# CHEMISTRY

## BOOKS - NAND LAL PUBLICATION

## MATTER IN OUR SURROUNDINGS

### Activity 1 1

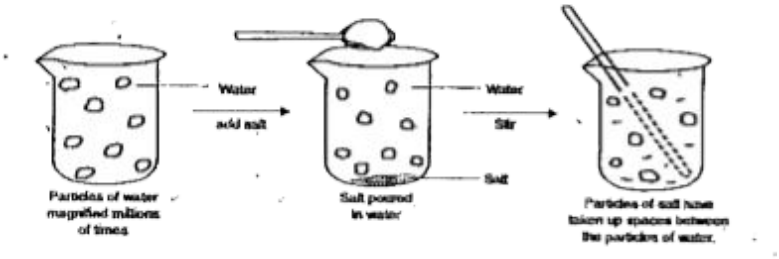
**1.** Take a 100 ml beaker.

Fill half the beaker with water and mark the level of water.

Dissolve some salt/sugar with the help of glass rod.

Observe any change in the water level.

What do you think has happened to the salt?

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**2.** Take a 100 ml beaker.

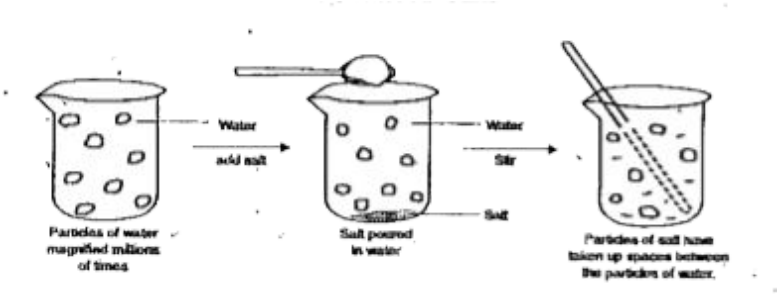
Fill half the beaker with water and mark the

level of water.

Dissolve some salt/sugar with the help of glass rod.

Observe any change in the water level.

Where does it disappear?

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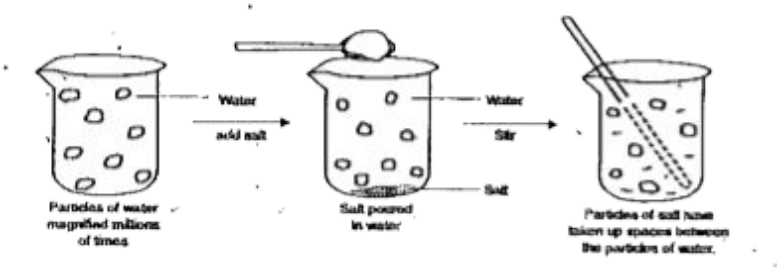
**3.** Take a 100 ml beaker.

Fill half the beaker with water and mark the level of water.

Dissolve some salt/sugar with the help of glass rod.

Observe any change in the water level.

Does the level of water change?

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## Activity 1 2

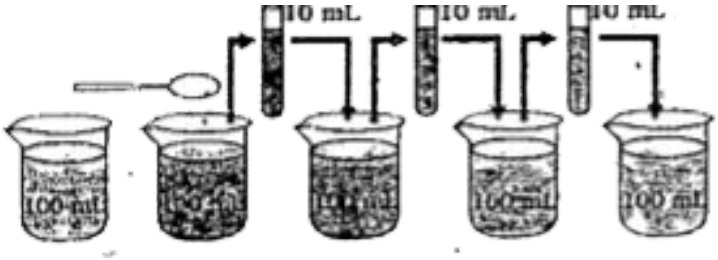
**1.** Take 2-3 crystals of potassium permanganate and dissolve them in 100 mL of water.

Take out approximately 10 mL of this solution and put it into 90 ml, of clear water.

Take out 10 ml of this solution and put it into another 90 mL of clear water.

Keep diluting 'the solution like this 5 to 8 times.

Is the water still coloured ?



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**2.** Take 2-3 crystals of potassium permanganate and dissolve them in 100 mL of water.

Take out approximately 10 mL of this solution and put it into 90 ml, of clear water.

