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# Class–9

# SCIENCE

## Chapter – 1

## Matter in Our Surroundings

### Part – 5

### INTEXT QUESTIONS

Deeksha Pahilajani

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# INTEXT QUESTION

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

| | | |
|---|---|---|
| Chair | Air | Love |
| Smell | Hate | Almonds |
| Thought | Cold | Cold-drink |

Smell of perfume.

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# INTEXT QUESTION

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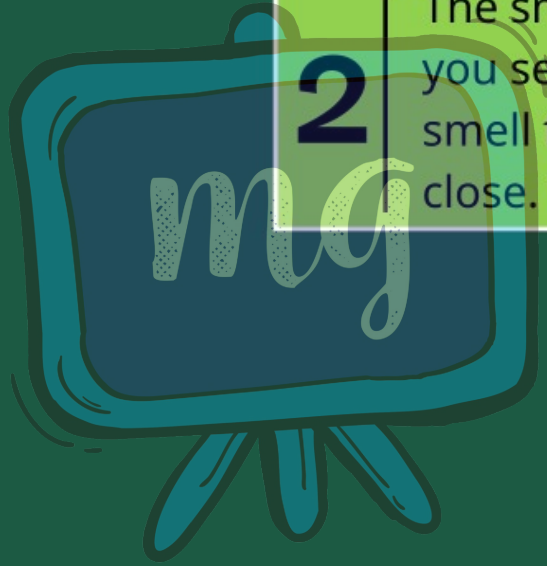

2 The smell of hot sizzling food reaches you several meters away, but to get the smell from cold food, you have to go close. Why?

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# INTEXT QUESTION

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**2** The smell of hot sizzling food reaches you several meters away, but to get the smell from cold food, you have to go close. Why?

**Answer :**

The smell of hot sizzling food reaches several meters away, as the particles of hot food have more kinetic energy and hence the rate of diffusion is more than the particles of cold food.

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# INTEXT QUESTION






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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# INTEXT QUESTION

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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?

**Answer :**

The diver is able to easily cut through the water in the swimming pool because of the weak forces of attraction between water molecules. It is this property of water that attributes to easy diving.

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# INTEXT QUESTION






4 We can easily move our hand in air but to do the same through a solid block of wood we need a karate expert. Why?

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# INTEXT QUESTION



**4** We can easily move our hand in air but to do the same through a solid block of wood we need a karate expert. Why?

**Answer :**

☛ The particles of air have less force of attraction between them and a very small external force can separate them and pass through it.

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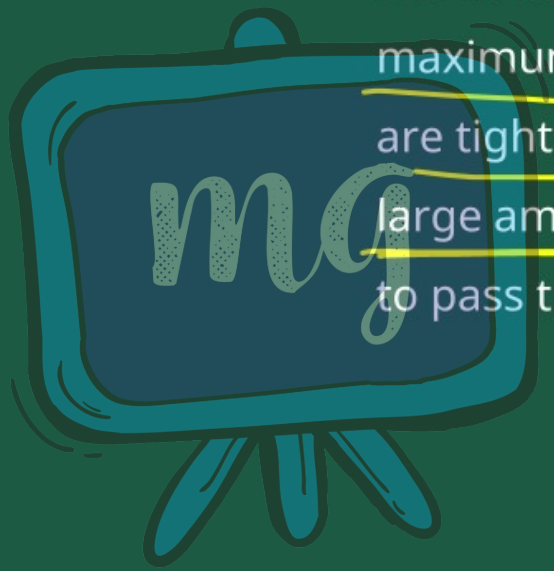
# INTEXT QUESTION






- But in case of solids, the molecules have maximum force of attraction, the particles are tightly bound due to this force. Hence large amount of external force is required to pass through solid.

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# INTEXT QUESTION






**5** What are the characteristics of the particles of matter?

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# INTEXT QUESTION

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**5** What are the characteristics of the particles of matter?

