

## Lesson 8: Meters and Kilometers

### Standards Alignments

Building On 4.NBT.B.5  
Addressing 4.MD.A.1, 4.MD.A.2

### Teacher-facing Learning Goals

- Describe the multiplicative relationship between kilometers and meters.
- Express kilometers in terms of meters.

### Student-facing Learning Goals

- Let's explore measurements in meters and kilometers.

### Lesson Purpose

The purpose of this lesson is for students to describe the multiplicative relationship between kilometers and meters and express the former in terms of the latter.

Previously, students learned that 1 meter is 100 times as long as 1 centimeter. They converted measurements in meters to centimeters. In this lesson, they extend their understanding of metric units of length to include kilometers.

Students develop a sense for 1,000 meters by reasoning multiplicatively about shorter measurements in meters. For example, they see that 1,000 meters is 20 times the length of a 50-meter pool, 10 times the length of a 100-meter track, and so on. In doing so, students develop an awareness of 1 kilometer as 1,000 times as long as 1 meter.

Students use tables and what they know about multiples of 1,000 to support their reasoning as they multiply whole numbers by 1,000 to convert kilometers to meters (MP7).

### Access for:

#### Students with Disabilities

- Action and Expression (Activity 2)

#### English Learners

- MLR7 (Activity 2)

### Instructional Routines

Number Talk (Warm-up)

## Materials to Gather

- Scissors: Activity 1

## Lesson Timeline

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

## Materials to Copy

- How Long is One Kilometer? (groups of 4): Activity 1

## Teacher Reflection Question

What part of the lesson went really well in terms of helping students reason about the size of 1 kilometer and its relationship to 1 meter? What part of the task supported this reasoning?

---

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

 5 min

How Far Away from School?

### Standards Alignments

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

### Student-facing Task Statement

1. Kiran lives 7 kilometers from school. How many meters from school does he live? Explain or show your reasoning.
2. A classmate of Kiran's lives 800 meters from school. Does he live closer or farther away from school than Kiran? Explain your reasoning.

### Student Responses

1. 7,000 meters. Sample reasoning: One kilometer is 1,000 meters, so 7 kilometers is  $7 \times 1,000$ , which is 7,000.
2. The classmate lives closer to school. Sample reasoning: One kilometer is 1,000 meters, and 800 meters is not even 1 kilometer, so it is much less than 7 kilometers.