

# MA.1.M.1.1

**Overarching Standard: MA.1.M.1** *Compare and measure the length of objects.*

## **Benchmark of Focus**

MA.1.M.1.1: Estimate the length of an object to the nearest inch. Measure the length of an object to the nearest inch or centimeter.

## Benchmark Clarifications

*Clarification 1:* Instruction emphasizes measuring from the zero point of the ruler. The markings on the ruler indicate the unit of length by marking equal distances with no gaps or overlaps.

*Clarification 2:* When estimating length, the expectation is to give a reasonable number of inches for the length of a given object.

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## **Related Benchmark/Horizontal Alignment**

- MA.1.NSO.1.1/1.2/1.4
- MA.1.NSO.2.2/2.4

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## **Vertical Alignment**

### **Previous Benchmarks**

- MA.K.M.1.1
- MA.K.M.1.2
- MA.K.M.1.3

### **Next Benchmarks**

MA.2.M.1.1

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## **Purpose and Instructional Strategies**

The purpose of this benchmark is for students to estimate length and formally and accurately measure the length of objects using a ruler. In Kindergarten, students used non-standard units such as paper clips to express the length of objects up to 20 units long. (MTR.6.1)

- Instruction includes getting students to understand that estimating is about making a reasonable guess. It is not about getting a “right” answer but thinking logically about estimating lengths when thinking about centimeters or inches. (MTR.6.1)
- Instruction includes noting that there is a larger number of centimeters for an object than when that object is measured by inches because an inch unit is longer than a centimeter unit. (MTR.5.1)
- Estimation of measurement focuses on inches as students may be more familiar with U.S. customary units, but instruction may also include centimeters. (MTR.2.1)

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## **Common Misconceptions or Errors**

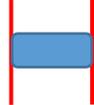
- Some students may not line the zero marking on the ruler to one of the ends of the item being measured. In these cases, students need to explore why lining up at the

zero point gives the most accurate measurement and additional practice starting at 0 when measuring.

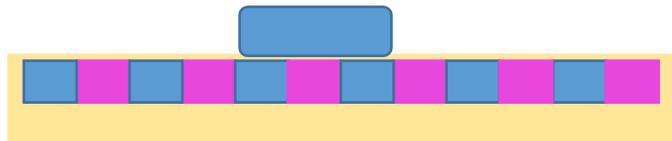
- Students may measure with the incorrect side of the ruler (i.e., using the centimeter side when needing to measure inches or using inches when needing to measure in centimeters).

### Strategies to Support Tiered Instruction

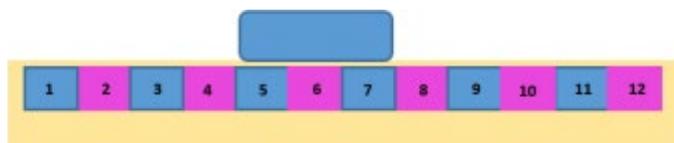
- Instruction includes modeling how to measure an object and guiding students to notice that the object's measurement does not change if the object is placed further down the ruler.
  - Modeling includes identifying the end points of an object and lining the end point with the zero mark of the ruler. Note that often the "zero" mark is not labeled and may be the end of the ruler or on the very first tick mark depending on the ruler. State the correct measurement and then as the student watches, move the object down the ruler and ask, "Does the object's measurement change if its end point lines up with a different number?"

		
<p><i>"Where an object starts and stops are called 'end points.'"</i></p>	<p><i>"We will line up an end point with the first tick mark on the ruler."</i></p>	<p><i>"The block is 3 inches long."</i></p>
	<p><i>"If we move the block so the end point lines up with 1, is it still 3 inches? How do you know?"</i></p>	

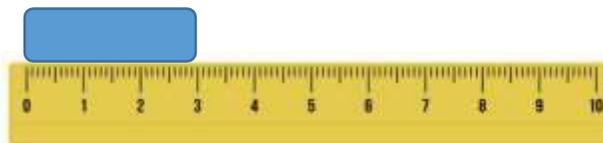
- Instruction includes providing opportunities to make and use rulers so that students can construct their understanding of how lengths of each unit align to tick marks and numbers on a ruler.
  - For example, students make and use their own ruler in 3 phases:
    1. Using paper square tiles glued to a strip of cardstock, students count the units that span an object to measure.



2. Labeling each square tile with a number in the center of the unit, students use numbers to count the units of measure.



- Students draw tick marks at the end of each unit with a number starting at zero as shown, then eliminate the square tiles. Students use numbers to count the units.



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### Questions to ask students:

- How do you know your object measures about 5 inches long?**
  - Sample answer that indicates understanding: *"Because the width of my thumb is about one inch wide and it took 5 of my thumbs to measure the length of the marker."*
- Would it take more centimeters to measure your pencil or inches?**
  - Sample answer that indicates understanding: *"It will take more centimeters because they are smaller than inches."*
- How does a ruler relate to a number line?**
  - Sample answer that indicates understanding: *"They both have equal units. The location where the object ends is the length of the object, just like a point on a number line."*

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### Instructional Tasks

#### *Instructional Task 1* (MTR.6.1)

Terri has a tiger plush toy that is 12 inches long. Her sister Kimberley has a smaller version of the same tiger plush toy. What would be a reasonable estimate for Kimberley's tiger? How many inches could Kimberley's tiger be if the difference between the two tigers is 4 inches?

#### *Instructional Task 2*

Theodore has a toy car that is 5 centimeters long. His best friend says that he has a toy truck that is 10 centimeters longer than Theodore's toy car. If his best friend is correct, how long is the toy truck?

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### Instructional Items

#### *Instructional Item 1*

Provide students with several items to measure, such as a bouncy ball, paper clip, toy car or pencil. Use a table, like the one below to record answers from each part.

Item	Estimate (inches)	Actual (inches or centimeters)

Part A. Estimate the length for each item in inches.

Part B. Use a ruler to measure the length of the item by inches or centimeters. Record the actual measurement in the space provided.

Part C. Repeat until all items have been measured.

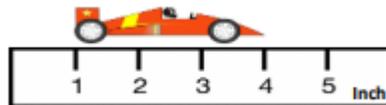
*Instructional Item 2*

If a reasonable estimate for the length of the broken eraser below is 1 inch, what would be a reasonable estimate in inches for the whole eraser shown?



*Instructional Item 3*

Kyle was measuring the length of his toy car. He stated his toy car was 4 centimeters long. Did Kyle measure the length of his toy car correctly? How do you know?



**Additional Resources:**

[CPALMS Resources](#)

Video: [How to Measure to the Whole Inch](#)

Video: [How to Measure Centimeters](#)

**Resources/Tasks to Support Your Child at Home:**

Using a ruler, have your child estimate the length of various objects in your home. Then have them actually measure the length in inches. Have them compare the estimate to the actual length in inches.

[Strolling with my Gnomies Game](#)