**Answer :**

The characteristics of particles of matter are as follows:

(a) Presence of intermolecular spaces between particles

(b) Particles are in constant motion

(c) They attract each other

(d) All matter is composed of very small particles which can exist independently.

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# INTEXT QUESTION

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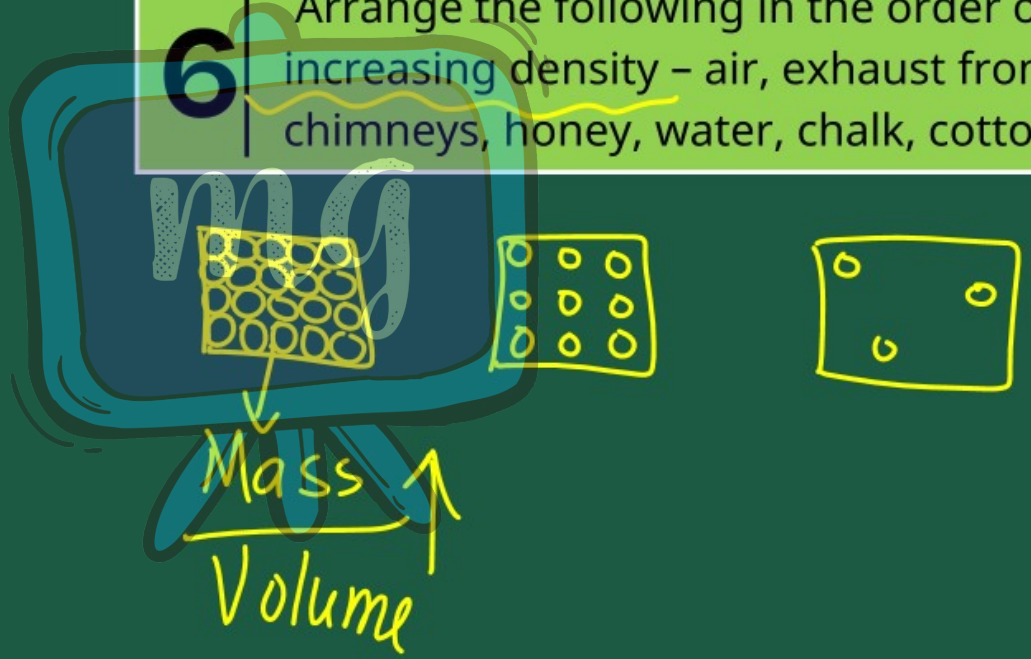
Density = Mass/Volume

6 Arrange the following in the order of increasing density – air, exhaust from the chimneys, honey, water, chalk, cotton and iron.



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# INTEXT QUESTION

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**6** Arrange the following in the order of increasing density - air, exhaust from the chimney, honey, water, chalk, cotton and iron.

**Answer :**

1. Air
2. Exhaust from chimney
3. Cotton
4. Water
5. Honey
6. Chalk
7. Iron

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# INTEXT QUESTION



7 Tabulate the differences in the characteristics of matter.



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# INTEXT QUESTION



**7** Tabulate the differences in the characteristics of matter.

**Answer :**

| Characteristics | Solid | Liquid | Gas |
|---|---|---|---|
| Shape | Fixed shape | No fixed shape | No fixed shape |
| Volume | Fixed volume | Fixed volume | No fixed volume |
| Rigidity | Are rigid | Not rigid | Not rigid |
| Intermolecular force | Maximum | Less than solids | Very less |
| Intermolecular space | Very less | More than solids | Maximum |
| Compressibility | Negligible | Hardly Compressible | Highly compressible |

