Lesson 9: Grams and Kilograms, Liters and Milliliters

Standards Alignments

Addressing 4.MD.A.1, 4.MD.A.2

Teacher-facing Learning Goals

- Describe the multiplicative relationships between liters and milliliters, and kilograms and grams.
- Express liters in terms of milliliters, and kilograms in terms of grams.

Student-facing Learning Goals

- Let's explore measurements in grams, kilograms, liters and milliliters.

Lesson Purpose

The purpose of this lesson is for students to describe the relationship between liters and milliliters and between kilograms and grams, and to express each of the larger units in terms of the smaller units.

In grade 3, students solved problems involving capacity and weight. They may have encountered the units grams, kilograms, liters, and milliliters—both in the classroom or beyond—but have yet to develop a sense of the relationship between grams and kilograms, and between liters and milliliters.

Here, students develop an understanding of 1 kilogram as 1,000 times as heavy as 1 gram, and 1 liter as 1,000 times as much as 1 milliliter. For some students, this may be their first experience with metric units of mass and capacity. The lesson moves quickly to introduce two different sets of measurement units, but students will work with them again in future lessons. Consider offering anchor charts or visual representations to serve as a reference and to solidify the relationships between measurement units.

In subsequent lessons, students apply the understandings from this lesson to solve various problems.

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR2 (Activity 1)

Instructional Routines

Which One Doesn't Belong? (Warm-up)

Materials to Gather

- Containers of different sizes: Activity 2
- Paper clips: Activity 1

Lesson Timeline

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

Teacher Reflection Question

Students may need to engage with measuring using different units to deepen their sense of relationships. How can you reinforce the work done in today's lesson outside of math class? How can you incorporate opportunities to measure weight and capacity in science or other subject areas?

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

A Chef and a Host

Standards Alignments

Addressing 4.MD.A.1, 4.MD.A.2

Student-facing Task Statement

1. A chef bought 3 kilograms of flour on Monday and 4,000 grams on Friday. On which day did they buy more flour? Explain or show your reasoning.
2. A party host bought 8 bottles of sparkling water. Each bottle contains 1 liter. How many milliliters of sparkling water did they buy?

Student Responses

1. Friday. Sample reasoning: 3 kilograms is 3,000 grams, which is less than 4,000 grams.
2. 8,000 milliliters