Take out 10 ml of this solution and put it into

another 90 mL of clear water.

Keep diluting 'the solution like this 5 to 8 times.

What can you conclude from the above experiment?

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## Activity 1 3

**1.** Put an unlit incense stick in a corner of your class.

Now light the incense stick.

How close do you have to go near it so as to get its smell?

 Watch Video Solution

**2.** Put an unlit incense stick in a corner of your class.

Now light the incense stick.

How close do you have to go near it so as to get its smell?

Watch Video Solution

**3.** Put an unlit incense stick in a corner of your class.

Now light the incense stick.

Name the phenomena. When does it increase ?

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**4.** Put an unlit incense stick in a corner of your class.

Now light the incense stick.

How close do you have to go near it so as to get its smell?

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## Activity 1 4

**1.** Take two glasses/beakers filled with water.

Put a drop of blue or red ink slowly and

carefully by the sides of the first beaker and honey in the same way in the second beaker.

Leave them undisturbed in your home or in a corner in the class.

Record your observations.

What do you observe immediately after adding the ink drop ?

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**2.** Take two glasses/beakers filled with water.

Put a drop of blue or red ink slowly and

carefully by the sides of the first beaker and honey in the same way in the second beaker.

Leave them undisturbed in your home or in a corner in the class.

Record your observations.

What do you observe immediately after adding a drop of honey?

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**3.** Take two glasses/beakers filled with water.

Put a drop of blue or red ink slowly and

carefully by the sides of the first beaker and honey in the same way in the second beaker.

Leave them undisturbed in your home or in a corner in the class.

Record your observations.

How many hours or days does it take for colour of ink to spread evenly throughout the water spread evenly ?

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**4.** Take two glasses/beakers filled with water.

Put a drop of blue or red ink slowly and carefully by the sides of the first beaker and honey in the same way in the second beaker.

Leave them undisturbed in your home or in a corner in the class.

Record your observations.

What does this suggest about the particles ?

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**5.** Take two glasses/beakers filled with water.

Put a drop of blue or red ink slowly and carefully by the sides of the first beaker and honey in the same way in the second beaker.

Leave them undisturbed in your home or in a corner in the class.

Record your observations.

How does diffusion vary with density of liquid ?

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## Activity 1 5

**1.** Drop a crystal of copper sulphate or potassium permanganate into a glass of hot water and another containing cold water. Do not stir the solution. Allow. the crystals to settle at the bottom.

Observe and report.

What do you observe just above the solid crystal in the glass ?

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**2.** Drop a crystal of copper sulphate or potassium permanganate into a glass of hot water and another containing cold water. Do not stir the solution. Allow. the crystals to settle at the bottom.

Observe and report.

What happens as the time passes ?

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**3.** Drop a crystal of copper sulphate or potassium permanganate into a glass of hot

water and another containing cold water. Do not stir the solution. Allow. the crystals to settle at the bottom.

Observe and report.

What does this suggest about the particles of solid and liquid ?

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**4.** Drop a crystal of copper sulphate or potassium permanganate into a glass of hot water and another containing cold water. Do

not stir the solution. Allow. the crystals to settle at the bottom.

Observe and report.

Does the rate of mixing change with temperature ? Why and How ?

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## Activity 1 6

**1.** Play this game in the field-make four groups and form human chains as suggested.

The first group should hold each other from the back and lock arms like Bihu dancers (Fig.)

Bihu dancers with lock arms.

The second group should hold hands to form a human chain.

The third group should form a chain by touching each other with only their finger tips.

Now the fourth group of students should run around and try to break the three human

chains one by one into as many small groups as possible.

Which group was the easiest to break ? Why?

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Now the fourth group of students should run around and try to break the three human chains one by one into as many small groups as possible.

If we consider each student as a particle of matter, then in which group the particles held each other with the maximum force ?

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## Activity 1 7

**1.** Take an iron nail, a chalk piece and a rubber band.

Try breaking them by hammering, cutting or stretching.

In-which of the above three substances do you think the particles are held together with greater force ?

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## Activity 1 8

**1.** Give reasons for the following observation :

Open a water tap, try breaking the stream of water with your fingers.

Were you able to cat the stream of water ?

