



## Celebrate Metric Day

The “Math by the Month” activities are designed to appeal directly to students. Students may work on the activities individually or in small groups. No solutions are suggested so that students will look to themselves as the mathematical authority, thereby developing the confidence to validate their work. This month’s activities focus on measurement. We begin by using language to compare and contrast measurements, next work with nonstandard units of measure, and then conclude with standard units of measure. To learn

more about National Metric Day and Metric Week, go to [lamar.colostate.edu/~hillger](http://lamar.colostate.edu/~hillger).

Remember to celebrate Metric Day on 10

October 2000! ▲

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### WEEKLY ACTIVITIES

METRIC DAY: K–2

OCTOBER 2000

2

**String things.** Place six different lengths of string in a shoebox. Tie a bead on one end of each string, thread the other end through a hole in the cover of the shoebox, then tie a bead at the other end. Pull on a string, and ask a friend to do the same with a different string. Invite yet another friend to pull a string. Compare the lengths of the strings, and describe them using such words as *longer*, *shorter*, *almost the same*, and so on.

9

**Measuring up.** Use a part of your body, such as the width of your hand, to measure the heights of five classmates, and make a graph to display the results. Compare your measurements with those of other class members. Why are the measurements different? As a class, decide whose hand will be used as the “standard,” then make paper cutouts of this hand for everyone. Measure one another and graph the new results.

16

**Balancing act.** Make a balance with a wire coat hanger, string, and two plastic containers. Choose an object, such as a box of crayons, to place in one of the containers on the balance. Challenge classmates to estimate how many cubes, chips, counters, pennies, or other objects will be needed to level the balance. Count by ones, twos, or fives as you add objects to the other container. Make a chart to record the estimates and the results.

23/30

**How many clothespins long?** Use paper clips, clothespins, or ice cream sticks to measure the lengths of different objects in your classroom. Estimate before you measure. How do your estimates compare with the actual lengths of the objects? Go outside, and estimate the length of the schoolyard, then use a stick, a broom handle, or a length of string to measure. What would have happened if you had tried to measure the outdoor distance with a paper clip?

## WEEKLY ACTIVITIES

METRIC DAY: 3–4

OCTOBER 2000

2

**Weighing in.** Use a customary scale to weigh yourself, and record your weight in pounds. Next use a calculator to determine your weight in kilograms. One kilogram equals about 2.20 pounds. Would you prefer to be weighed in pounds or kilograms? Does the method used to record your weight really make a difference?

9

**Playing with sand.** Find different empty containers, and fill them with sand to create a variety of weights that equal less than 1 kilogram. Mark the containers to describe their weights. Create weights for hectograms (10 hg = 1 kg), dekagrams (100 dag = 1 kg), and grams (1000 g = 1 kg). Use these units and a simple balance to weigh items in your backpack or around the classroom.

16

**Modeling meters.** Search your classroom, and use a metric ruler or meterstick to find objects that you can use as models for a millimeter (mm), a centimeter (cm), a decimeter (dm), and a meter (m). Use these models to estimate various lengths, then check your estimates.

23/30

**Around and around.** Find five different round objects. How can you find their circumferences and diameters, that is, the distance around them and the distance across? Measure the circumference and the diameter of each of your five objects. On a large chart, record these data from your entire class. Look for patterns in the data. What do you notice?



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## WEEKLY ACTIVITIES

METRIC DAY: 5–6

OCTOBER 2000

2

**Perimeter Picasso.** Using centimeter-grid paper, work with a partner to draw a picture with as many connecting quadrilaterals and triangles as you wish. Find the perimeter and area of the entire picture. You can count the square units or use area formulas. Does a larger perimeter always result in a larger area?

9

**How many “feet” tall?** Measure the length of your foot and your height in centimeters. Make a chart to show these data for all your classmates. Divide the length of your foot by your height. Compare your results with those of your classmates. For most people, the length of their foot is about 0.15 of their height. Can you find other body-proportion relationships?

16

**A cube of soda?** Imagine that you are working for a soda-can manufacturer that is investigating various ways to make a new “standard” 355-ml (12-ounce) can. Use a metric ruler to measure the height and diameter of a standard can, then calculate the can’s volume. Because the can is not a perfect cylinder, the volume that you obtain is a close approximation. Your challenge is to design a can that has a new shape, such as a rectangular solid, cube, cone, pyramid, or other cylindrical shape, but that holds the same volume.

23/30

**Map out your classroom.** With a partner, use a meterstick to measure your classroom, playground area, or other common space in your school. Select a scale that will allow you to draw a “top-down view” of your space on a standard-sized sheet of paper. (You might use 3 cm = 1 m.) If furniture or playground equipment is located in the area that you measured, represent these objects according to the scale selected.