Measurement

Solution 1:

Comparison between things tells us whether something is big or small.

Solution 2:

Something which can be measured is called quantity. Examples: Length, mass, time, volume, area

Solution 3:

Arms-length, handful and steps are the older methods of measurement. These methods or devices had disadvantages as they differ from person to person, and hence, they were not accurate and uniform.

Solution 4:

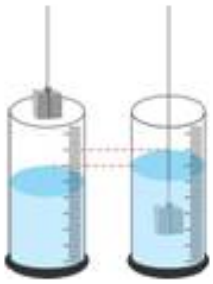
A ruler and metre-rod are used to measure small distances. A measuring tape is used to measure longer distances.

Solution 5:

Finding the volume of a stone is based on the principle that when an object is immersed in a liquid, it displaces liquid equal in volume to itself.

Experiment:

1. Take some water in a measuring cylinder.
2. Note the level of the water carefully.
3. Gently lower a stone tied to a string into the water.
4. Note the level of water again after the stone is completely immersed in it.
5. The difference between the two levels is the volume of the stone.



Solution 6:

Solution 7:

1. The **metre** is a unit of length.
2. Telling the expanse of the surface means **measuring its area**.
3. Area is expressed in **square** metres or **square** cms.
4. Volume is expressed in **cubic** metres or **cubic** cms.
5. When an object is immersed in a liquid, it displaces a **volume** of liquid equal to its own.

Solution 8:

Unit: A standard measure necessary for making any measurement is called a unit. Units bring about consistency in measurements. We use standard units to measure different quantities.

Example: Metre is a unit of length.

Capacity: The volume of liquid which a vessel can hold is called the capacity of the vessel. It is convenient to use a measuring jar to find a liquid in a certain quantity.

Example: A litre of milk is measured by using a measuring jar on which its capacity is written.

Solution 9:

A	B
(a) a hectare	10,000 sq m
(b) a quintal	100 kg
(c) a metric ton	1000 kg
(d) a litre	1000 ml

Solution 10:

1. A measuring jar is used to measure the volume of a liquid.
2. A graph paper is used to find the area of an irregular surface.
3. Petrol is measured in litres.
4. Degree Celsius is the unit of temperature.

Solution 11:

1. Area of a rectangle = Length × Breadth ($l \times b$)
2. Volume of a cuboid = Length × Breadth × Thickness ($l \times b \times h$)

Solution 12:

1. kg; kg is the unit for measuring mass, whereas cm, dm and hm are used for measuring length.
2. Scale; Scale is an accurate instrument used to measure small distance between two points. Step, handful and span are older methods of measurement which are not accurate.
3. Gram; gram is a unit of the C.G.S. system, whereas metre, kilogram and second are units of the M.K.S. system.
4. Metre; Metre is a unit of the M.K.S. system, whereas centimetre, gram and second are units of the C.G.S. system.

Solution 13:

Units for measuring time: Second, minute, hour, day, week, month, year, century and millennium.
Instruments for measuring time: Electronic clock, sundial, digital clock, stop watch and wrist watch.

Solution 14:

In the M.K.S. system, distance is measured in metre, mass in kilogram and time in seconds, whereas in the C.G.S. system, distance is measured in centimetre, mass in gram and time in seconds.