Lesson 1: Equal Groups of Unit Fractions

Standards Alignments

Addressing   4.NF.B.4, 4.NF.B.4.a
Building Towards   4.NF.B.4

Teacher-facing Learning Goals

- Interpret and relate descriptions, drawings, and expressions that represent situations involving equal groups of fractions.

Student-facing Learning Goals

- Let's look at equal groups of fractions.

Lesson Purpose

The purpose of this lesson is for students to interpret and relate descriptions, drawings, and multiplication expressions that represent equal groups of unit fractions.

In grade 3, students represented multiplication of whole numbers with arrays, equal-group drawings, area diagrams, and expressions. In an earlier unit, students used diagrams to represent and compare fractions. In this unit, they extend their understanding of multiplication to include equal groups of unit fractions while using familiar representations to support their thinking.

Students begin by looking at situations that involve fractional amounts of food items. Students may rely on given images and descriptions, their own drawings, their understanding of fractions, and what they know about writing and evaluating multiplication expressions for equal groups of whole-number objects. In future lessons, student will use more abstract diagrams and generalize the process of multiplying a whole number and a unit fraction.

Access for:

♿ Students with Disabilities

- Representation (Activity 1)

🌐 English Learners

- MLR8 (Activity 2)

Instructional Routines

How Many Do You See? (Warm-up)

Lesson Timeline

Warm-up	10 min

Teacher Reflection Question

Which question did you ask today that best

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

supported students' understanding of multiplication of a fraction by a whole number? What did students say or do that showed the question was effective?

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

Sandwiches on Plates

Standards Alignments

Addressing   4.NF.B.4

Student-facing Task Statement

Lin has 9 plates. She puts $\frac{1}{4}$ of a sandwich on each plate.

1. Which expression represents the sandwiches in this situation?

    A. 9×4

    B. $9 \times \frac{1}{4}$

    C. 4×9

    D. $4 \times \frac{1}{9}$

2. How many sandwiches did Lin put on plates? Explain or show your reasoning.

Student Responses

1. B

2. $\frac{9}{4}$ sandwiches or $2\frac{1}{4}$ sandwiches. Sample responses:

    ○ A diagram showing 9 groups of $\frac{1}{4}$

    ○ I counted by $\frac{1}{4}$ nine times.

    ○ I know 4 groups of $\frac{1}{4}$ sandwiches is 1 whole sandwich, so 8 groups of $\frac{1}{4}$ sandwiches make 2 whole sandwiches. Adding $\frac{1}{4}$ sandwich makes $2\frac{1}{4}$.