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**2.** Give reasons for the following observation :

Open a water tap, try breaking the stream of water with your fingers.

What could be the reason behind the stream of water remaining together?

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## Activity 1 9

**1.** Collect the following articles-a pen, a book, a needle and a piece of thread.

Sketch the shape of the above articles in your notebook by moving a pencil around them.

Do all these have a definite shape, distinct boundaries and a fixed volume ?

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**2.** Collect the following articles-a pen, a book, a needle and a piece of thread.

Sketch the shape of the above articles in your

notebook by moving a pencil around them.

What happens if they are hammered, pulled or dropped?

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**3.** Collect the following articles-a pen, a book, a needle and a piece of thread.

Sketch the shape of the above articles in your notebook by moving a pencil around them.

Are these capable of diffusing into each other ?

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**4.** Collect the following articles-a pen, a book, a needle and a piece of thread.

Sketch the shape of the above articles in your notebook by moving a pencil around them.

Try compressing them by applying force. Are you able to compress them?

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Activity

**1.** Write something on one corner of the black board in your class.

Leave it uncleaned for ten to fifteen days of do not clean the board before going for you autumn break.

Does it become difficult to clean the boar afterwards ?

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**2.** Write something on one corner of the black board in your class.

Leave it uncleaned for ten to fifteen days of do not clean the board before going for you autumn break.

Think of a reason as to why this happens.

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## Activity 1 10

**1.** Collect the following

(a) water ,cooking oil , milk , juice , a cold drink.

(b) containers of different shapes. 'Put a 50 m mark on these containers using a measuring cylinder from the laboratory.

What will happen if these liquids are spilt the floor?

View Text Solution

**2.** Collect the following

(a) water ,cooking oil , milk , juice , a cold drink.

(b) containers of different shapes. 'Put a 50 m mark on these containers using a measuring cylinder from the laboratory.

Measure 50 mL of any one liquid and transfer it into different containers one by one. Do the volume remain the same ?

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**3.** Collect the following

(a) water ,cooking oil , milk , juice , a cold drink.

(b) containers of different shapes. 'Put a 50 m mark on these containers using a measuring cylinder from the laboratory.

Does the shape of the liquid remain the same

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**4.** Collect the following

(a) water ,cooking oil , milk , juice , a cold drink.

(b) containers of different shapes. 'Put a 50 m mark on these containers using a measuring cylinder from the laboratory.

When you pour the liquid from one containg into another, does it flow easily ?

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## Activity 1 11

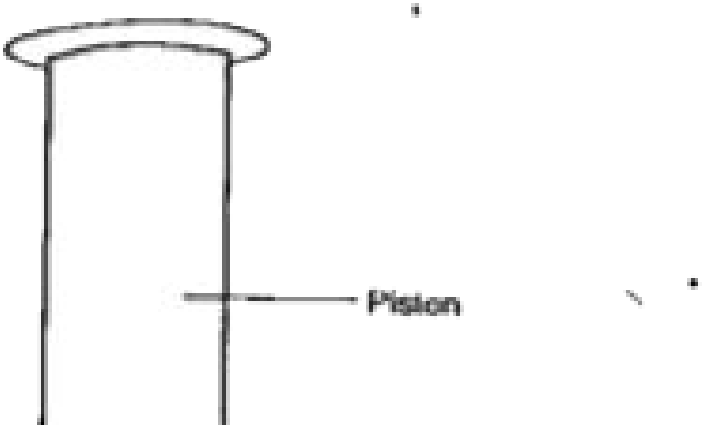
**1.** Take three 100 mL syringes and close their nozzle by rubber corks as shown in Fig.

