

# Sample Grade 1 Unit—Length

# Unit Introduction

## In this unit, students:

- Explore concepts of length.
- Compare and order items of different lengths.
- Measure with nonstandard units, inches, and centimeters.
- Estimate length.
- Use rulers marked in inches and in centimeters.

## Assessment

A unit test in multiple-choice format is provided on page Assessment • 2.

## KWL



Use a KWL chart to activate prior knowledge and set learning goals as a class. A reproducible KWL chart is provided on page BLM • 7.

## Games for Practice and Review

Use the MeasureWorks Game Board to reinforce learning. Game rules begin on page BLM • 13.

Have students keep the KWL chart in their math folders and add to it as they work through this unit.

## Focus on Vocabulary

centimeter (p. T-12)	longer (p. T-1)	nearest inch (p. T-11)	tall (p. T-2)
estimate (p. T-8)	longest (p. T-2)	short (p. T-1)	taller (p. T-2)
inch (p. T-10)	meterstick (p. T-12)	shorter (p. T-1)	tallest (p. T-2)
long (p. T-1)	nearest centimeter (p. T-12)	shortest (p. T-3)	unit of measure (p. T-6)

When you introduce one of the vocabulary words, write it on an index card. Display the index cards on a bulletin board and review them periodically.

## Heads Up!

Students may not yet realize that size is relative. By handling and comparing objects of different lengths, students learn that a “short” object may be longer than another short item.

Be sure that students get plenty of practice measuring with hand spans, Link 'N' Learn Links, bear counters, and other manipulatives. These early experiences provide a foundation for understanding measurement in inches and centimeters.

## Book Nook

*There Was an  
Old Lady Who  
Swallowed a Fly*

by  
Pam Adams

2000: Child's Play  
International, Ltd.

This is the old favorite about an old lady who swallows animals of ever-increasing size. Have fun reading the tale and comparing animal lengths!

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## Manipulatives

*Inchworms*

*Inchworms/  
Centibugs ruler*

*Link 'N' Learn  
Links*

*Meterstick*

*PopCubes*

### Pages

### Learning Goals

Pages	Learning Goals	<i>Inchworms</i>	<i>Inchworms/ Centibugs ruler</i>	<i>Link 'N' Learn Links</i>	<i>Meterstick</i>	<i>PopCubes</i>
T-1-1	Use length vocabulary. Compare the lengths of two items.					✓
T-2-2	Compare lengths and heights of various objects.			✓		✓
T-3-3	Compare lengths of paper shoe prints.					
T-4-4	Compare lengths of various objects. Use length vocabulary.			✓		✓
T-5-5	Measure in uniform nonstandard units.			✓		
T-6-6	Measure with two different nonstandard units. Understand that units of different sizes produce different measurements.			✓		✓
T-7-7	Measure the length of a path using nonstandard units.					
T-8-8	Estimate and measure lengths with nonstandard units.	✓				
T-9-9	Estimate lengths with Link 'N' Learn Links. Measure to check estimates.			✓		
T-10-10	Measure to the nearest inch.	✓				
T-11-11	Measure to the nearest inch. Use a ruler to measure.	✓	✓			
T-12-12	Measure to the nearest centimeter.		✓		✓	
T-13-13	Estimate in centimeters. Measure in centimeters.		✓	✓		✓

# Sample Grade 1 Unit—Length

## Measure in Centimeters

Planning Your Time		
Intro & Demo	Activity	Sum It Up
10 min	15 min	5 min
		

### Objective

Measure to the nearest centimeter.

### Materials

- Meterstick
- Inchworms/Centibugs ruler
- Drinking straws
- Scissors
- Transparent tape

### Grouping

Whole class, then individuals

### Open It Up

Show students a **meterstick**. Explain that it is folded to make it easier to store. Demonstrate how to open it up to full length. Let students tell about similar measuring devices they may have seen (folding carpenter rulers, retractable measuring tapes, and so on).

**Say:** Some rulers and measuring sticks are divided into inches. Others are divided into **centimeters**.

Point out the 1-centimeter segments on the meterstick.

### Demonstrate & Discuss

Distribute Inchworms/Centibugs rulers. Point out the centimeter markings. Explain that this tool has two names: the Inchworm ruler or the Centibug ruler, depending on which side is facing up.

Explain that each bug is 1 centimeter long.

Have students show the length of 1 centimeter with their thumb and forefinger. Then have them put their hands next to the rulers to check.

Ask volunteers to use the rulers to measure classroom objects, such as pencils or books.

It is likely that some of the items will not be an even number of centimeters. Tell students they should measure to the **nearest centimeter**.

**Ask:** If the length of the object is between two different centimeter markings on the meterstick, what should you do? [Sample: Use the number of centimeters that is closer to the actual length of the object.]

### Student Activity

**Prepare ahead:** Each student will need a Centibug ruler, a drinking straw, and a pair of scissors.

Read the directions on the student page aloud to students. Guide students to measure the straw in Exercise 1 on the student page with the Centibug rulers.

Point out the fact that no straws are shown in Exercises 2 and 3. Direct students to cut their straw into two short straws (any lengths). Help students tape their straws in place.

Using the Centibug ruler, students work individually to measure and record the lengths of their straws to the nearest centimeter.

### Informal Assessment

As students work, encourage them to use math language to describe what they are doing.

**Ask:** How did you know to write 7 centimeters instead of 6 centimeters? [Sample: The straw was between 6 and 7 centimeters in length, but it was closer to 7 centimeters.] / DESCRIBE / Are centimeters longer or shorter than inches? [shorter] / COMPARE and CONTRAST /

### Sum It Up

**Say:** Today we measured the lengths of straws to the nearest centimeter with the Centibug rulers.

**Ask:** Do you think centimeters are a better unit of measure than heel-to-toe steps? Why or why not? [Elicit that centimeters are better because they are always the same length.] / COMPARE and CONTRAST /

### Science Connection

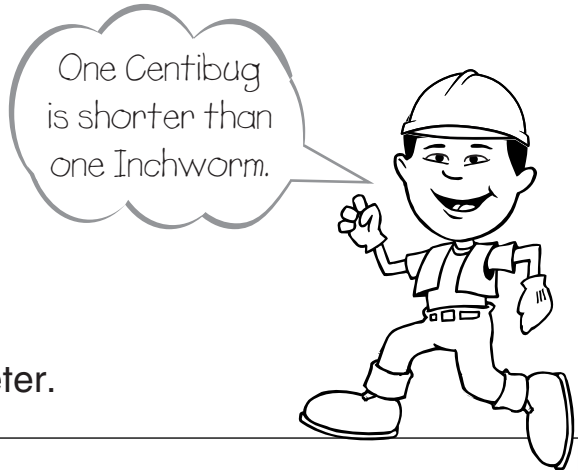
The metric system of measurement was invented by a group of scientists in France. Today it is used by scientists everywhere to measure length, weight, and temperature. Most scientists prefer the metric system over the customary system (the system that uses inches) because it is grounded in base ten and because it is used around the world.

Name \_\_\_\_\_

# Centibug Straws

## Try This

- How long is the straw in the picture?  
Record its length to the nearest centimeter.
- Cut a real straw into two short straws.  
Tape the short straws below.
- How long are your straws?  
Record their lengths to the nearest centimeter.



<b>1</b>
1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   16   17
_____ centimeters long
<b>2</b>
(Tape straw here.)
_____ centimeters long
<b>3</b>
(Tape straw here.)
_____ centimeters long