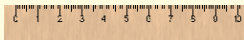


## BEFORE WE START, LET'S CHECK

### What you already know

Identify the things in the pictures and complete their names.



R   L  



B   L   N  



T   R   M   T  



W   T  

### What you will know

What is measurement?



How do we measure length, mass, capacity, time and temperature?



What are the different units of measurements?



What are the different tools used for measurements?



Every thing in this world has certain properties. Some properties like beauty or smell cannot be measured. But some properties like **length**, **mass**, **quantity** and **temperature** can be measured.

You may have seen different people measuring different things.



A tailor measures the length of cloth.



A greengrocer measures the mass of vegetables.



A milkman measures the quantity of milk.

In olden days, people used to measure things in many different ways. Units of measurement varied from place to place.

Nowadays, we use **standard units** all over the world. 'Standard' means that the same units of measurement are used everywhere.

## MEASUREMENT OF LENGTH

**Length:** Length tells us how long an object is.

Long ago people did not have proper tools and units to measure length. So they used their body parts to measure the length of different objects. Even now, we use this method many times. Here are some such units.



hand span



cubit



foot span



stride

### Write answers

Measure the following using the parts of your body.

1. The length of your school bag \_\_\_\_\_
2. The length of your dining table \_\_\_\_\_
3. The length of your pillow \_\_\_\_\_
4. The length of your bedroom \_\_\_\_\_

First, measure the length of a table using the hand span. Then, ask your father to do the same thing.



You will see that the measurements in the two cases are different. It is because you and your father have hand spans of different lengths.



Therefore, measuring length by using parts of our body is faulty. Hence, we need to have standard units of length.

The **metre** is the standard unit of length. The short form of metre is '**m**'. Short lengths are measured in **centimetres** or '**cm**'.

The ruler, the metre rod and the measuring tape are some common tools used for measuring length.



ruler



metre rod



measuring tape

### Write answers

Take a ruler. Measure the length of these two pencils.

Write their length below them.





## MEASUREMENT OF MASS

**Mass:** Mass determines how heavy an object is.

The standard unit of mass is the **gram**. The short form of gram is 'g'. The gram is used to measure light objects such as a pencil, an eraser and a chocolate bar.

Heavy objects like grains and fruits are measured in **kilograms** or 'kg'.

There are many kinds of machines to measure mass.



weighing scale



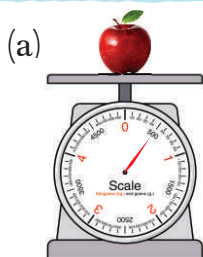
balance



electronic scale

### Write answers

Look at the pictures and write the mass of different objects.








## MEASUREMENT OF CAPACITY

**Capacity:** Capacity is the amount of liquid a container can hold.

Look at the following containers. Each of them can hold a different amount of liquid. So, their capacities are different.



The standard unit of capacity is the **litre** or 'l'. The litre is used to measure larger quantities of milk, oil, etc. **Millilitre** is used to measure small quantities of medicine, cold drink, shampoo, etc. The short form of millilitre is 'ml'.

Measuring cans and jars are commonly used for measuring capacity.

### Write answers

Look for these objects. Find their capacities and write it here.

(a) a pack of milk \_\_\_\_\_

(b) a can of juice \_\_\_\_\_

(c) a pouch of shampoo \_\_\_\_\_

(d) a bottle of hair oil \_\_\_\_\_

## MEASUREMENT OF TEMPERATURE

**Temperature:** The temperature tells us how hot or cold an object is.

We measure the temperature of not only objects but also of the air around us. It gives us the idea about how hot or cold the place is.

Some of the units of measuring the temperature are **kelvin (K)**, **degree Celsius ( $^{\circ}\text{C}$ )** and **degree Fahrenheit ( $^{\circ}\text{F}$ )**. Among these,  $^{\circ}\text{C}$  is the most common unit while body temperature is measured in  $^{\circ}\text{F}$ .

### KNOW A FACT



The body temperature of a normal human being is  $98.6^{\circ}\text{F}$ .

The thermometer is an instrument used for measuring temperature. There are many kinds of thermometers.



clinical thermometer



digital thermometer



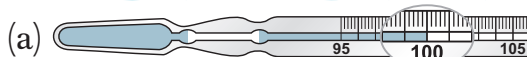
room thermometer



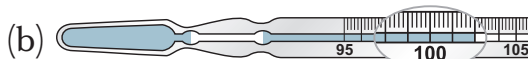
cooking thermometer

### Write answers

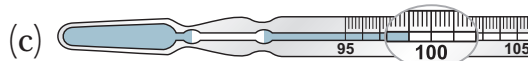
Look at the thermometers and write the temperatures.



\_\_\_\_  $^{\circ}\text{F}$



\_\_\_\_  $^{\circ}\text{F}$



\_\_\_\_  $^{\circ}\text{F}$

## MEASUREMENT OF TIME

**Time:** Time is the period or moment in or at which something happens.

In ancient times, people used natural events like sunrise, sunset and different phases of the moon to measure time.

Now, we have several kinds of clocks and watches for measuring time.



watch



wall clock



digital clock



stopwatch

The units for measuring shorter periods of time are **second**, **minute** and **hour**. The **day**, **week**, **month** and **year** are the units for measuring longer periods.

### Write answers

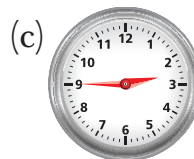
Read each clock and write the time.



