OP A Count unit fractions as a form of adding and subtracting fractions	
Grade	Curriculum Expectations
1	• divide whole objects into parts and identify and describe, through investigation, equal-sized parts of the whole, using fractional names (e.g., halves; fourths or quarters).
2	• determine, through investigation using concrete materials, the relationship between the number of fractional parts of a whole and the size of the fractional parts (e.g., a paper plate divided into fourths has larger parts than a paper plate divided into eighths) (Sample problem: Use paper squares to show which is bigger, one half of a square or one fourth of a square.).
2	• regroup fractional parts into wholes, using concrete materials (e.g., combine nine fourths to form two wholes and one fourth);
3	• divide whole objects and sets of objects into equal parts, and identify the parts using fractional names (e.g., one half; three thirds; two fourths or two quarters), without using numbers in standard fractional notation.
4	• represent fractions using concrete materials, words, and standard fractional notation, and explain the meaning of the denominator as the number of the fractional parts of a whole or a set, and the numerator as the number of fractional parts being considered;
4	• count forward by halves, thirds, fourths, and tenths to beyond one whole, using concrete materials and number lines (e.g., use fraction circles to count fourths: “One fourth, two fourths, three fourths, four fourths, five fourths, six fourths, …”);
5	• represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools (e.g., fraction circles, Cuisenaire rods, number lines) and using standard fractional notation;
5	• demonstrate and explain the concept of equivalent fractions, using concrete materials (e.g., use fraction strips to show that $\frac{3}{4}$ is equal to $\frac{9}{12}$);
6	• represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation;
7	• use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals;
7	• add and subtract fractions with simple like and unlike denominators, using a variety of tools and algorithms;
8	• represent, compare, and order rational numbers;
8	• use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution;
8	• solve problems involving addition, subtraction, multiplication, and division with simple fractions.
9D	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;
9D	• solve problems requiring the manipulation of expressions arising from applications of percent, ratio, rate, and proportion;
9P	• solve for the unknown value in a proportion, using a variety of methods (e.g., concrete materials, algebraic reasoning, equivalent ratios, constant of proportionality) (Sample problem: Solve $\frac{x}{4} = \frac{15}{20}$.);
9P	• solve problems requiring the expression of percents, fractions, and decimals in their equivalent forms

9P	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;*

OP B Use models to compose and decompose fractions with like denominators as a form of adding and subtracting fractions	
Grade	Curriculum Expectations
1	• divide whole objects into parts and identify and describe, through investigation, equal-sized parts of the whole, using fractional names (e.g., halves; fourths or quarters).
2	• regroup fractional parts into wholes, using concrete materials (e.g., combine nine fourths to form two wholes and one fourth);
3	• divide whole objects and sets of objects into equal parts, and identify the parts using fractional names (e.g., one half; three thirds; two fourths or two quarters), without using numbers in standard fractional notation.
7	• use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals;
7	• add and subtract fractions with simple like and unlike denominators, using a variety of tools and algorithms;
7	• demonstrate, using concrete materials, the relationship between the repeated addition of fractions and the multiplication of that fraction by a whole number;
8	• solve problems involving addition, subtraction, multiplication, and division with simple fractions.
9D	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;
9D	• solve problems requiring the manipulation of expressions arising from applications of percent, ratio, rate, and proportion;
9D	• identify, through investigation with technology, the geometric significance of m and b in the equation y = mx + b
9P	• make comparisons using unit rates (e.g., if 500 mL of juice costs $2.29, the unit rate is 0.458¢/mL; this unit rate is less than for 750 mL of juice at $3.59, which has a unit rate of 0.479¢/mL);
9P	• solve problems requiring the expression of percents, fractions, and decimals in their equivalent forms
9P	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;*

OP C Add and subtract fractions with like denominators using models and symbols	
Grade	Curriculum Expectations
2	• determine, through investigation using concrete materials, the relationship between the number of fractional parts of a whole and the size of the fractional parts (e.g., a paper plate divided into fourths has larger parts than a paper plate divided into eighths) (Sample problem: Use paper squares to show which is bigger, one half of a square or one fourth of a square.).
2	• regroup fractional parts into wholes, using concrete materials (e.g., combine nine fourths to form two wholes and one fourth);
7	• use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals;
7	• add and subtract fractions with simple like and unlike denominators, using a variety of tools and algorithms;
8	• solve problems involving addition, subtraction, multiplication, and division with simple fractions.
9D	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;
9P	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;*

OP D Add and subtract fractions with friendly but unlike denominators (e.g., 2 and 10) using models and symbols	
Grade	Curriculum Expectations
7	• use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals;
7	• add and subtract fractions with simple like and unlike denominators, using a variety of tools and algorithms;
8	• use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution;
8	• solve problems involving addition, subtraction, multiplication, and division with simple fractions.
9D	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;
9D	• solve problems requiring the manipulation of expressions arising from applications of percent, ratio, rate, and proportion;
9P	• solve problems involving ratios, rates, and directly proportional relationships in various contexts (e.g., currency conversions, scale drawings, measurement), using a variety of methods (e.g., using algebraic reasoning, equivalent ratios, a constant of proportionality; using dynamic geometry software to construct and measure scale drawings)
9P	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;*

OP E Add and subtract fractions with unlike denominators (e.g., 2 and 7) using models and symbols	
Grade	Curriculum Expectations
7	• use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals;
7	• add and subtract fractions with simple like and unlike denominators, using a variety of tools and algorithms;
8	• use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution;
8	• solve problems involving addition, subtraction, multiplication, and division with simple fractions.
9D	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;
9D	• solve problems requiring the manipulation of expressions arising from applications of percent, ratio, rate, and proportion;
9P	• solve problems requiring the expression of percents, fractions, and decimals in their equivalent forms
9P	• simplify numerical expressions involving integers and rational numbers, with and without the use of technology;*