

Measurement

Need Of Measurement



Measurement in daily life

We measure several things in our daily life, such as:

The length of cloth required for a dress

height and weight to see how much you have grown

The weight of fruits and vegetables you buy

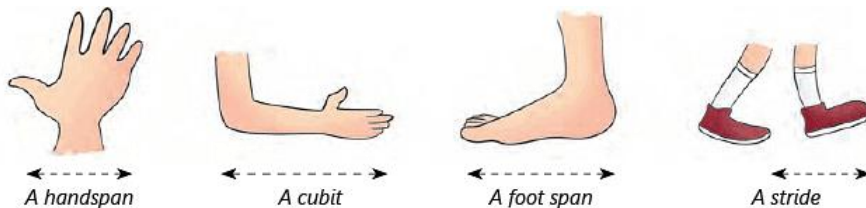
The amount of petrol put in a car

The time taken by you to reach school

Standard And Non-Standard Units

Suppose you ask your tailor to stitch a trouser for you, the length of which should be 5 handspans long. When the trouser is ready, you realise that it is too long for you! Can you say why?

The length of your hand span is different from that of an adult. So if everyone starts using their own hand spans to measure things there will be confusion!

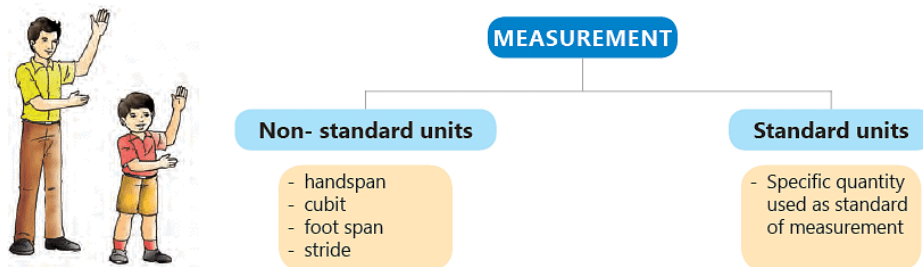


Earlier, people used body part such as handspan, cubit, foot span and length of their stride to measure length. These are non-standard unit of measuring length.

You can use a mug to measure the amount of water that a bucket can hold. Mugs can be of different sizes. A mug is, therefore, a non-standard unit for measuring the amount of liquid.

To avoid confusion, everyone must use the same units of measurement. Then the measurement will be the same, no matter who measures it. Such units are called standard units.

A unit is a specific quantity which is used as a standard of measurement.



Measuring Length

To measure small lengths, such as the length of a pencil or an eraser, we use a standard unit called a centimetre. It is written in short as cm.

A ruler can be used to measure small lengths. To measure the length of a line, place the ruler along the line. One end of the line should be at the 0 cm mark. Read the length at the other end.

This marking is 10 cm long.



Find the lengths of your textbook, pencil and eraser:

- My textbook is ____ cm long.
- My pencil is ____ cm long.
- My eraser is ____ cm long.

Longer distances such as the length of your room or the height of a tree are measured in a bigger unit called metre. It is written in short as m.

A metre scale or a measuring tape can be used to measure length in metres.

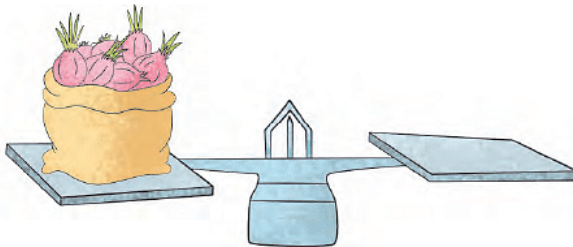


Measuring tapes

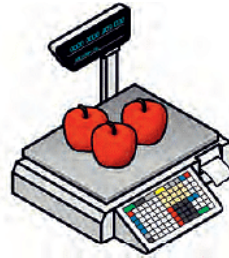
A metre scale is 1 m long and is similar to a ruler. A measuring tape can be bent. It is used by the tailor to measure around your chest.

Measuring Weight

Measurement of weight tells us how heavy something is. The standard unit for measuring weight is gram (g) and kilogram (kg).



Balance



Electronic weighing scale

Lighter things are measured in grams. To measure heavier things like the weight of fruits you buy or your own weight, the unit kilogram is used. Shopkeepers usually use instruments such as a balance or the electronic weighing scale to weigh things.

Measuring Capacity

The amount of liquid a container can hold is known as its capacity. A bucket can hold more liquid than a mug. Therefore the capacity of a bucket is higher.

The standard unit for measuring capacity is the litre (L). Smaller amounts of liquids are measured in the unit millilitre (mL).



1 teaspoon holds 5 mL, while a glass can hold about 250 mL of liquid. The capacity of a medium-sized mineral water bottle is 1 litre.

We use measuring cylinders, measuring beakers and measuring spoons to measure capacity.



Measuring cylinder



Measuring spoons



Measuring beaker

Measuring spoons are used to measure medicines and cooking ingredients which are needed in smaller quantities.

Check the capacity measure printed on your shampoo, lotion, medicine syrup, bottled water, oil etc. Make a list of other products that carry this information. Did you notice that the size of the container increases with increase in the quantity of the contents?

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Measuring Time



The period between two events is called time. In olden days, people used sundial to find the time.

Now we use a clock to measure time. Time is measured in hours and minutes. An hour has 60 minutes. A minute has 60 seconds.

You have learnt how to read a clock in your maths class. Can you say what time it is on these clocks?



It is easier to read the time on a digital clock.



Digital clock

Measurement Of Temperature



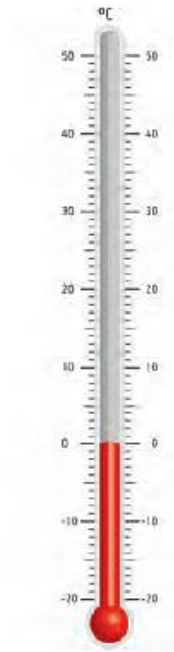
Thermometer

Temperature tells us how hot or cold something is. We use a thermometer to measure temperature. We measure temperature in degree Celsius ($^{\circ}\text{C}$) or degree Fahrenheit ($^{\circ}\text{F}$) Our normal body temperature is 37°C .

It is the month of May in Delhi. The temperature is 40°C . Monu is feeling hot.



It is the month of December in Shimla. The temperature is 0°C . Ria is feeling very cold.



STANDARD UNITS OF MEASUREMENT

For length

- centimetre (cm)
- metre (m)

For weight

- gram (gm)
- kilogram (kg)

For capacity

- millilitre (mL)
- litre (L)

For time

- second
- minute
- hour

For temperature

- degree Celsius ($^{\circ}\text{C}$)
- degree Fahrenheit ($^{\circ}\text{F}$)