Emphasizing fraction and decimal operations)

I can apply strategies to manipulate rational numbers to solve problems. (Level 3)
- I can apply properties such as commutative, associative and distributive properties to solve problems involving rational numbers.
- I can apply additive inverse and multiplicative inverse to solve problems involving rational numbers.

I can interpret and communicate the properties of negative numbers. (Level 4)

Step 4
Essential Questions

How do you add and subtract rational numbers?

How do you multiply and divide rational numbers?

How do you apply properties to solve rational numbers problems?

Step 5
Activities

Rational Number Investigation
Buzz Math Assignments - Assignments Covering All Operations with Rationals
Pizzeria Profits - Overall rational number computation
Rational Number Interview Project - End of unit project
Debits and Credits- Adding & Subtracting rational numbers
Adding & Subtracting Integers Word Problems - Skill application
Subtracting Integers Game - Skill practice
Multiply & Divide Rational Numbers Word Problems - Skill application
OpenUp Resources

Rational Number Investigation
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Multiply & Divide Rational Numbers Word Problems - Skill application

BuzzMath Assignments - 7th Grade: Converting Fractions to Decimals, Converting Mixed Numbers to Decimals, Converting Rational Numbers to Decimals
Trashcan Basketball - Converting fractions to decimals