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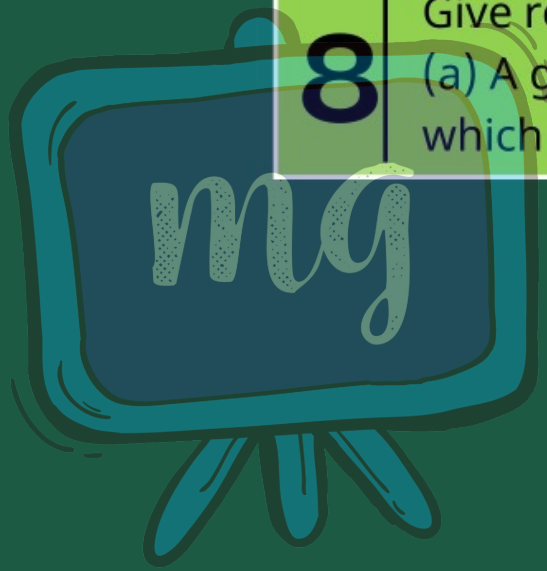


**8** Give reasons :

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

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# INTEXT QUESTION

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**8** Give reasons :
(a) A gas fills completely the vessel in which it is kept.

**Answer :**

The particles of gas have high kinetic energy due to which they keep moving in all directions and hence fill the vessel completely in which they are kept.

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# INTEXT QUESTION






**8** Give reasons :

(b) A gas exerts pressure on the walls of the container.

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# INTEXT QUESTION

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$P = F/A$

**8** Give reasons :
(b) A gas exerts pressure on the walls of the container.

**Answer :**

Gaseous particles have the weakest attraction force. They are always moving in a random manner with a high speed. When a gas particle collides with the container's walls, it exerts force and, thus pressure on the wall.

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# INTEXT QUESTION



8 Give reasons :

(c) A wooden table should be called a solid



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# INTEXT QUESTION

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**8** Give reasons :
(c) A wooden table should be called a solid

**Answer :**

The molecules/particles of wooden table are tightly packed with each other, there is very less intermolecular space, it cannot be compressed, it cannot flow, all these characteristics are of solid. So wooden table should be called a solid.

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# INTEXT QUESTION

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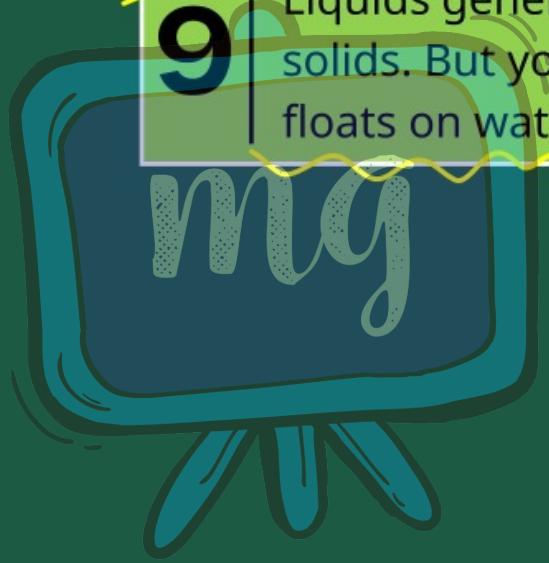
**9** Liquids generally have a lower density than solids. But you must have observed that ice floats on water. Find out why.




less density

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# INTEXT QUESTION



**9** Liquids generally have a lower density than solids. But you must have observed that ice floats on water. Find out why.

**Answer :**

In general, the volume of a liquid is more than the volume of a solid because liquid particles are freer to move, resulting in more volume. Water, on the other hand, has a maximum density at 4 degrees Celsius. Ice is lighter than water and has a lower density. As a result, it floats on water.

