



*Literacy and Intervention*

## SAMPLE LESSON

# VOCABULARY FROM CLASSICAL ROOTS

**Strategic Vocabulary Instruction through  
Greek and Latin Roots**

Grades 4–11

RTI



## Book 5: Lesson 10

# Measuring in Math and Science

The root *metr/meter* as in **metric** means “measurement.” The root *therm* as in **thermos** means “heat.” In each of the following key words, underline the root.

Key Words			
diameter	metronome	symmetrical	thermometer
geometry	perimeter	thermal	thermostat

## Using ROOT CLUES

The roots *metr/meter* (measurement) and *therm* (heat) give you clues about meaning. When you spot one of these roots in a word, you have a key to the word’s meaning. Use the underlined root clues to help you match the following columns:

- |                            |  |
|----------------------------|--|
| 1. _____ <u>thermal</u>    | A. <u>measurement</u> of outside boundary        |
| 2. _____ <u>perimeter</u>  | B. having to do with <u>heat</u>                 |
| 3. _____ <u>thermostat</u> | C. the study of the <u>measurement</u> of shapes |
| 4. _____ <u>geometry</u>   | D. device for controlling <u>heat</u>            |

The root clues did not give you complete definitions as the following dictionary listings will. But they got you started by giving you *part* of the meaning. Sometimes that *part* helps you to figure out the word.

### **METR/METER** (from the Greek word *metron* meaning “measure”)

Familiar Words  
with Root  
**METR/METER**

meter  
metric

1. **diameter** (dī a’ mə tər) [also derived from Greek *dia* meaning “through”]

n. A line passing through the center of a circle from one side to the other.

Kylie created two semicircles by drawing the diameter through the circle.

Challenge Words  
with Root  
METR/METER

chronometer

trigonometry

biometric

2. **geometry** (jē ä' mə trē) [also derived from Greek *ge* meaning "earth"]

n. The area of mathematics that deals with lines, angles, and figures and their measurements.

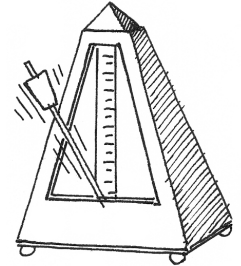
In geometry class we will learn how to measure the size of different kinds of figures.

**geometric**, adj.

3. **metronome** (mə' trə nōm)

n. A device that marks the beat for musicians.

Mr. Rogers, our band leader, set the metronome to tick the quick tempo of a march.



4. **perimeter** (pə ri' mə tər) [also derived from Greek *peri* meaning "around"]

n. The distance around a figure.

Before ordering the materials for a fence to enclose her yard, Aunt Anna measured its perimeter.

5. **symmetrical** (sə me' tri kəl)

[also derived from Greek *syn* meaning "together"]

adj. Similar in shape and size on opposite sides of a dividing line.

Carlos folded the paper in half so that as he cut out the bird shape the sides would be symmetrical.



### NOTA BENE

*Meter* is a complete word in itself as well as a meaningful part of other words. It means the basic unit of length in the metric system, a measurement of 39.37 inches, which is a little longer than a yard.

**THERM** (from the Greek word *therme* meaning "heat")

Familiar Words  
with Root  
THERM

thermos

6. **thermal** (thər' məl)

adj. Warm, hot, having to do with heat.

The temperature of the water in the thermal spring was higher than the temperature of the air around it.

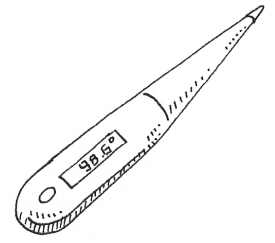
Challenge Words  
with Root  
**THERM**

thermodynamics  
thermoelectric  
thermoplastic

**7. thermometer** (thər' mä mə tər)

n. An instrument for measuring the temperature of a person or place.

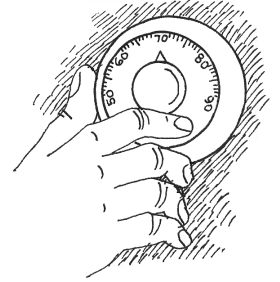
The nurse put a thermometer in my mouth to see if I had a fever.



**8. thermostat** (thər' mə stat)

n. A device for regulating heat.

Before going to bed, Dad set the thermostat to turn on the heat if the temperature dropped during the night.



**EXERCISE A: SYNONYMS**

Write the letter of the best **SYNONYM** (the word or phrase most nearly the same in meaning as the word in bold-faced type).

1. \_\_\_\_\_ measure the **diameter**

- a. curve                      b. circle                      c. line                      d. arc

2. \_\_\_\_\_ a **thermal** system

- a. difficult                      b. heating                      c. grading                      d. drawing

3. \_\_\_\_\_ adjusted the **thermostat**

- a. sound                      b. light                      c. temperature                      d. speed

4. \_\_\_\_\_ **symmetrical** parts

- a. intersecting                      b. warm                      c. cold                      d. similar

5. \_\_\_\_\_ using a **metronome**

- a. timekeeper                      b. metal bar                      c. musical instrument                      d. subway



**EXERCISE B: MEANING IN CONTEXT**

Use these words to fill in the blanks in the following paragraph.

**perimeter**

**thermometer**

**geometry**

**thermal**

When working outdoors in Alaska, the surveyors from Louisiana wore (1)\_\_\_\_\_ underwear to preserve their body heat, but they were still cold. The morning that the (2)\_\_\_\_\_ showed a temperature below zero, they put on extra layers of clothing, but they were still cold. These surveyors

were smart. They had studied (3)\_\_\_\_\_ and knew how to correctly mark the boundaries of large pieces of land. They had no difficulty measuring the (4)\_\_\_\_\_ of what they had marked. What they didn't know was how to get used to the cold.



### EXERCISE C: EXTEND YOUR VOCABULARY

The "thousand" prefixes: *kilo-* and *milli-*

*Kilo* and *milli* (which appear with *meter*) are meaningful word parts. In the metric measuring system *kilo-* (from Greek for thousand) means "one thousand" and *milli-* (from Latin for thousand) means "one part of one thousand." A kilometer is 1000 meters. A millimeter is 1/1000 of a meter.

Using what you know from these meaningful parts, answer the following questions:

1. Is a *kilogram* lighter or heavier than a gram?

\_\_\_\_\_

2. Is a *milligram* lighter or heavier than a gram?

\_\_\_\_\_

3. Do you think a *milliliter* has more or less liquid than a liter?

\_\_\_\_\_

4. Do you think a *kiloliter* has more or less liquid than a liter?

\_\_\_\_\_

Among the key words in this lesson are *perimeter*, *diameter*, and *thermometer*. *Meter* is a meaningful part of many other words too. Match each "meter" word in Column 1 with what it could measure in Column 2.

- |                      |  |
|----------------------|--|
| 5. _____ speedometer | A. distance between cities                         |
| 6. _____ kilometer   | B. a line less than a centimeter long              |
| 7. _____ millimeter  | C. atmospheric pressure for predicting the weather |
| 8. _____ barometer   | D. miles per hour in a car                         |