Unit 2: Division

Content Area: **Mathematics**
Course(s):
Time Period: **Trimester 1**
Length: **23 Days**
Status: **Published**

Brief Summary of Unit

This unit focuses on the decimal operations and the multiplication and division of fractions and mixed numbers. Students will learn to accurately perform these operations using models as well as standard algorithms and apply their skills to solve real-world problems. Through a combination of direct instruction, guided practice, and practical applications, students will develop fluency and confidence in working with decimals and fractions, preparing them for more advanced mathematical concepts.

Revision Date: June 2024

Standards

When addressing divisibility in the context of real world situations, the following is being addressed:

In accordance with New Jersey's Chapter 32 Diversity and Inclusion Law, this unit includes instructional materials that highlight and promote diversity, including:

economic diversity, equity, inclusion, tolerance, and belonging in connection with gender and sexual orientation, race and ethnicity, disabilities, and religious tolerance.

MATH.K-12.1	Make sense of problems and persevere in solving them
MATH.K-12.2	Reason abstractly and quantitatively
MATH.K-12.3	Construct viable arguments and critique the reasoning of others
MATH.K-12.4	Model with mathematics
MATH.K-12.5	Use appropriate tools strategically
MATH.K-12.6	Attend to precision
MATH.K-12.7	Look for and make use of structure
MATH.6.NS.A	Apply and extend previous understandings of multiplication and division to divide

	fractions by fractions
MATH.K-12.8	Look for and express regularity in repeated reasoning
MATH.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.
MATH.6.NS.B	Compute fluently with multi-digit numbers & find common factors & multiples
MATH.6.NS.B.2	With accuracy and efficiency, divide multi-digit numbers using the standard algorithm.
MATH.6.NS.B.3	With accuracy and efficiency, add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
MATH.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.
CS.K-12.3.a	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
CS.K-12.3.b	Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.

Essential Questions

- How can we use operations in real world situations?
- How can you interpret the quotient of a fraction or decimal division in the context of the problem being solved?
- How do fractions and decimals interconnect to one another and the real world?

Enduring Understandings

- Dividing by a divisor that is less than the dividend results in a quotient greater than 1.
- Quotients need to be interpreted (i.e. How many sodas can you buy with $10 if each soda is $1.85?)
- Understand you can compute a decimal problem by using fractions instead.
- Understanding multiplication of fractions helps us to divide fractions.
- When a problem is looking for how many of one thing goes into another, division is involved.

Students Will Know

- Decimals and Fractions can be used interchangeably.
- In division, when your divisor is less than your dividend, the quotient is greater than 1.

- The difference in procedures for finding sums, differences, products and quotients of decimals and fractions.
- There are times when an exact quotient is used but there are also times when you need to interpret the quotient (i.e. how many $1.85 sodas can you buy with $20?)
- There is a relationship between multiplication and division, especially how dividing by a fraction is equivalent to multiplying by its reciprocal.

Students Will Be Skilled At

- Adding, subtracting and multiplying decimals using the standard algorithm
- Dividing fractions by fractions using the standard algorithm
- Dividing multi-digit decimals using long division.
- Multiplying fractions and mixed numbers.
- Spiral review: adding and subtracting fractions
- Using decimals and fractions to solve real world problems

Assessments

- Formative: Daily assessments using examples from class notes, iReady MyPath, Big Ideas Math problems, teacher check-ins and NJSLA test bank problems
- Summative: Teacher-created assessments, NJSLA test bank problems, Big Ideas Math unit assessments
- Benchmark: iReady diagnostic assessments
- Alternative Assessments: Student-centered activities such as scavenger hunts, various projects involving real world applications, and adaptive learning tasks in iReady, Khan Academy, and Big Ideas Math

Learning Plan

Day 1: Introduction to Multiplying Fractions

- Multiplying numerators and denominators
- Simplifying results
- Simplifying before multiplying

Day 2: Multiplying Mixed Numbers and Improper Fractions

- Review Converting Mixed Number to Improper Fraction
- Practice problems

Day 3: Mixed Practice Multiplying Fractions and Mixed Numbers.

Day 4: Quiz on Multiplying Fractions and Mixed Numbers.

Day 5-6: Introduction to Modeling Division of Fractions

- Use Number Line and Fraction Bars to show division of a whole number by a fraction
- Use Number Line and Fraction Bars to show division of a fraction or mixed number by a fraction.

Day 7: Introduction to Dividing Fractions, standard algorithm

- Understanding reciprocals
- Multiplication method for division

Day 8-9: Dividing between Mixed Numbers, Fractions and Whole Numbers

- Practice problems

Day 10: Quiz on Dividing fractions and Mixed Numbers, including modeling division of fractions.

Day 11-12: Review Long Division

Day 13: Interpreting the quotient

- Remainders as mixed numbers or decimals
- Place value rounding
- Relationship in real world problem solving

Day 14: Quiz on Interpreting the Quotient and Long Division

Day 15: Introduction to Dividing Decimals by Whole Numbers

- Long division with decimals
- Practice problems
- Real-life applications

Day 16: Dividing Decimals by Decimals

- Converting to whole numbers
- Practice problems

Day 17: Mixed Practice (Dividing Decimals)

- Word problems

Day 18: Quiz on Decimal Division

Day 19-20: Review Adding, Subtracting and Multiplying decimals

Day 21-22: Review Division of Decimals and Fractions

Day 23: Fraction and Decimal Unit Test

- Comprehensive assessment covering all topics

Total number of days: 23

Materials

Core Instructional Materials: Core Book List including Big Ideas Math Modeling Real Life Online Textbook, Big Ideas Student Journal Workbook

Supplemental Instructional Materials: Khan Academy, iReady, IXL (for intervention)

Suggested Strategies for Modifications

Suggested Strategies for Modifications for Grade 6