



## Unit Plan

## 2.3 Measuring Length

Chester / Littleville Elementary / Grade 2 / Mathematics

[↗](#) Week 11 - Week 14 | 4 Curriculum Developers | Last Updated: Dec 7, 2023 by Team, Atlas[Style Guide](#)

## What is the purpose of the unit? What are the major take-aways?

## Standards

## MA: Mathematics (2017)

## MA: Grade 2

## Operations &amp; Algebraic Thinking

2.OA Represent and solve problems involving addition and subtraction.

- 1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

2.OA Add and subtract within 20.

- 2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two single-digit numbers and related differences. [Show Details](#)

## Number &amp; Operations in Base Ten

2.NBT Understand place value.

- 2. Count within 1000; skip-count by 5s, 10s, and 100s. Identify patterns in skip counting starting at any number.

2.NBT Use place value understanding and properties of operations to add and subtract.

- 5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

## Measurement &amp; Data

2.MD Measure and estimate lengths in standard units.

- 4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
- 1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- 2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- 3. Estimate lengths using units of inches, feet, centimeters, and meters.

2.MD Relate addition and subtraction to length.

- 5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

2.MD Represent and interpret data.

- 9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Organize and record data on a line plot (dot plot) where the horizontal scale is marked off in whole-number units.

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## Enduring Understandings

Students measure and estimate lengths in standard units and solve measurement story problems within 100.

## Essential Questions

## Content

This unit introduces students to standard units of lengths in the metric and customary systems.

In grade 1, students expressed the lengths of objects in terms of a whole number of copies of a shorter object laid without gaps or overlaps. The length of the shorter object serves as the unit of measurement.

Here, students learn about standard units of length: centimeters, meter, inches, and feet. They examine how different measuring tools represent length units, learn how to use the tools, and gain experience in measuring and estimating the lengths of objects. Along the way, students notice that the length of the same object can be described with different measurements and relate this to differences in the size of the unit used to measure.

Throughout the unit, students solve one- and two-step story problems involving addition and subtraction of lengths. To make sense of and solve these problems, they use previously learned strategies for adding and subtracting within 100, including strategies based on place value.

To close the unit, students learn that line plots can be used to represent numerical data. They create and interpret line plots that show measurement data and use them to answer questions about the data.

Students relate the structure of a line plot to the tools they used to measure lengths. This prepares students for the work in the next unit, where they interpret numbers on the number line as lengths from 0. The number line is an essential representation that will be used in future grades and throughout students' mathematical experiences.

Throughout the unit

Throughout the unit, the warm-up activities help students strengthen their conceptual understanding of numbers and develop fluency. Building from the place value understanding developed in the prior unit, students have an opportunity to add and subtract by adding a ten, counting on, and counting back. They can also use strategies that involve adding and subtracting by place value and decomposing a ten.

Here is a sampling of Number Talk warm-ups in the unit.

Lesson 6	Lesson 7	Lesson 13	Lesson 15	
$5+515+515+1515+25$	$37-2037-2137-1737-16$	$58+1058+1258+1367+14$	$47-2047-2436-1036-15$	1

## Skills

### Section A Goals

- Measure length in centimeters and meters.
- Represent and solve one-step story problems within 100.

### Section B Goals

- Measure length in feet and inches.
- Represent and solve one- and two-step story problems within 100.

### Section C Goals

- Represent numerical data on a line plot.

How will you gauge student learning?

## Assessments

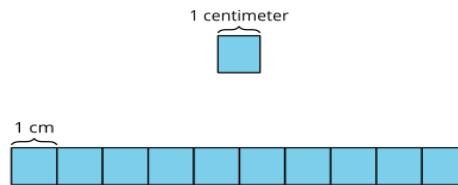
## How will students learn?

### Learning Activities

#### Section A:

This section introduces two metric units: centimeter and meter. Students use base-ten blocks, which have lengths of 1 centimeter and 10 centimeters, to measure objects in the classroom and to create their own centimeter ruler. Students iterate the 1-centimeter unit just as they had done with non-standard units in grade 1.

Students relate the side length of a centimeter cube to the distance between tick marks on their ruler. They see that each tick mark notes the distance in centimeters from the 0 mark, and that the length units accumulate as they move along the ruler and away from 0.



