

Lesson 5: Equivalent Multiplication Expressions

Standards Alignments

Addressing 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c

Teacher-facing Learning Goals

- Write equivalent expressions for the multiplication of a fraction by a whole number and explain or show that the expressions are equivalent.

Student-facing Learning Goals

- Let's write multiplication expressions in different ways.

Lesson Purpose

The purpose of this lesson is for students to write equivalent expressions for the multiplication of a whole number and a unit fraction and explain the equivalence.

In previous lessons, students multiplied unit and non-unit fractions by a whole number and represented their reasoning with diagrams and expressions.

In this lesson, students apply these understandings to explain how two multiplication expressions are equivalent. Students use what they know about multiple groups of unit fractions to explain how two different expressions result in the same product (MP7). (Students are not expected to use the term “equivalent expressions.”)

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

English Learners

- MLR8 (Activity 2)

Instructional Routines

How Many Do You See? (Warm-up)

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min

Teacher Reflection Question

What did you say, do, or ask during the lesson synthesis that helped students be clear on the learning of the day?

Lesson Synthesis 10 min

Cool-down 5 min

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

🕒 5 min

Expressions for Fractions

Standards Alignments

Addressing 4.NF.B.4.a, 4.NF.B.4.b, 4.NF.B.4.c

Student-facing Task Statement

1. Kiran says that the expressions $2 \times \frac{6}{8}$ and $3 \times 4 \times \frac{1}{8}$ both represent the same fraction. Do you agree? Explain or show your reasoning.
2. Write two new expressions that have the same value as $12 \times \frac{1}{9}$. You can use a diagram if it is helpful.

Student Responses

1. Agree. Sample response: $2 \times \frac{6}{8}$ is $\frac{12}{8}$ or 12 groups of $\frac{1}{8}$, and $3 \times 4 \times \frac{1}{8}$ is $12 \times \frac{1}{8}$, which is also 12 groups of $\frac{1}{8}$.
2. Sample responses: $4 \times \frac{3}{9}$, $6 \times \frac{2}{9}$, $2 \times 3 \times \frac{2}{9}$