

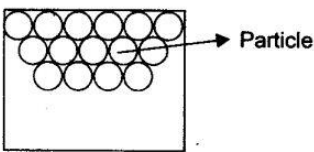
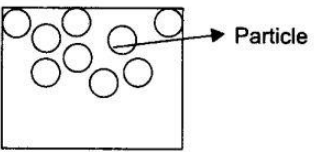
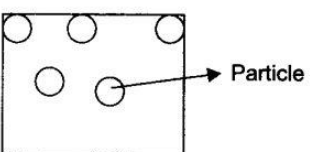
# Class 9 Science Notes Chapter 1 Matter in Our Surroundings

## Facts that Matter

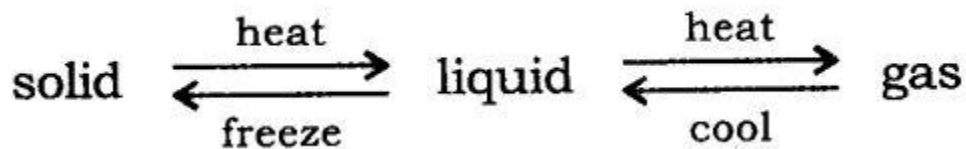
### Introduction

- Everything in this universe is made of materials which scientist has names 'matter'.
- **The matter** is made up of very small tiny particles. It is not continuous but is particulate.
- **The matter** is anything that occupies space and has mass.
- Particles of matter have space between them and are continuously moving.
- Particles of matter attract each other.

**States of Matter:** It has 3 states.

<b>Solids</b>	<b>Liquids</b>	<b>Gases</b>
<p>Strong intermolecular force. Very less intermolecular space. Have definite shape and volume. High density, melting point and boiling point. Solids cannot be compressed. Solids cannot flow.</p>	<p>Weak intermolecular force. Large intermolecular space. No definite shape but definite volume. Density is lower, low melting and boiling point. Liquids can be compressed. Liquids can flow.</p>	<p>Very weak intermolecular force. Very large intermolecular space. No definite shape and volume. Density is very low. Gases are highly compressible. Gases can flow.</p>
 <p>Solid</p>	 <p>Liquid</p>	 <p>Gas</p>

**Matter can change** its state from solid to liquid and from liquid to gas and vice-versa.



**Effect of temperature:** On increasing the heat, the particles gain energy and start vibrating with greater energy. Due to increased kinetic energy the particles overcome the force of attraction and a new state is obtained.

**Melting point:** The temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point.

**Boiling point:** The temperature at which a liquid starts boiling at the atmospheric pressure is known as its boiling point. Boiling is a bulk phenomenon.

**Latent heat of fusion:** The amount of heat energy required to change 1 kg of a solid into liquid at its melting point is called the latent heat of fusion of the solid.

**Latent heat of vaporization:** The amount of heat energy required to change 1 kg of a liquid to vapour at atmospheric pressure, at its boiling point is called the latent heat of vaporization of the liquid.

**Effect of change of pressure on the matter:** On applying pressure, the particles of matter can be brought close together and the state of matter can be changed. For example,  $\text{CO}_2$  gas can be solidified by applying pressure and lowering temperature.

**Evaporation:** The phenomenon of changing of a liquid into its vapour state at any temperature below its boiling point is called evaporation. Evaporation is a surface phenomenon.

**Factors affecting evaporation.**

- An increase in surface area increases evaporation.
- An increase in temperature increases the rate of evaporation.
- A decrease in humidity increases the rate of evaporation.
- An increase in wind speed increases the rate of evaporation.

- Evaporation causes a cooling effect.

**Some measurable quantities and their units**

<b>Quantity</b>	<b>Unit</b>	<b>Symbol</b>
Temperature	Kelvin	K
Length	Metre	m
Mass	Kilogram	Kg
Weight	Newton	N
Volume	Cubic metre	m <sup>3</sup>
Density	Kilogram per cubic metre	Kg/m <sup>3</sup>
Pressure	Pascal	Pa