MA.2.M.1.3

Overarching Standard: ***MA.2.M.1 Measure the length of objects and solve problems involving length.***

Benchmark of Focus

MA.2.M.1.3: Solve one- and two-step real-world measurement problems involving addition and subtraction of lengths given in the same units.

Example:

Jeff and Larry are making a rope swing. Jeff has a rope that is 48 inches long. Larry's rope is 9 inches shorter than Jeff's. How much rope do they have together to make the rope swing?

Benchmark Clarifications

Clarification 1: Addition and subtraction problems are limited to sums within 100 and related differences.

Related Benchmark/Horizontal Alignment

MA.2.NSO.2.3
MA.2.AR.1.1

Vertical Alignment

Previous Benchmarks	**Next Benchmarks**
MA.1.AR.1.2 MA.1.M.1.2	MA.3.M.1.2

Purpose and Instructional Strategies

The purpose of this benchmark is to incorporate the concept of measurement when solving real- world problems.

- Instruction includes the use of inches, feet, yards, centimeters or meters as appropriate measurement units.
- Instruction includes the use of drawing, manipulatives and number lines to solve problems.

Common Misconceptions or Errors

- Students may regroup numbers incorrectly or unnecessarily when subtracting.
- Students may incorrectly decide to add or when to subtract based on the context of the problem.

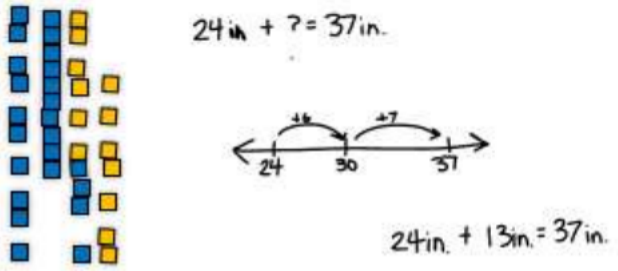
Strategies to Support Tiered Instruction

- Instruction includes modeling the problem with materials that represent the single length units being considered in the problem, such as 1-inch square tiles or 1-inch grid paper, and 1-cm. unit cubes or 1-cm. grid paper and requiring students to specify the unit of measure after they state a number.
    - For example, students can act out what is happening in the word problem with the materials to make connections between measurement situations that involve adding or subtracting.
        - Teacher encourages students to utilize strategies that make the most sense for the numbers in the problem, such as "think addition or adding up."
        - Students are guided to connect the idea of length units and numbers represented on a number line.

- Questions or statements that can help elicit student thinking about measurement problems:
  - "What unit of measurement do you notice in the problem?"
  - "Let's pick a unit of measure that best fits this problem."
  - "How can we show how the length changed?"
  - "What operation best represents what is happening to the units?"

Sample Problem

On Tuesday, the tomato plant was 24 inches tall. After 2 weeks, the tomato plant was 37 inches tall. How many inches did the tomato plant grow in 2 weeks?



Sample Student Response

"I represented 24 inches with the blue tiles. Then I added yellow tiles until I got to 37 inches. I added 6 tiles to get to 30 and 7 more to get to 37. That means there are 13 spaces between 24 and 37, so the plant grew 13 inches."

Questions to ask students:

- Ask: Jaesir jumped 38 inches. Leilani jumped 29 inches. How many inches further did Jaesir jump that Leilani? Write an equation with an unknown to solve the problem.
  - Sample answer that would indicate understanding: The student may use tools or a picture to represent the two jumps and determine that Jaesir jumped 9 inches further.29 + ? = 38 OR 38 – 29 = ?
  - Sample answer that indicates an incomplete understanding or a misconception: The student may use tools or a picture to model the story, but say that Jaesir jumped 61 inches further then Leilani.38 + 29 = ?
- Ask: Students are using some string to divide the classroom into two areas. They have a piece that is 26 inches, a piece that is 17 inches, and a piece that is 34 inches. How much string do they have? Write an equation with an unknown to solve the problem.
  - Sample answer that would indicate understanding: The student may use tools or a picture to represent the pieces of string, and say they had 77 inches of string.26 + 17 + 34 = ?
  - Sample answer that indicates an incomplete understanding or a misconception: The student may use tools or a picture to model the pieces of

string, but not give the correct total. They may only add two numbers.26 + 17 = ? OR 17 + 34 = ?

Instructional Tasks
Instructional Task 1 (MTR.7.1)

Kim and Erin measured the length of their left legs from the knee down. Kim's leg length measured 48 centimeters. Erin's leg length measured 15 centimeters more than Kim's. What is the total length of both Erin's and Kim's left legs?

Instructional Items
Instructional Item 1
Ester had 83 inches of ribbon. She used 25 inches to wrap a gift for her brother and 37 inches to wrap a gift for her sister. How much ribbon does she have left over?

Instructional Item 2
In a 100-meter swim, Katie has swum 47 meters. How many more meters does she have to swim?

Additional Resources:
CPALMS Resources

Video:

https://learnzillion.com/lesson_plans/4629-solve-length-word-problems-using-a-number-line/

Resources/Tasks to Support Your Child at Home:

- Khan Academy Tutorial Video: Length Word Problems
- Khan Academy Practice: Length Word Problems
- Khan Academy Practice: Add and Subtract on a Number Line