# Lesson 12: Represent Division of Unit Fractions by Whole Numbers

### Standards Alignments

|  |  |
| --- | --- |
| Addressing | 5.NF.B.7.a, 5.NF.B.7.b |

### Teacher-facing Learning Goals

* Make sense of diagrams that represent division of a unit fraction by a whole number.

### Student-facing Learning Goals

* Let’s make sense of diagrams that represent division of a unit fraction by a whole number.

### Lesson Purpose

The purpose of this lesson is for students to use diagrams and equations to represent division of a unit fraction by a whole number.

In the previous lesson, students solved problems about dividing a unit fraction by a whole number in a way that made sense to them. In this lesson, students use tape diagrams to represent division of a unit fraction by a whole number. The tape diagrams used to represent the problems are familiar to students from earlier grades. Here is a tape diagram showing $\frac{1}{4}$, one out of 4 pieces is shaded:



One way to show $\frac{1}{4}÷3$ is to divide the $\frac{1}{4}$ into 3 equal pieces.



To see how much is shaded we can divide all of the $\frac{1}{4}$s and see that $\frac{1}{4}÷3=\frac{1}{12}$.



Students use these diagrams to understand this series of steps representing division of a unit fraction by a whole number throughout the lesson.

### Access for:

###  Students with Disabilities

* Engagement (Activity 3)

### Instructional Routines

Estimation Exploration (Warm-up), MLR3 Clarify, Critique, Correct (Activity 2)

### Lesson Timeline

|  |  |
| --- | --- |
| Warm-up | 10 min |
| Activity 1 | 10 min |
| Activity 2 | 10 min |
| Activity 3 | 15 min |
| Lesson Synthesis | 10 min |
| Cool-down | 5 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? How did understanding the cool-down of the lesson before you started teaching today help you synthesize that learning?

## Cool-down

(to be completed at the end of the lesson) 5min

Evaluate Division Expressions

### Standards Alignments

|  |  |
| --- | --- |
| Addressing | 5.NF.B.7.a |

### Student-facing Task Statement

1.
* 
	1. Write a division expression for the shaded region. Explain or show your reasoning.
	2. What fraction does the shaded region represent? Explain or show your reasoning.

### Student Responses

1. $\frac{1}{5}÷2$ since the tape is divided into fifths and then the fifth is divided into 2 equal pieces
2. $\frac{1}{10}$ because there are 10 of those pieces in the whole