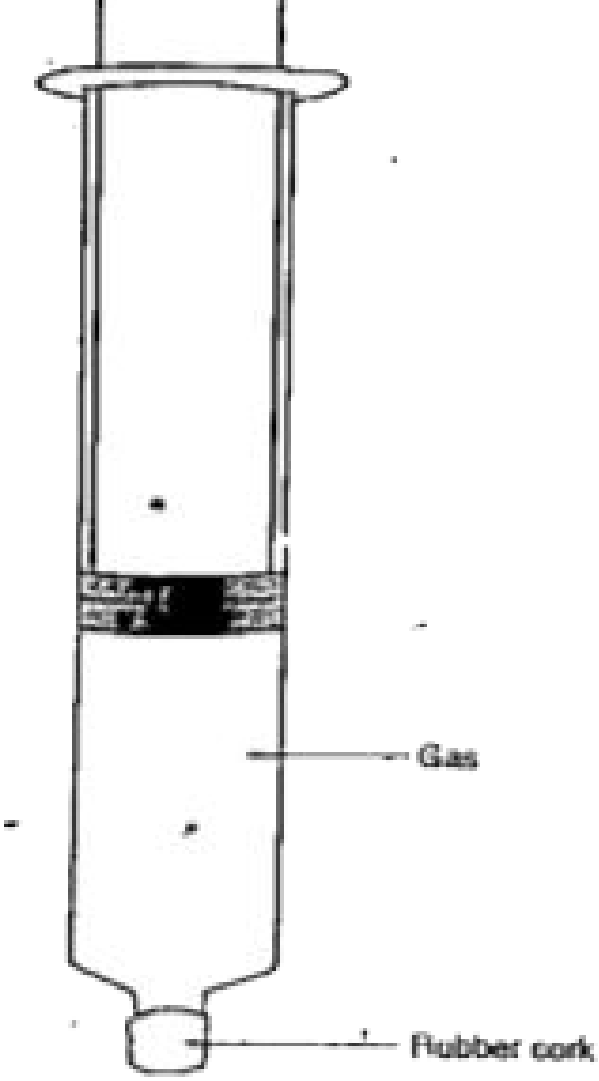
Remove the 'pistons from all the syringes

Leaving one syringe untouched, fill water in the second and pieces of chalk in the third.

Insert the pistons back into the syriages. You may apply some vaseline on the pistons before inserting them into the syringes for their smooth movement.

Now try to compress the content by pushing the piston in each syringe.






What do you. observe ? In which case the was easily pushed in ?

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**2.** Take three 100 mL syringes and close their nozzle by rubber corks as shown in Fig.

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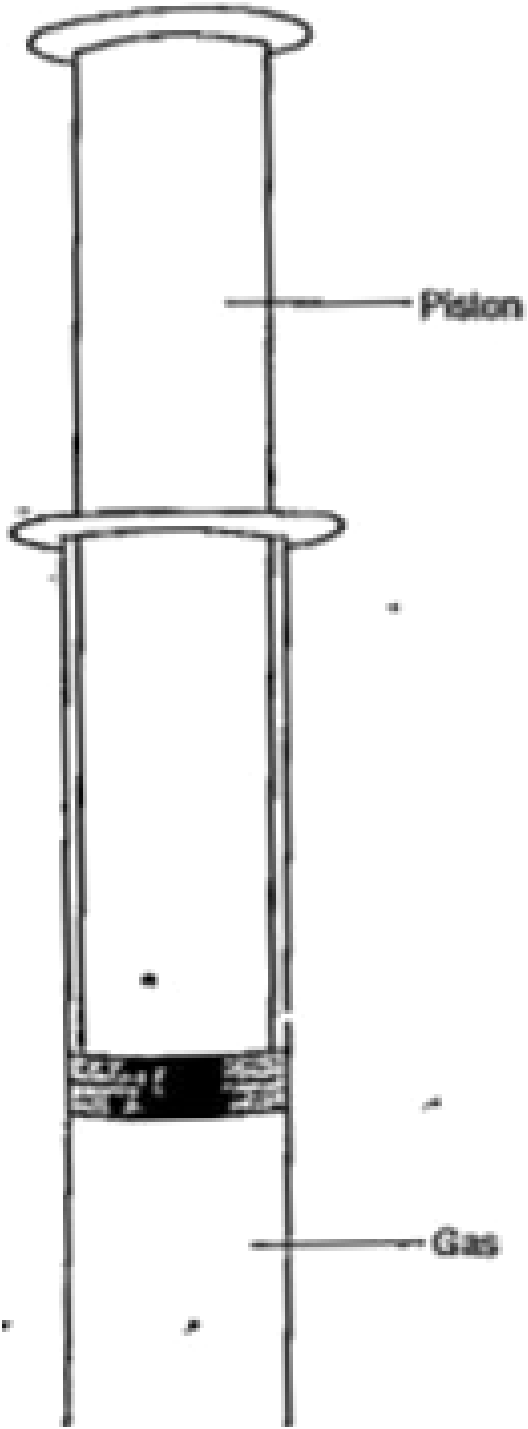


What do you infer from your observation ?

