Unit Conversions and Problem Solving with Metric Measurement

In Module 2, we will use length, mass, and capacity in the metric system to convert between units using place value knowledge.
We will explore the patterns in the place value system through metric unit conversions, and will use mixed unit conversions to prepare for fraction and decimal operations to come.

Learning real-life representations of metric units is an important part of internalizing and understanding metric conversions.

Mass

kg	g
1	1,000
6	
	8,000
15	
	24,000
550	

A typical fill-in-the-blank conversion table in Module 2

What Came Before this Module:
Students deepened their understanding of the patterns in the place value system by working with numbers up to the millions.

What Comes After this Module:
In Module 3, we will start with applying multiplication and division to contexts such as area and perimeter to set the stage for multiplication and division of multi-digit whole numbers.

Terms, Phrases, and Strategies in this Module:

Kilometer - km, a unit of measure for length

Mass - the measure of the amount of matter in an object

Milliliter - mL, a unit of measure for liquid volume

Mixed units - e.g., 3 m 43 cm

Capacity - the maximum amount that something can contain

Convert - to express a measurement in a different unit

Kilogram - (kg), gram (g) units of measure for mass

Length - the measurement of something from end to end

Liter - (L) unit of measure for liquid volume

**Meter** - (m), centimeter (cm) units of measure for length

Weight - the measurement of how heavy something is

+ How you can help at home:

- If you have metric measurement tools at home, encourage your student to measure objects around the house

- Continue to talk about place value patterns with your student, e.g. how many 10s in 100? How many 100s in 1000?

- Review the vocabulary words in this unit, especially the new metric measurement words

Key Common Core Standards:

- *Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit*

  o Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit

  o Use the four operations to solve word problems involving distances, liquid volumes, and masses of objects. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale

Eureka Math, A Story of Units
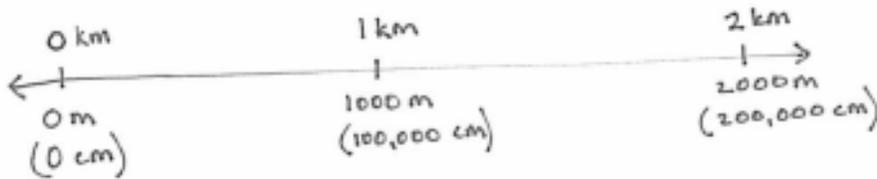
(Above) A number line from Module 2 showing multiple metric conversions
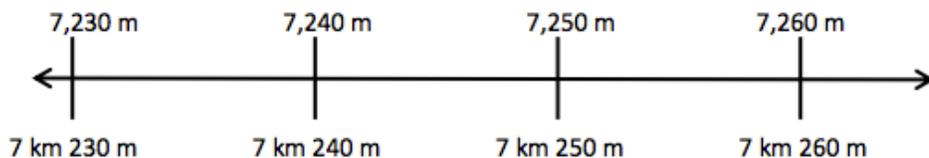
(Above) A number line from Module 2 showing both single unit and mixed unit numbers

Spotlight on Math Models:

Number Lines

You will often see this mathematical representation in A Story of Units.

A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

The number line is a powerful, flexible model that students can use in many ways. In this particular module, students use the number line to mark off regular intervals for the metric units they are working with, and often to practice labeling each mark with various unit conversions (see above).

As students move through the grades, number lines can be used to examine the relationships between numbers in ever more detailed ways, including decimals, fractions, and eventually positive and negative numbers. See how many number lines you and your student can spot around you at home!

Sample Problem from Module 2:

The potatoes Beth bought weighed 3 kilograms 420 grams. Her onions weighed 1,050 grams less than the potatoes.

How much did the potatoes and onions weigh together?

(Sample taken from Module 2, Lesson 5)

COMMON CORE™ *consider the source*