

The Bulletin Board, an Aid to Thinking Metric



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Measurement is a process of comparing two objects with a common attribute. For example, a pencil and the edge of a desk have "length" as a common attribute. Hence, by using the pencil to measure the desk we compare the length of the pencil with the length of the desk. Similarly, in measuring area we compare the attribute of the surface of one object with the surface of another. As students experience activities in comparing objects, they should be encouraged to develop units of measurement from a choice of objects. This will introduce arbitrary units, which leads to the need for standardized units. It is at the point of standardization of units that metrication appears. If measurement is understood and taught in the above approach, then one of the major jobs for the teacher in giving instruction is to provide models that can help a student develop a frame of reference which will give the standard metric units meaning.

Many students have an idea of how far 100 yards is because they have run that distance at a track meet or in a football game. Similarly, 100 lbs is a big bag of spuds; 100°F is a very hot summer day; 1 yard is from chin to tip of fingers on outstretched hand; 1 gallon is a large jug of A & W root beer. In a similar manner there is a need to provide models and experiences which will help in developing a "feeling" for metric units.

The purpose of this article is to share ideas on how the bulletin board can be used to display models that will help the student develop a "feel" for the metric units of measurement.

The following is a list of models for comparing the various metric measures. The models are not exact measurements. They are meant to serve as a reference only so that students may know *about* how big the unit is.

Length Model

- Metre - height of kitchen counter
- little more than yardstick
- length of walking cane
- little more than long pace
- width of front door of a house
- Centimetre - width of fingernail of Dad's little finger
- width of fingernail of 10-year-old's index finger
- width of a front tooth
- 2 cm, width of a nickle
- 10 cm, width of Dad's hand
- 10 cm, width of forehead
- 5 cm, length of the ear
- Millimetre - little less than thickness of a dime
- width of a pencil mark
- thickness of 8 sheets of paper
- 2 mm, thickness of a quarter

Temperature

- 180⁰C - temperature for baking a cake
100⁰C - boiling water
40⁰C - very very hot summer day
37⁰C - body temperature
30⁰C - beautiful summer day
19⁰ - 21⁰C - comfortable room temperature
10⁰C - beautiful spring/fall day
4⁰ - 6⁰C - refrigerator temperature
0⁰C - freezing water
-5⁰C - cold winter day
-8⁰C - deep freezer temperature

Capacity

- Litre - little less than a quart (Canadian)
- large size milkshake
- jumbo A & W root beer

Mass

- Gram - paper clip
- 2 grams - dime
- a small bean
- a pea
- Kilogram - 2 lbs of butter plus a little bit more
- a cantaloupe
- 5 good sized apples
- 45 cm trout
- 12 large eggs

Area

Square Millimetre - pin head

Square Centimetre - fingernail of Dad's little finger
- fingernail of 10-year-old's index finger

Square Metre - large bath towel
- crokinole game board
- card table top

Volume

Cubic Centimetre - tip of Dad's little finger
- tip of 10-year-old's index finger
- chicklet gum

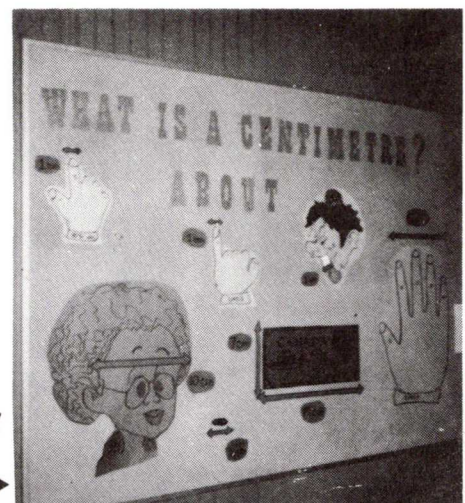
Cubic Metre - large toilet tissue carton
- large corn flakes carton
- space occupied by a card table with legs extended
- 2 cubic metre - large deepfreeze outside measure

This is only a sample of the many bulletin board models that can be used in developing a metric frame of reference that will assist students in the elementary grades to "Think Metric."



◀ Temperature on the Celsius scale is pictorially associated with each season of the year. For example, a warm summer day would be 25°C , and an average winter day would be -5°C

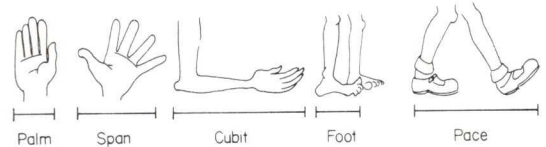
"What is a centimetre?" This display shows approximate body measurements in centimetres ▶





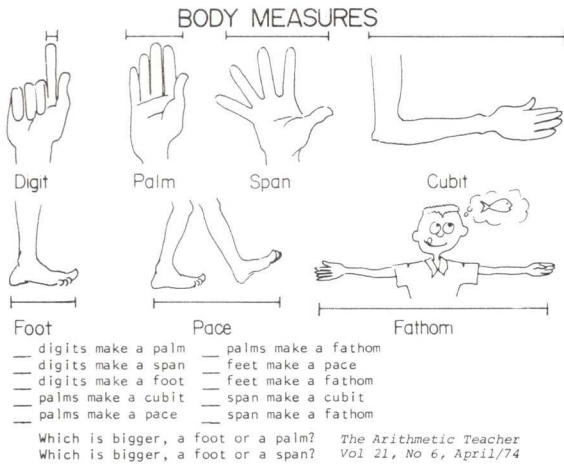
A centimetre is "about" the width of the nail on the index finger of a ten-year-old or the little finger of Dad, or the width of a front tooth. Also, 10 cm is "about" the width of the forehead or the width of Dad's hand