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## Activity 1 12

**1.** Take about 150 g of ice in a beaker and suspend a laboratory thermometer so that it bulb is in contact with the ice, as in Fig.

Start heating the beaker on a low flame.

Note the temperature when the ice start melting.

Recod your observations for this conversion of solid to liquid state.

Now put a glass rod in the beaker and head while stirring till the water starts boiling. Keep a careful eye on the thermometer reading till most of the water has vaporised.

Record your observations for the conversion of water in the liquid state to the gaseous state.

What conclusion can you draw ?

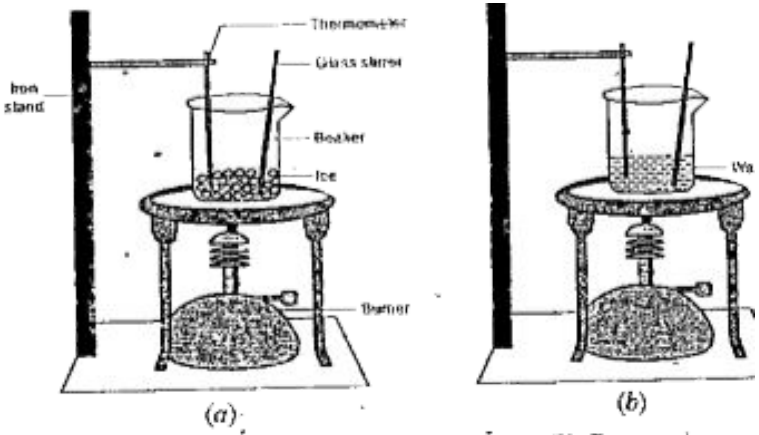


Fig. 1.6. (a) Conversion of ice to water, (b) Conversion of water to water vapour

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Activity 1 13

**1.** Take some camphor or ammonium chloride.

Crush it and put in a china dish.

Put an inverted funnel over the china dish.

Put a cotton plug on the stem of the funnel, as shown in Fig.

Now, heat slowly and observe.

What do you infer from the above activity ?

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Activity 1 14

**1.** Take 5 mL of water.in a test tube and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it inside a cupboard or on a shell in your class.

Record the room temperature

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**2.** Take 5 mL of water.in a test tube and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it inside a cupboard or on a shell in your class.

Record the duration taken for the evaporation process in the above cases.

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**3.** Take 5 mL of water.in a test tube and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it inside a cupboard or on a shell in your class.

Repeat the above three steps of activity of a rainy day and record your observations.

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**4.** Take 5 mL of water.in a test tube and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it near a window or under a fan.

Take 5 mL of water in an open china dis and keep it inside a cupboard or on a shell in your class.

What do you infer about the effect a temperature, surface area and wind velocity (speed) on evaporation?

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## Intext Questions Page 3

**1.** Which of the following are matter ?

Chair, air, love, smell, hate, almonds, thought, cold, cold-drink, smell of perfume.

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**2.** Give reason for the following observation: The small of hot sizzling food reaches you several metres away, but to get the smell from cold food you have to go close.

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**3.** A diver is able to cut through water in a swimming pool, which property of matter does this observation show.

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**4.** What are the characteristics of the particles of matter?

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## Intext Questions Page 6

**1.** The mass per unit volume of a substance is called density.(density=mass/volume). Arrange the following in order of increasing density - air, exhaust from chimneys, honey water, chalk, cotten and iron,

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**2.** Comment upon which of the following are matter: rigidity, fludity, filling a gas container, shape, kinetic energy and density.

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**3.** Give reasins :

A gas fills completely the vessel in which it is kept.

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**4.** Give reason : a gas exerts pressure on the walls of the container.

Watch Video Solution

**5.** Give reason : A wooden table should to be called a solid.

Watch Video Solution

**6.** Give a reason : We can easily move our hand in air but to do the same in solid block of wood we need a Karate expert.

