Lesson 4.9

Personal References for Metric Length

Study Link 4.8 Follow-Up

WHOLE-CLASS ACTIVITY

Name Date Time

STUDY LINK 4•8

Measuring in Centimeters

Measure each line segment to the nearest centimeter. Record the measurement in centimeters and meters.

SRB 128 129

Example: _____

a. About 5 centimeters **b.** About 0.05 meter

1. _____

a. About _____ centimeters **b.** About _____ meter

2. _____

a. About _____ centimeters **b.** About _____ meter

3. _____

a. About _____ centimeters **b.** About _____ meter

4. _____

a. About _____ centimeters **b.** About _____ meter

5. _____

a. About _____ centimeters **b.** About _____ meter

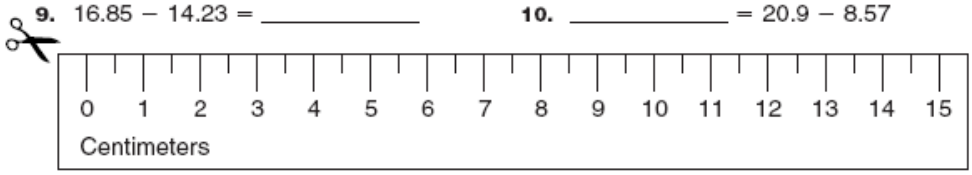
6. _____

a. About _____ centimeters **b.** About _____ meter

Practice

7. _____ = 10.06 + 10.04 **8.** 38.93 + 92.4 = _____

9. 16.85 − 14.23 = _____ **10.** _____ = 20.9 − 8.57



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Grade MB 4.8/p. 97

WHOLE-CLASS ACTIVITY

19 points

Date Time

LESSON 4•8

Math Boxes

1. Solve mentally or with a paper-and-pencil algorithm.

a. 3,309 + 721

b. 2,700 − 1,299

SRB 10–15

2. Complete.

a. 1 cm = _____ mm

b. 5 cm = _____ mm

c. _____ cm = 30 mm

d. 100 cm = _____ mm

e. 200 cm = _____ mm

SRB 129

3. Tell whether each number sentence is true or false.

a. 8.77 − 0.08 = 8.50 _____

b. 35.7 + 22.1 = 57.87 _____

c. 90.2 − 44.9 < 45 _____

d. 4.66 + 2.13 > 6 _____

SRB 36, 37, 148

4. Trace at least two regular polygons from your Geometry Template.

SRB 97

5. Without measuring, estimate the length of your foot from heel to toe. Then measure the length of your foot.

a. Estimate:

About _____ cm

b. Measurement:

About _____ cm

SRB 128, 130

6. Complete.

a. Is 47 closer to 40 or 50?

_____

b. Name the number halfway between 30 and 40.

_____

SRB 182, 183

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Mental Math

Practice the Multiplication/Division Fact Triangles in the "Try Again" pile.

Math Message

WHOLE-CLASS DISCUSSION

Without measuring, try to find something in the classroom whose height is about 60 centimeters. Be ready to explain how you made your choice.

Math Message Follow-Up

Introducing Personal Measurement References

Student Reference Book p. 130

WHOLE-CLASS ACTIVITY

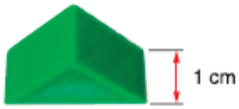
Personal References for Units of Length

Sometimes it is hard to remember just how long a centimeter or a yard is, or how a kilometer and a mile compare. You may not have a ruler, yardstick, or tape measure handy. When this happens, you can estimate lengths by using the lengths of common objects and distances that you know.

Some examples of personal references for length are given below. A good personal reference is something that you often see or use, so you don't forget it. A good personal reference also does not change size. For example, a wooden pencil is not a good personal reference for length, because it gets shorter as it is sharpened.

The diameter of a quarter is about 1 in.

The thickness of pattern blocks is about 1 cm.