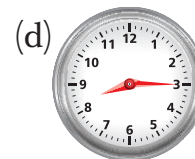
\_\_\_\_ m \_\_\_\_ sec



\_\_\_\_ m \_\_\_\_ sec



\_\_\_\_ m \_\_\_\_ sec



\_\_\_\_ m \_\_\_\_ sec

## Words to Remember

length	– it tells how long an object is
mass	– it tells how heavy an object is
temperature	– it tells how hot or cold an object or place is
capacity	– the amount of liquid a container can hold
time	– the period or moment in or at which something happens

## Points to Recall

- \* An object has certain properties; some can be measured, some cannot
- \* Nowadays, we have standard units of measurement
- \* Earlier, people used their body parts to measure length.
- \* The metre (m) and the centimetre (cm) are standard units of length.
- \* The gram (g) and the kilogram (kg) are standard units of mass.
- \* The litre (l) and the millilitre (ml) are standard units of capacity.
- \* The kelvin (K), the degree Celsius (°C) and the degree Fahrenheit (°F) are the units of temperature.
- \* Time is measured in seconds, minutes, hours, days, weeks, months, years, etc.

## Exercises

### A. Tick (✓) the correct option.

- Who among the following has to often measure length?  
(a) a greengrocer ☐ (b) a tailor ☐ (c) a milkman ☐ (d) a fruit seller ☐
- Which of the following is not an ancient unit of length?  
(a) cubit ☐ (b) hand span ☐ (c) foot span ☐ (d) head span ☐
- Which of the following is measured in kilograms?  
(a) pencils ☐ (b) grains ☐ (c) erasers ☐ (d) sharpeners ☐
- Which among the following has the largest capacity?  
(a) a bowl ☐ (b) a jug ☐ (c) a bucket ☐ (d) a cup ☐
- Which among the following is the largest unit of time?  
(a) hour ☐ (b) day ☐ (c) minute ☐ (d) week ☐

### B. Fill in each blank with the correct word.

- We can measure the \_\_\_\_\_ (*beauty* / *mass*) of an object.
- One metre is \_\_\_\_\_ (*shorter* / *longer*) than one centimetre.
- The standard unit of \_\_\_\_\_ (*mass* / *capacity*) is the gram.
- Milk is usually measured in \_\_\_\_\_ (*litres* / *millilitres*).
- Body temperature is measured in degree \_\_\_\_\_ (*Celsius* / *Fahrenheit*).

### C. Mark ✓ or ✗ in the box.

- Standard units of measurement are used everywhere in the world. ☐

- Measuring length in cubits gives the most accurate results.
- One gram is smaller than one kilogram.
- We can measure the length of milk by a ruler.
- In ancient times, people used natural events to measure time.



#### D. Match the following.

- |                |                 |                 |
|----------------|-----------------|-----------------|
| 1. length      | (a) °Fahrenheit | (i) vegetables  |
| 2. mass        | (b) metre       | (ii) period     |
| 3. capacity    | (c) kilogram    | (iii) body heat |
| 4. temperature | (d) hour        | (iv) milk       |
| 5. time        | (e) litre       | (v) cloth       |

1.	(b)	(v)
2.		
3.		
4.		
5.		

#### E. Answer in one or two words.

- Name one non-measurable property of a thing.
- Name one measurable property of a thing.
- Name one person who uses a metre rod.
- Name one person who uses a balance.
- Name one person who uses a measuring jar.

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#### F. Answer in one sentence only.

- What were the ancient units of measuring length?
- What do you understand by capacity?
- Name three kinds of thermometers.
- What instrument is used for measuring time?
- Name three units of time used to measure long periods.

#### G. Answer in two or three sentences.

- Why are body parts not suitable for measuring length?
- What units are used to measure large and small quantities of liquids?
- Draw a measuring jar and a thermometer.
- What are the different units of temperature? Which one of them is the most common?
- How did ancient people measure time?



#### BRAINSTORM

- How do we measure the height of a person?
- What happens if our body temperature rises above 98.6 °F?





## TELL YOUR TEACHER

Read the following activities. Tell your teacher what right or wrong thing each child has done.

- Neeta's mother was buying vegetables from a greengrocer. Neeta stopped her from doing so as the greengrocer was using stones instead of standard weights.
- Raja was with his father in his car. They went to a petrol pump to buy some petrol. As the attendant got ready to fill the tank, Raja saw that the machine's reading was not at the zero mark. Raja immediately told this to his father.

### FIND OUT



Here is a clock used in ancient times. Find out its name and how it was used.



It is a special kind of balance. You can see such a balance in a laboratory, a jeweller's shop, etc. Find out its name and use.

## Project

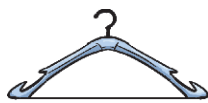
Take a measuring tape and measure your height. Also measure the height of any three of your family members. In your notebook, write their names along with their heights. Show it to your teacher.



## Activity Time

### Make a weighing balance

Things you need:



a hanger with notches



two paper cups



two strings of equal length



a punching machine (single hole)



1. Take the cups and make two holes in each cup on opposite sides about an inch below the rim.

### Steps



2. Now pass some of a string through a hole in one of the cups.



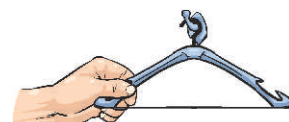
3. Tie a knot on the string end to keep it from sliding out of the hole.



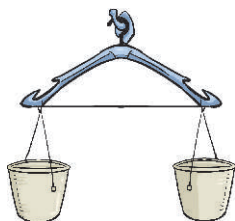
4. Put the other end of the string through the second hole in the cup. Tie another knot.



5. Repeat this process with the other cup and string.



6. Hang the hanger on a hook on a wall.



7. Loop the strings of the cups over the top of the hanger. Let them rest in the notches.

Your weighing balance is ready!