# Second Grade Math Parent Letter - Module 2

In our second module, we will focus on deepening students' conceptual understanding of measurement and on relating addition and subtraction to length.

In the first part of this module, students will use centimeter cubes, placing them individually and in groups end-to-end along various objects to measure the length of those objects. This helps students create a mental benchmark for the centimeter. And, students discover that to get an accurate measurement, there must not be any gaps or overlaps between consecutive length units. It also helps them realize that the distance between 0 and 1 on the ruler indicates the amount of space already covered. They will work on problems such as what is pictured to the right.

Use centimeter cubes to find the length of each object.

1. The picture of the fork and spoon is about _____ centimeters long.
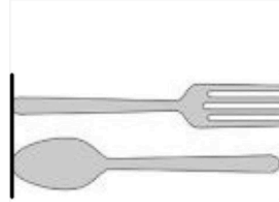
Students then begin measuring using centimeter rulers and meter sticks. They learn to see that a length unit is not a cube, or a portion of a ruler (which has width), but is a segment of a line. Then, students learn to estimate length using knowledge of previously measured objects and benchmarks. This enables students to internalize the mental rulers of a centimeter or meter.

As the module continues, students measure and compare to determine how much longer one object is than another. They also measure objects twice using different length units, both standard (e.g., a centimeter) and nonstandard (e.g., a paper clip), thereby developing their understanding of how the total measurement relates to the size of the individual length units (as in the problem below).

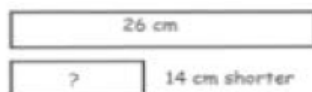Use a centimeter ruler and paper clips to measure and compare lengths.

1. _____ Line Z

Line Z is _____ paper clips. Line Z is _____ cm long.

Line Z doubled would measure _____ paper clips or _____ cm.

By the end of the module, students will be able to use addition and subtraction with measurement when solving word problems. They apply their conceptual understanding to choose appropriate tools and strategies, such as the ruler as a number line, benchmarks for estimation, and tape diagrams for comparison, to solve the word problems. The problems progress from concrete (i.e., measuring objects and using the ruler as a number line to add and subtract) to abstract (i.e., representing lengths with tape diagrams to solve start unknown and two-step problems, as seen below).

Maura's ribbon is 26 cm long. Colleen's ribbon is 14 cm shorter than Maura's ribbon. What is the total length of both the ribbons?

38 cm

Step 1: Find the length of Colleen's ribbon.

| 26 cm |
| ? | 14 cm shorter |

$26 - 14 = 12$

$12 + 26 = 38$