Personal References for Metric Units of Length	
About 1 millimeter	**About 1 centimeter**
Thickness of a dime	Thickness of a crayon
Thickness of a thumbtack point	Width of the head of a thumbtack
Thickness of a paper match (the thin edge)	Thickness of a pattern block
About 1 meter	**About 1 kilometer**
One big step (for an adult)	1,000 big steps (for an adult)
Width of a front door	Length of 10 football fields (including the end zones)
Tip of the nose to tip of the thumb, with arm extended (for an adult)	

Personal References for U.S. Customary Units of Length	
About 1 inch	**About 1 foot**
Length of a paper clip	A man's shoe length
Width (diameter) of a quarter	Length of a license plate
Width of a man's thumb	Length of this book
About 1 yard	**About 1 mile**
One big step (for an adult)	2,000 average-size steps (for an adult)
Width of a front door	Length of 15 football fields (including the end zones)
Tip of the nose to tip of the thumb, with arm extended (for an adult)	

Note

The personal references for 1 meter can also be used for 1 yard. 1 yard equals 36 inches; 1 meter is about 39.37 inches. One meter is often called a "fat yard," which means one yard plus one hand width.

Did You Know?

Recently, the tallest man in the world was measured at 7 ft 8.9 in. (2.359 m) in Tunisia.

Why might personal measurement references be useful?

Finding Personal References for Metric Units of Length

Journal p. 98

PARTNER ACTIVITY

Date Time

LESSON 4•9

Personal References for Units of Length

Personal References for Metric Units of Length

Use a ruler, meterstick, or tape measure to find common objects that have lengths of 1 centimeter, 1 decimeter, and 1 meter. The lengths do not have to be exact, but they should be close. Ask a friend to look for references with you. You can find more than one reference for each unit. Record the references in the table below.

Unit of Measure	Personal References
1 centimeter (cm)	
1 decimeter (dm), or 10 centimeters	
1 meter (m)	

Estimating Lengths with Personal References

Put away your rulers and tape measures.

Use your personal references to estimate the lengths of the following things:

- length and width of journal
- diameter of a penny or quarter
- length and width of a calculator

Practicing Estimating Lengths

Journal p. 99

PARTNER ACTIVITY

Date Time

LESSON 4•9

Measurement Collection for Metric Units of Length

Use your personal references to estimate the length of an object or a distance in centimeters, decimeters, or meters. Describe the object or distance and record your estimate in the table below. Then measure the object or distance and record the actual measurement in the table.

SRB 130

Object or Distance	Estimated Length	Actual Length

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Playing Number Top-It (Decimals)

Student Reference Book p. 256; Math Masters pp. 490 & 506

PARTNER ACTIVITY

Games

Number Top-It (Decimals)

Materials ☐ number cards 0–9 (4 of each)
☐ 1 Number Top-It Mat (Decimals) (*Math Masters*, pp. 490 or 491)

Players 2 to 5

Skill Place value for decimals

Object of the game To make the largest 2-digit (or 3-digit) decimal numbers.

Directions

1. This game is played using the same directions as those for *Number Top-It* (7-Digit Numbers). The only difference is that players use a place-value mat for decimals. Steps 2 and 3 give directions for a game played on a place-value mat for 2-place decimals.
2. In each round, players take turns turning over the top card from the deck and placing it on any one of their empty boxes. Each player takes 2 turns, and places 2 cards on his or her row of the game mat.
3. Players play 5 rounds for a game. Shuffle the deck between each round. The player with the *smallest* total number of points at the end of the 5 rounds wins the game.

Example Kent and Kari played *Number Top-It* using the Place-Value Mat (2-Place Decimals). Here is the result.

Number Top-It Mat (2-Place Decimals)

	Ones	.	Tenths	Hundredths
Kent	0	.	3	5
Kari	0	.	6	4

Kari's number is larger than Kent's number. So Kari scores 1 point for this round, and Kent scores 2 points.

Variation For a harder game, use a place-value mat that has empty boxes in the tenths, hundredths, and thousandths places. Each player takes 3 turns, and places 3 cards on his or her row of the game mat.

Name Date Time

Number Top-It Mat (2-Place Decimals)

	Ones	.	Tenths	Hundredths
	0	.		
	0	.		

Name Date Time

Top-It Record Sheet

SRB 263, 264

Play a round of *Top-It*. Record your number sentence and your opponent's number sentence. Write >, <, or = to compare the number sentences.

Round	Player 1	>, <, =	Player 2
Sample	4 + 6 = 10	<	8 + 3 = 11
1			
2			
3			
4			
5			