

Class 9 Science - Chapter 1: Matter in Our Surroundings

1. Describe the factors affecting evaporation?

Answer:

The factors affecting evaporation are:

1. Temperature: Higher temperature increases evaporation as particles gain energy.
2. Surface Area: Larger surface area allows more particles to escape.
3. Humidity: Lower humidity increases evaporation rate.
4. Wind Speed: More wind carries away evaporated particles faster, increasing evaporation.

2. (a) Why do we wear cotton clothes in summers?

Answer:

Cotton absorbs sweat easily and exposes it to the atmosphere for easy evaporation. Evaporation causes cooling and keeps our body cool.

2. (b) Why do we feel cold, when we keep acetone or ether on our palm?

Answer:

Acetone or ether evaporates quickly by absorbing heat from our palm. This causes cooling, making us feel cold.

3. Write three characteristics of particles of matter. Give one example of each.

Answer:

1. Particles of matter have space between them (e.g., sugar dissolves in water).
2. Particles of matter are continuously moving (e.g., diffusion of bromine gas).
3. Particles of matter attract each other (e.g., solids are hard to break due to strong forces).

4. (a) Smell of perfume spreads in the room.

Answer:

Due to diffusion ? particles of matter move and mix with air particles.

4. (b) Water takes the shape of the container in which it is kept.

Answer:

Due to less intermolecular force in liquids, particles can move freely and take shape of the container.

5. Name three states of matter. Give one example of each and state three characteristic properties of each.

Answer:

Solids: Example ? Ice

- Fixed shape and volume
- Incompressible
- High density

Liquids: Example ? Water

- No fixed shape, fixed volume
- Flow easily
- Less compressible

Gases: Example ? Oxygen

- No fixed shape or volume
- Highly compressible
- Occupy entire container

6. Compare the properties of solids, liquids and gases in tabular form.

Answer:

Property	Solid	Liquid	Gas
Shape	Fixed	Not fixed	Not fixed
Volume	Fixed	Fixed	Not fixed
Compressibility	Negligible	Slightly	Highly
Flow	Cannot flow	Can flow	Can flow
Inter-particle space	Very less	Moderate	Maximum
Inter-particle force	Strong	Less	Very weak

7. (a) Write full forms of (i) LPG (ii) CNG

Answer:

(i) LPG: Liquefied Petroleum Gas

(ii) CNG: Compressed Natural Gas

7. (b) Draw the ?states of matter triangle? to show the interconversion of states of matter.

Answer:

(Draw triangle showing:

- Melting
- Freezing
- Evaporation

- Condensation
- Sublimation
- Deposition)

8. (a) Why does a desert cooler cool better on a hot, dry day?

Answer:

On a hot, dry day, the air has low humidity and high temperature. This increases the rate of evaporation of water from the cooler, making the surrounding air cooler.

8. (b) What is evaporation? How can the evaporation of a liquid be made faster?

Answer:

Evaporation is the process of conversion of liquid into vapor at temperatures below boiling point.

Evaporation can be increased by:

1. Increasing surface area
2. Increasing temperature
3. Increasing wind speed
4. Decreasing humidity