Unit	Lesson	Lesson Objectives

Adding, Subtracting, and Multiplying Fractions

Fractions on the Number Line

Compare fractions with the same denominator using the number line.

Identify the space between 0 and 1 as one whole and partition it into n pieces, each of with is $1/n$ wide.

Relate a fraction to its position on the number line (both directions), seeing the fraction as being one number in which the denominator indicates the partition of 0 to 1 and the numerator indicates the size.

Real-World Application: Use number lines, including customary rulers, that can be used to compare fractions to each other to solve real-world problems.

Fractions as Parts of a Total

Compare two fractions with the same denominator by comparing different parts of the same set.

Describe sets as wholes and fractions as representations of parts of that set.

Real-World Application: Use fractions to represent real-world parts of a set and compare different parts of the same set.

Equivalent Fractions

Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$.

Generate equivalent fractions, including fractions in which either the numerator or denominator is already given.

Real-World Application: Apply the concept of equivalent fractions to real-world problems.

Improper Fractions and Mixed Numbers

Find equivalence between mixed numbers and improper fractions.

Write mixed numbers and improper fractions based on visual models.

Real-World Application: Solve word problems involving mixed numbers.

Comparing Fractions via Benchmark Fractions

Use benchmark fractions to compare fractions.

Use benchmarks to order 3 or more fractions.

Real-World Application: Compare and order real-world measurements using a benchmark.

Using Equivalent Fractions to Compare Fractions

Compare and order two or three fractions and/or mixed numbers with different denominators.

Rewrite fractions to have a common denominator.

Use visual representations, including number line and fraction bars, to compare fractions with denominators that are different but compatible (e.g., compare 5/14 to 1/2 , which is 7/14.).

Real World Application: Compare fractions that represent a variety of real-world situations by finding an equivalent fraction.

Adding and Subtracting Fractions

Find an equivalent form of a computed sum or difference, including lowest terms.

Model and compute sums and differences of fractions when the denominator is the same.

Real-World Application: Solve real-world problems using addition and subtraction of fractions.

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Using Equivalent Fractions to Add and Subtract Fractions

Add and subtract two fractions with different denominators.

Use visual representations to add and subtract fractions with denominators that are different but compatible (e.g., 5/6 – 1/2, which can be shown as 2/6 visually; the difference shows that 5/6 is 2/6 greater than 1/2.).

Real-World Application: Find common denominators to add or subtract different parts of inches and feet.

Multiplying a Fraction by a Whole Number

Interpret $(1/b) \times n$ as $(1/b)^{th}$ of n by comparing to $1 \times n$, $2 \times n$, etc.

Interpret $(a/b) \times n$ in terms of repeated addition, and compute products of the form $n \times (a/b)$ using that algorithm.

Interpret $n \times (1/b)$ as the sum of $1/b + 1/b + \ldots + 1/b$ (n terms); extend to $n \times (a/b)$ through repeated addition.

Real-World Application: Solve real-world problems involving a fraction of a total using multiplication (both unit fractions and otherwise).

Multiplying a Fraction by a Fraction

Explain $(a/b) \times (c/d)$ as a fractional part of a fraction.

Explain the algorithm for multiplying $(a/b) \times (c/d)$ through visual representations.

Multiply fractions and mixed numbers.

Real-World Application: Solve a variety of problems involving a fractional part of a fraction.

Operations with Decimals and Fractions

Decimals on the Number Line and Rounding Decimals

Plot and name decimals on the number line.

Round decimals using both the number line and pure place value strategies.

Real-World Application: Round money to estimate.

Comparing Decimals

Create and justify the equivalence of multiple representations of decimal values.

Use various place value strategies to compare decimal values.

Real-World Application: Compare decimals using real-world measurements.

Adding Decimals

Add decimals using a variety of strategies, including counting up and the standard algorithm.

Identify and correct common errors of addition with decimals.

Represent sums using manipulatives (base-10 blocks, money).

Real-World Application: Use decimals to find real-world sums involving money.

Subtracting Decimals

Represent differences using manipulatives (base 10 blocks, money).

Subtract by place value using a variety of strategies including counting up and the standard algorithm.

Real-World Application: Solve real-world problems involving subtraction of decimals.

Unit	Lesson	Lesson Objectives

Multiplying a Whole Number by a Decimal Less than 1

Interpret $n \times d$ both as the sum of n copies of the decimal d and a portion of n to justify multiplying according to place value, regrouping as needed.

Multiply whole numbers by decimals less than one.

Use rounding to estimate a product before computing as a means of developing a sense of the size of the product.

Real-World Application: Solve real-world problems involving a decimal part of a whole number using multiplication.

Multiplying Decimals

Multiply decimals to the hundredths place.

Use rounding to estimate a product before computing as a means of developing a sense of the size of the product, including the position of the decimal point in the product.

Real-World Application: Solve real-world problems involving multiplication of decimals, especially those involving a decimal part of a decimal.

Equivalent Fractions and Decimals

Find the fraction form of a decimal, including common repeating decimals.

Interpret a/b as the quotient of a and b in order to find a decimal equivalent for a/b by dividing.

Use equivalent fractions to convert between "friendly" fractions and decimals.

Real-World Application: Solve real-world problems by converting between fractions and decimals.

Ordering, Adding, and Subtracting Fractions and Decimals

Order a list of fractions and decimals using various strategies, including a number line, common denominators, rounding, and benchmarks.

Use rounding, benchmarks, and common denominators to compare decimals to fractions and to estimate a sum or difference before or after computing.

Real-World Application: Solve real-world problems that involve a mixture of decimals and fractions.

Word Problems: Multiplying by a Fraction and a Decimal

Estimate a product before computing as a means of developing a sense of the size of the product, or after to check for reasonableness.

Multiply fractions and decimals.

Real-World Application: Solve real-world problems involving multiplication of fractions and decimals.

Multistep Word Problems with Fractions and Decimals

Identify key information for solving two-step word problems, including question, problem type, and order of operations needed.

Use estimation to determine if a solution is reasonable.

Real-World Application: Solve real-world problems with two operations involving fractions and/or decimals.