ME AS A MEASURE



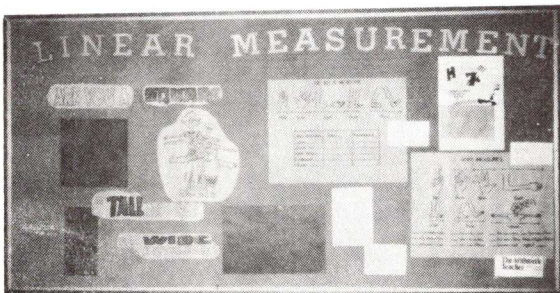
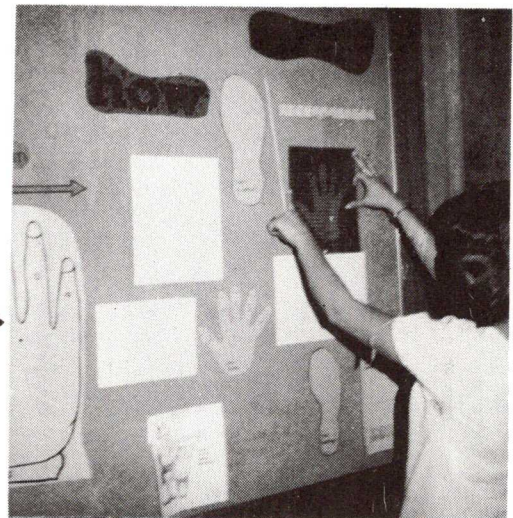
"Me as a Measure" displays the use of the palm, span, cubit, etc. in measuring objects in the classroom

What to Measure	Guess	Measurement
Door		
Desk top		
Desk height		
Chalkboard		
Book		



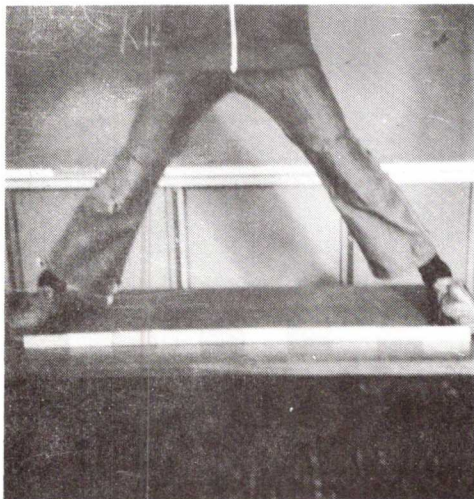
"Body Measures" shows how the digit, palm, span, cubit, etc. can be compared; i.e. 9 digits make 1 palm, or 3 spans make 1 cubit

"How many" square units are needed to cover the hand print, or the foot print, etc? Here a clear plastic 1 cm² grid is used to approximate area



"Linear Measurement" displays how length can be measured with parts of the body

1 000 little one-centimetre cubes are the same size as this litre cup



One metre - about the foot span of an 11-year-old boy

One gram - about the same mass as a paper clip; a dime is about two grams



One metre - about the height of the chalkboard ledge or the height of kneeling 10-year-old boy

One metre comes about up to here on me ▶



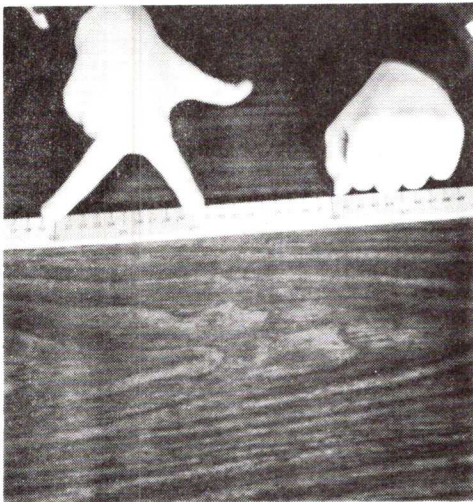
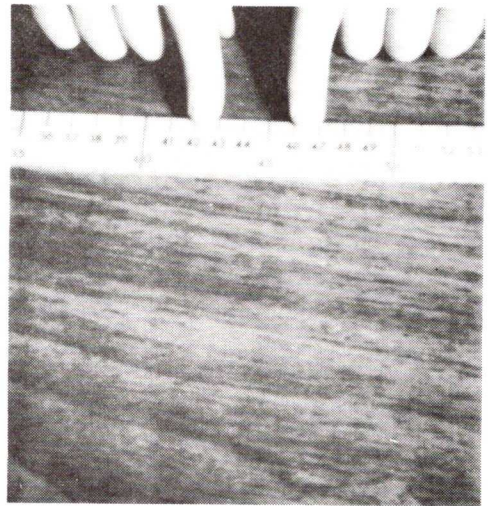
A pile of 1 cubic centimetres which is ten long, ten wide and ten high, makes a block 1 000 cubic centimetres ◀

It looks like a litre is a little more than twice the size of the soup tin ▶



◀ A cubic centimetre is about the size of my fingertip

A centimetre is about as wide as my fingernail ▶



10 centimetres is about as far as I can span two fingers, or about as long as my fist ◀

A kilogram is about the same weight as two medium sized books ▶