Students then compare the ruler they created to a standard centimeter ruler. They learn the importance of placing the end of an object at 0 and discuss how the numbers on the ruler represent lengths from 0.

Students also learn about a longer unit in the metric system, meter, and use it to estimate lengths. They have opportunities to choose measurement tools and to do so strategically (MP5), by considering the lengths of objects being measured. Students also measure the length of longer objects in both centimeters and meters, which prompts them to relate the size of the unit to the measurement.

To close the section, students apply their knowledge of measurement to compare the lengths of objects and solve Compare story problems involving lengths within 100, measured in metric units.

#### Section B:

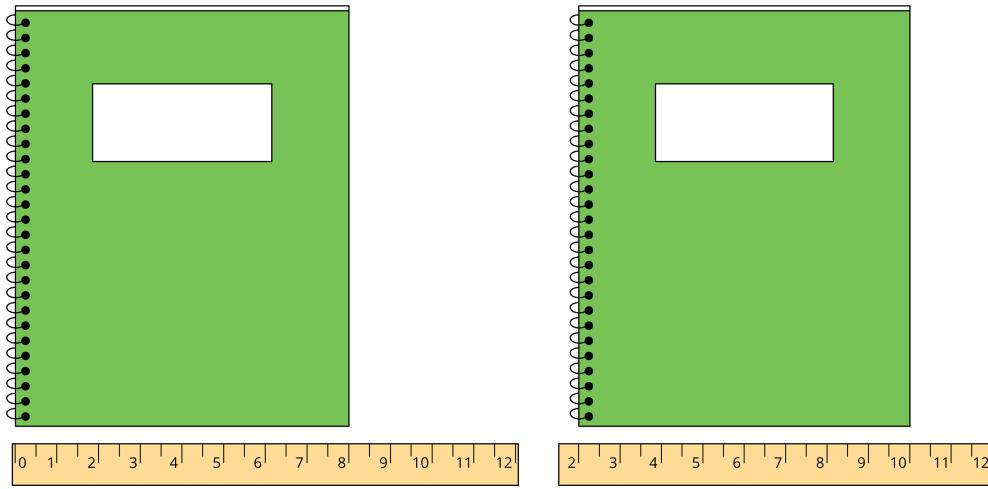
In this section, students apply measurement concepts and skills from earlier to measure and estimate lengths in two customary units: inches and feet.

As in the previous section, students make choices about the tool to use based on the length of the object being measured (MP5) and measure the length of the same object in both feet and inches. They begin to generalize that when they use a longer length unit, fewer of those units are needed to span the full length of the object. This understanding is a foundation for their work with fractions in grade 3 and beyond.

To solidify their understanding of measurement concepts, students also solve one- and two-step story problems involving addition and subtraction of lengths within 100, expressed in customary units. Some problems involve measurements using a “torn tape” where the 0 cannot be used as a starting point.

*Jada and Han used an inch ruler to measure the short side of a notebook.*

*Han says it is 8 inches. Jada says it is 8 inches.*

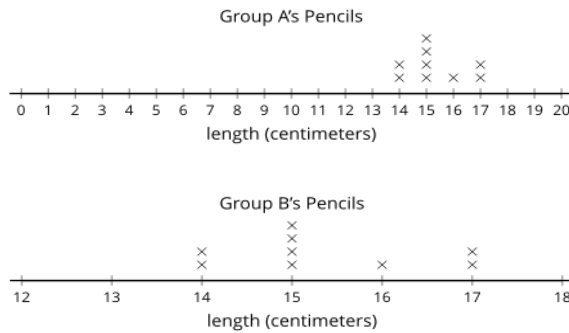


*How did Han and Jada get the same measurement?*

**Section C:**

In this section, students apply their understanding of measurement and data to create and interpret line plots. Students learn that the horizontal scale is marked off in whole-number length units, the same ones used to collect the data.

They recognize that the numbers on the number line represent lengths and each “x” above a number represents an object of that length. They label line plots with titles and the measurement unit used. Throughout the section, students connect the features of the line plot to the tools they use to measure.



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


Resources

Teacher Notes and Reflections

This is usually a very successful Unit, as it is a lot of hands on and very concrete.

Great intro read aloud , How Big is a Foot?

or <https://www.youtube.com/watch?v=3rBPwkHUFTY>

 Math Unit Three Adjustments/Notes  

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