ACC: Fraction, Decimal, Percents

Content Area: **Mathematics**
Course(s): **Math 7 Accelerated**
Time Period: **September**
Length: **9 weeks**
Status: **Published**

Unit Summary

The goal for this unit is to develop students' understanding of rational numbers and their applications to real life problem solving. Students will use their prior understanding of mathematical operations to determine the greatest common factor and least common multiple of the provided numbers and monomials. In addition, students will use the relationship between multiplication and division to understand division of fractions. Students can appropriately solve real world multi-decimal problems involving all four operations. Students will develop their understanding of percents and the real world applications.

Standards

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.7.RP.A.2c	Represent proportional relationships by equations.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems.
MA.6.RP.A.3c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
MA.6.RP.A.3d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
MA.K-12.7	Look for and make use of structure.
MA.6.NS	The Number System
MA.K-12.8	Look for and express regularity in repeated reasoning.
MA.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.
MA.6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.
MA.7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
MA.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.
MA.6.4.5.6 F.1	Use technology to gather, analyze, and communicate mathematical information.
MA.6.4.5.6 F.2	Use computer spreadsheets, software, and graphing utilities to organize and display

	quantitative information.
MA.6.4.5.6 F.4	Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).
CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
TECH.8.1.8	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.8.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.8.A.1	Demonstrate knowledge of a real world problem using digital tools.
TECH.8.1.8.A.4	Graph and calculate data within a spreadsheet and present a summary of the results.
TECH.8.1.8.A.CS1	Understand and use technology systems.
TECH.8.1.8.A.CS2	Select and use applications effectively and productively.
TECH.8.1.8.B.CS2	Create original works as a means of personal or group expression.
TECH.8.1.8.C	Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
TECH.8.1.8.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.8.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.8.D.1	Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics including appropriate use of social media.
TECH.8.1.8.D.CS1	Advocate and practice safe, legal, and responsible use of information and technology.
TECH.8.1.8.D.CS2	Demonstrate personal responsibility for lifelong learning.
TECH.8.1.8.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.1.8.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.8.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.1.8.F.CS2	Plan and manage activities to develop a solution or complete a project.
TECH.8.2.8.D.CS2	Use and maintain technological products and systems.

Student Learning Objectives

- Students will learn that the greatest common factor and least common multiple can be used to solve algebraic fraction problems.
- Students will learn the process of adding and subtracting fractions and mixed numbers with unlike denominators.
- Students will learn the process of multiplying and dividing fractions by fractions and interpreting the quotient.
- Students will learn how to construct visual fraction models for multiplication and division.
- Students will learn that all four of the decimal operations are associated with real world situations.
- Students will learn that the GCF and LCM can be used in a real life situation.
- Students will learn that there are three representations of a rational numbers.
- Students will learn to use percentages to solve real world problems.

Essential Questions

- How does mental math help us carry out more difficult math tasks?
- How can one decode a word problem and translate this into a number sentence?
- How can you apply fraction rules to solve real world problems?
- How can we evenly split or share something that doesn't represent a whole?
- How can a number be written three different ways?
- How is percent used in real life?

Enduring Understandings

- Students will understand that there are specific rules when adding, subtracting, multiplying, and dividing rational numbers.
- Students will understand that real world problems include decimals, fractions, and percents.

Application

- Students will be able to independently use their learning to solve fraction, decimal, and percent problems.

Skills

Students will be skilled at:

- Ordering and comparing rational numbers.
- Computing quotients for fraction problems.
- Creating visual models for fraction problems.
- interpreting and solving real world problems involving rational numbers.
- Interpreting percent and its real world applications.