MA.3.M.1.1

Overarching Standard: MA.3.M.1 Measure attributes of objects and solve problems involving measurement.

Benchmark of Focus

MA.3.M.1.1: Select and use appropriate tools to measure the length of an object, the volume of liquid within a beaker and temperature.

Benchmark Clarifications:

Clarification 1: Instruction focuses on identifying measurement on a linear scale, making the connection
to the number line.

Clarification 2: When measuring the length, limited to the nearest centimeter and half or quarter inch.

Clarification 3: When measuring the temperature, limited to the nearest degree.

Clarification 4: When measuring the volume of liquid, limited to nearest milliliter and half or quarter cup.

Related Benchmark/Horizontal Alignment

- MA.3.FR.1.1/1.2
- MA.3.FR.2.1/2.2
- MA.3.GR.1.2
- MA.3.GR.2.3/2.4

Vertical Alignment

Previous Benchmarks	Next Benchmarks
MA.2.M.1.1/1.2	MA.4.M.1.1

Purpose and Instructional Strategies

The purpose of this benchmark is for students to choose appropriate tools to measure length, liquid volume, and temperature. In Grade 3, students continue to build their understanding of measuring lengths from Grades 1 and 2. In Grade 3, they also measure liquid volume and temperature.

- Instruction should connect students' understandings about number lines and rulers to tools that measure liquid volume and temperature. This will help students make sense of measuring units (including half and quarter) with different tools (MTR.1.1, MTR.2.1).
- To make instruction meaningful for students, this benchmark should be taught with MA.3.M.1.2 so students can choose appropriate tools when given problems in real-world contexts.
- Instruction should model and allow students to interact with hands-on activities to choose tools and measure appropriately.

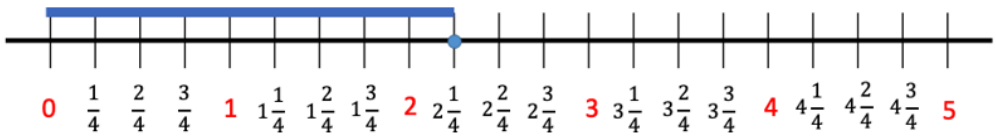
Common Misconceptions or Errors

- Students who struggle to identify benchmarks on number lines can also struggle to measure units of length, liquid volume, and temperature. To assist students, teachers should allow students to measure often and provide feedback. Students can also complete error and reasoning analysis activities to identify this common measurement difficulty.

Strategies to Support Tiered Instruction

- Instruction includes opportunities to measure often and provide feedback. Use error and reasoning analysis activities to address common measurement difficulties.
- Instruction includes opportunities to find the locations of points on number lines. Number lines should be represented vertically and horizontally. Instruction includes whole number values and fractions, including fractions greater than one.
    - For example, number lines should be included with benchmarks instead of every number in the sequence included. The blue line below extends from the 0 mark on the number line to the first hashmark beyond 2. The dot plotted on the number line identifies the end of the blue line. Since each whole number interval is partitioned into four equal parts, the first hashmark beyond 2 is represented as $2\frac{1}{4}$.

    - For example, number lines can also have all numbers included to represent the values between the benchmarks.



Questions to ask students:

Ask students to identify the appropriate tool to measure length to the nearest centimeter, half or quarter inch. Then have that student measure an item such as a glue stick.

- *Sample answer that indicates understanding:* a ruler, then the students measure correctly with that ruler.

Ask students to compare a thermometer to a number line.

- *Sample answer that indicates understanding:* student explains that a thermometer is a vertical number line starting at zero and increasing or decreasing (many thermometers also show negative numbers, however students are not specifically taught negative numbers in 3rd grade).
- *Sample answer that indicates an incomplete understanding or a misconception:* Student is not able to relate the thermometer to a number line.

Ask students to measure three fourths of a cup of water using measuring cups.

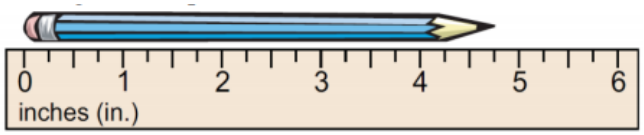
- *Sample answer that indicates understanding:* student chooses the one fourth cup measuring cups and correctly uses three full one fourth measuring cups.

- *Sample answer that indicates an incomplete understanding or a misconception:* Student does not recognize that they need one fourth size cups or does not measure out three full one fourth size cups.

Instructional Tasks

Instructional Task 1

Jonah measures the length of his pencil.



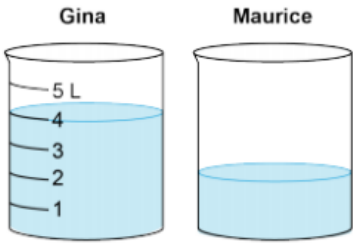
Part A. What is the length of his pencil, in inches?

Part B. Why is a ruler an appropriate tool for Jonah to measure the pencil's length?

Instructional Items

Instructional Item 1

Gina and Maurice have same-sized containers filled with different amounts of water, as shown. Gina's container has 4 liters (L) of water. About how much water, in liters (L), does Maurice's container have?



Achievement Level Descriptors

Benchmark	Context	Assessment Limits
MA.3.M.1.1 Select and use appropriate tools to measure the length of an object, the volume of liquid within a beaker and temperature. Clarification 1: Instruction focuses on identifying measurement on a linear scale, making the connection to the number line. Clarification 2: When measuring the length, limited to the nearest centimeter and half or quarter inch. Clarification 3: When measuring the temperature, limited to the nearest degree. Clarification 4: When measuring the volume of liquid, limited to nearest milliliter and half or quarter cup.	Both	Temperatures will be measured in positive, whole number degrees Celsius or Fahrenheit.

ALD 2	ALD 3	ALD 4	ALD 5
Selects appropriate tools to measure the length of an object to the nearest half inch, the volume of liquid, and temperature.	selects and uses appropriate tools to measure the length of an object to the nearest quarter inch and the volume of liquid to the nearest half and quarter cup.	selects and uses appropriate tools to measure the length of an object, the volume of liquid within a beaker, and temperature.	identifies an error and selects and uses appropriate tools to measure the length of an object, the volume of liquid within a beaker, and temperature.

Additional Resources:

CPALMS Resources

Resources/Tasks to Support Your Child at Home:

Have your child measure various objects in your home to the nearest inch, half, and quarter inch. Challenge your child to find lengths of objects when starting at a value other than zero, to show that the length of the object stays the same.

When you are cooking, invite your child to help you measure liquids in a measuring cup to the nearest whole, half, or fourth of a cup. Remind them to set the measuring cup on a flat surface (like a countertop) to get the most accurate measurement.

Khan Academy: Understanding Volume (liters)

LearnZillion Video: Measure Using a Ruler

LearnZillion Video: Compare a Measurement in Inches to One in Centimeters

LearnZillion Video: Measuring Objects Using Whole, Half, and Quarter Inches

LearnZillion Video: Find the Volume of Liquids (Liters and Mililiters)