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# INTEXT QUESTION

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**10** Convert the following temperature to Celsius scale:
(a) 300 K (b) 573 K

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# INTEXT QUESTION

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**10** Convert the following temperature to Celsius scale:
(a) 300 K (b) 573 K

**Answer :**

(a) 300 – 273 = 27°C

(b) 573 – 273 = 300°C

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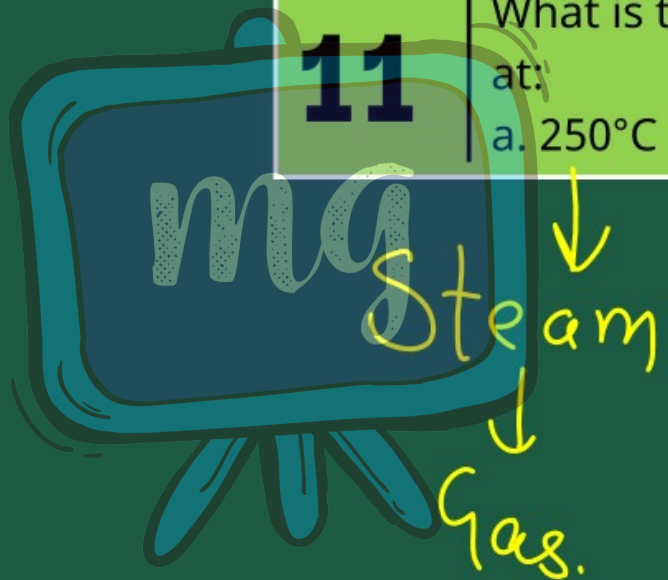
# INTEXT QUESTION



**11** What is the physical state of water at:

a. 250°C b. 100°C ?



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# INTEXT QUESTION

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**11** What is the physical state of water at:
a. 250°C b. 100°C ?

**Answer :**

(a) At 250°C – Gaseous state since it is beyond its boiling point.

(b) At 100°C – It is at the transition state as the water is at its boiling point. Hence it would be present in both liquid and gaseous states.

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# INTEXT QUESTION






**12** For any substance, why does the temperature remain constant during the change of state?

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# INTEXT QUESTION

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**12** For any substance, why does the temperature remain constant during the change of state?

**Answer :**

During the change of state of any matter heat is supplied to the substance. The molecules of this matter use heat to overcome the force of attraction between the particles, at this period of time, temperature remains constant.

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# INTEXT QUESTION



This extra heat is acquired by the molecules in the form of hidden heat called latent heat to change from one state of matter to the other state.

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# INTEXT QUESTION






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

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# INTEXT QUESTION

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

**Answer :**

It can be achieved by either increasing the pressure or decreasing the temperature, which ultimately leads to the reduction of spaces between molecules.

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# INTEXT QUESTION

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

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# INTEXT QUESTION

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

**Answer :**

It is because the temperature is high and less humid on a hot dry day, enabling better evaporation. High levels of this evaporation provide better cooling effects.

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# INTEXT QUESTION



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



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# INTEXT QUESTION

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

**Answer :**

The earthen pot is porous with lot of pores on it, the water oozes out through these pores and the water gets evaporated at the surface of the pot thereby causing cooling effect.

This makes the pot cold and the water inside the pot cools by this process.

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# INTEXT QUESTION

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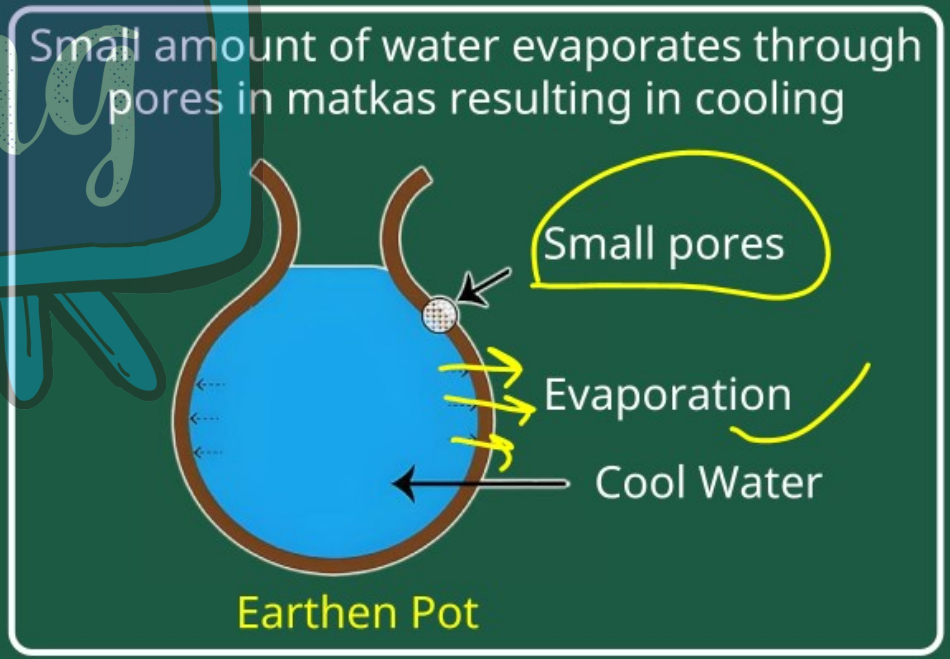
This makes the pot cold and the water inside the pot cools by this process.



