Lesson 12: Sums and Differences of Fractions

Standards Alignments

Addressing   4.NF.B.3.c, 4.NF.B.3.d

Teacher-facing Learning Goals

- Add and subtract fractions (including mixed numbers) with the same denominator.
- Analyze strategies for reasoning about sums and differences of fractions with the same denominator.

Student-facing Learning Goals

- Let's add and subtract fractions and analyze our strategies.

Lesson Purpose

The purpose of this lesson is for students to consider strategies for adding and subtracting fractions with the same denominator, including mixed numbers, and to recognize when it is helpful to decompose numbers or write equivalent fractions when finding sums and differences of fractions.

Previously, students learned to decompose mixed numbers and write equivalent fractions for whole numbers to add and subtract fractions. In this lesson, they practice finding the value of sums and differences of fractions while also taking a closer look at their reasoning strategies. In the first activity, students complete addition and subtraction equations, each with a missing number. They then reflect on the steps they took and consider why they found certain ways of reasoning more productive than others. In the second activity, students examine and explain when it might be useful to decompose numbers when finding sums and differences of fractions. In explaining their answers and strategies, students need to be precise in their word choice and use of language (MP6).

Access for:

♿ Students with Disabilities

- Action and Expression (Activity 1)

🌐 English Learners

- MLR8 (Activity 1)

Instructional Routines

Number Talk (Warm-up)

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

Which way(s) of reasoning about sums and differences of fractions did most students use today? What suggestions could you offer to improve students flexibility in adding and subtracting fractions?

Cool-down (to be completed at the end of the lesson)   🕐   5 min

How Would You Find the Difference?

Standards Alignments

Addressing   4.NF.B.3.d

Student-facing Task Statement

Consider the expression $\frac{13}{5} - 1\frac{2}{5}$.

1. What would be your first step for finding the value of the expression?
2. Find the value of the expression. Show your reasoning.

Student Responses

1. Sample responses:
   - I would decompose $\frac{13}{5}$ into a whole number and a fraction and write it as a mixed number.
   - I would write $1\frac{2}{5}$ as a fraction without a whole number.
2. $1\frac{1}{5}$ or $\frac{6}{5}$. Sample response:
   - $\frac{13}{5} = \frac{10}{5} + \frac{3}{5} = 2 + \frac{3}{5} = 2\frac{3}{5}$ and $2\frac{3}{5} - 1\frac{2}{5} = 1\frac{1}{5}$
   - $1\frac{2}{5} = \frac{5}{5} + \frac{2}{5} = \frac{7}{5}$ and $\frac{13}{5} - \frac{7}{5} = \frac{6}{5}$