Grade 4, Module 2: Unit Conversions and Problem Solving with Metric Measurement

What is this module about? In Module 2, we 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.

What came before this module? Students deepened their understanding of the patterns in the place value system by working with numbers up to one million.

What comes after this module? In Module 3, students 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.

How can you help at home?

- If you have metric measurement tool at home, encourage your student to measure objects around the house.
- Continue to talk about place value patterns (e.g., how many 10s in 100, etc.).
- Review the vocabulary words in this unit, especially the new metric measurement words.

Learning real-life representations of metric units is in 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.

Key Words and Ideas 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
- **Kilogram (kg), gram (g)**: units of measure for ass
- **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

Key Standards in this Module

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Know relative sizes of measurement units within one system of units

Number Lines

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. Typically number lines show one set of units, such as ones (1, 2, 3, 4…13, 14, 15) but number lines can list two different sets of units showing equivalencies to aid in converting. When students label both sets of units, it helps reinforce the equivalencies and conversion rates between units (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 your home!
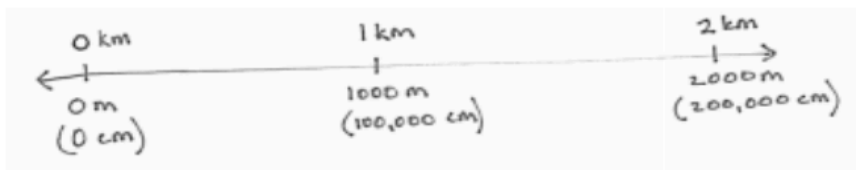
(Above) A number line from Module 2 showing multiple metric conversions
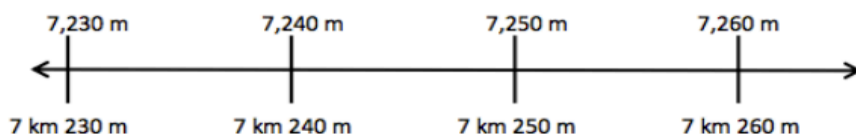
(Above) A number line from Module 2 showing both single unit and mixed unit numbers

Sample problem from Module 2 (Lesson 5):

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?

Adapted from Eureka Math Tips for Parents, Prepared by Erin Schweng, Math Coach