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# INTEXT QUESTION

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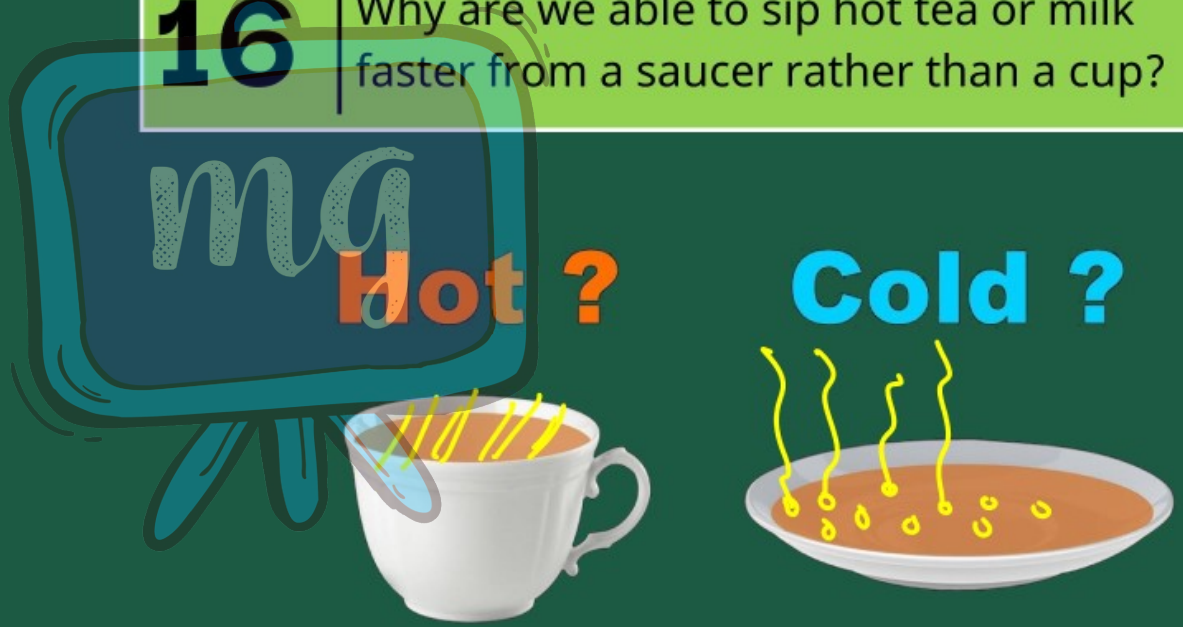
**16** Why are we able to sip hot tea or milk faster from a saucer rather than a cup?



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# Intext Question

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

**Answer :**

Tea in a saucer has larger surface area than in a cup. The rate of evaporation is faster with increased surface area. The cooling of tea in saucer takes place sooner than in a cup.

Hence we are able to sip hot tea or milk faster from a saucer rather than a cup.