Unit 2- The Number System

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

Unit Overview

Apply and extend previous understandings of multiplication and division to divide fractions by fractions. Compute fluently with multi-digit numbers and find common factors and multiples. Apply and extend previous understandings of numbers to the system of rational numbers. Modules 3 & 4.

Enduring Understandings

The standard algorithm used to multiply and divide whole numbers can be applied to operations with decimals.

The skills of greatest common factor and least common multiple become tools in the formation of equivalent fractions.

Integers, terminating decimals, and repeating decimals are rational numbers.

Positive and negative numbers, used together, describe quantities that have opposite directions or values.

The absolute value of a rational number is its distance from zero on a number line.
Equivalent forms of fractions, decimals, and percents can be written and used to solve problems.

Essential Questions

When you divide fractions, why is the quotient greater than the dividend?
In what situation could you have a percent greater than 100?
What is the relationship between a percent and a fraction?
How are fractions different from ratios?
When is the absolute value of a number also the opposite of that number?
What is the relationship between positive numbers and their opposites?

Learning Objectives

Interpret and compute quotients of fractions and solve word problems involving division of fractions by fractions

With accuracy and efficiency, add, subtract, multiply, and divide multi-digit decimals using the standard

algorithm for each operation.

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12

Identify the positive and/or negative number to describe quantities having opposite directions or values. (e.g., temperature above/below zero, credits/debits).

Recognize opposite signs of numbers as indicating locations on opposite sides of zero on the number line. Recognize that the opposite of the opposite of a number is the number itself.

Recognize that signs of numbers in ordered pairs indicate locations in quadrants of the coordinate plane and when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axis.

Find and position integers and other rational numbers on a horizontal or vertical number line. Find and position pairs of integers and other rational numbers on a coordinate plane.

Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret and explain statements of order for rational numbers in real-world contexts.

Interpret the absolute value of a rational number as its distance from zero on the number line. Distinguish comparisons of absolute value from statements about order.

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Find distances between points on the coordinate plane using ordered pairs and absolute value.

With accuracy and efficiency, divide multidigit numbers using the standard algorithm.

Standards: Content

6.NS	The Number System
6.NS.A	Apply and extend previous understandings of multiplication and division to divide fractions by fractions
6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
6.NS.B	Compute fluently with multi-digit numbers & find common factors & multiples
6.NS.B.2	With accuracy and efficiency, divide multi-digit numbers using the standard algorithm.
6.NS.B.3	With accuracy and efficiency, add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.B.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
6.NS.C	Apply and extend previous understandings of numbers to the system of rational numbers
6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities

	having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
6.NS.C.6.a	Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.
6.NS.C.6.b	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
6.NS.C.6.c	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.C.7	Understand ordering and absolute value of rational numbers.
6.NS.C.7.a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
6.NS.C.7.b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
6.NS.C.7.c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.
6.NS.C.7.d	Distinguish comparisons of absolute value from statements about order.
6.NS.C.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Standards: Interdisciplinary

9.1.8.CDM.1	Compare and contrast the use of credit cards and debit cards for specific purchases and the advantages and disadvantages of using each.
8.2.8.ITH.1	Explain how the development and use of technology influences economic, political, social, and cultural issues.

Assessment Evidence

Formative	Collaborative Activities, Homework, Classwork, Discussion, Independent Class Assignment, Informal Observations of Students, Games, Exit Slips, Pre-Assessments, Math Message – Warm up, Questioning, Teacher Made Pages, Learning Centers, LinkIt, Problem of the Day, Problem of the Week, Entrance Slips, Pre-Assessments
Summative	LinkIt Benchmark Assessments, Tests, Pre-Assessments, Quizzes, Written Responses
Alternative & Benchmark	Alternative – Reteaching, One on One Conferencing, Learning Centers, Levels Homework, Higher Order Thinking Problems, Additional leveled practice Benchmark - LinkIt Benchmark Assessments, Totowa TPA

Assessment Evidence Resource

Instructional Resources

Smartboard, Computers, iPads, websites and digital interactives/models, multi-media presentations, video streaming, Brain Pop, Microsoft 365, Primary and Secondary Source Documents, Assorted Manipulatives, Khan Academy, Crosswalk Coach for the Common Core Standards, Ready Common Core Mathematics Instruction and Practice, Common Core Coach, Calculators, Reveal Math Resources.

Instructional Resource List

Curricular Mandates

Below are the curricular requirements as defined in NJ Administrative Code and Statute

	Amistad		Diversity, Equity, and Inclusion
	Holocaust		LGBT and Disabilities (Grades 6-12)
	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

	Self-Awareness	X	Relationship Skills
X	Responsible Decision-Making		Social Awareness
X	Self-Management		

21st Century Skills & Themes

	Global and Cultural Awareness	X	Technology Literacy		Planning and Budgeting
X	Creativity and Innovation		Financial Institutions		Risk Management and Insurance
X	Information and Media Literacy		Digital Citizenship		Economic and Government Influences
	Critical Thinking and Problem Solving		Credit Profile		Career Awareness and Planning
	Civic Financial Responsibility		Financial Psychology		