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**7.** Liquids generally have lower density as compared to solids. But you must have observed that ice floats on water. Find out why?

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**8.** Convert the following temperature to celsius scale.

350 K

Watch Video Solution

**9.** Convert the following temperature to celsius scale: 573 K ?

Watch Video Solution

**10.** What is the physical state of water at: $250^{\circ} C$ ?

Watch Video Solution

**11.** What is the physical state of water at: $100^{\circ} C$ ?

Watch Video Solution

**12.** For any substance, Why does the temperature remain constant during the

change of state?

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**13.** Suggest a method to liquefy atmospheric gases.

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## Intext Questions Page 10

**1.** Why does a desert cooler cool better on a hot dry day ?

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**2.** How does the water kept in an earthen pot (matka) become cool during summer ?

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**3.** Why does our palm feel cold when we put some acetone or petrol or perfume on it?

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**4.** Why are we able to sip hot tea or milk faster from saucer rather than a cup ?

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**5.** What type of clothes should we wear in summer ?

Watch Video Solution

## Exercises

**1.** Convert the following temperature to celsius scale: 300 K ?

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**2.** Convert the following temperature to celsius scale: 573 K ?

Watch Video Solution

**3.** Convert the following temperatures to Kelvin scale

$30^\circ C$

Watch Video Solution

**4.** Convert the following temperature to celsius scale: 373 K ?

Watch Video Solution

**5.** Give reason for the following observations: Naphthalene balls disappear with time without leaving any solid.

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**6.** Give reason for the following observations :

We can get the smell of perfume sitting several metres away.

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**7.** Arrange the following substances in increasing order of forces of attraction between the particles— water, sugar, oxygen.

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**8.** What is the physical state of water at :$25^\circ C$

Watch Video Solution

**9.** What is the physical state of water at :$0^\circ C$

Watch Video Solution

**10.** What is the physical state of water at: $100^\circ C$ ?

Watch Video Solution

**11.** Give two reasons to justify that :Water at room temperature is a liquid.

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**12.** Give two reasons to justify that :An iron almirah is a solid at room temperature.

Watch Video Solution

**13.** Why is ice at 273 K more effective in cooling than water at the same temperature ?

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**14.** What produces more severe burns : boiling water or steam ?

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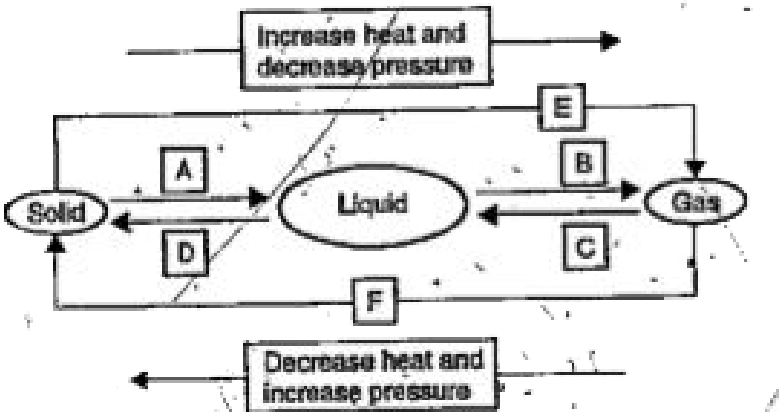
**15.** Name A, B, C, D, E and F in the following diagram showing change in its state.

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## Additional Questions Very Short Answer Type Questions

**1.** What is matter?

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**2.** Give five examples of matter.

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**3.** Give two examples which are not matter.

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**4.** What name was given to the five basic elements of matter classi - fied by the early Indian, philosophers ?

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**5.** Name the Panch Tatva ?

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## Additional Questions Short Answer Type Questions

**1.** Give three characteristics of solids.

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**2.** Define volume Write its common unit and SI unit.

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**3.** Define density. Give its units and dimensions.

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**4.** What happens when the intermolecular force of attraction is very strong ?

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**5.** What happens when the intermolecular pace is very less ?

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**6.** Why is sponge solid although it can be compressed ?

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## Additional Questions Long Answer Type Questions

**1.** What type of clothes should we wear in summer ?

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