PUBLIC SCHOOL DARBHANGA

Matter surrounding us

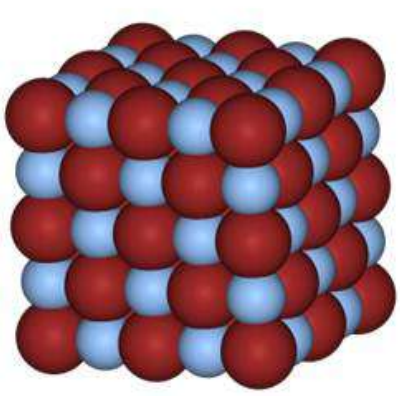
States of Matter

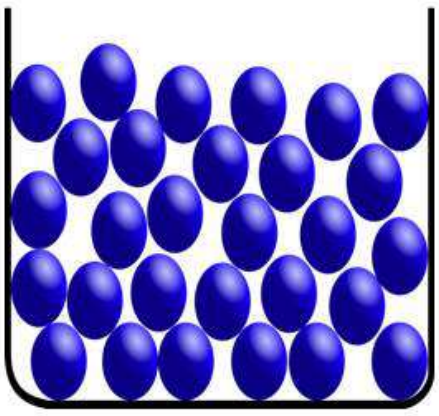
Matter can be classified as solid, liquid and gas on the basis of inter particle forces and the arrangement of particles.

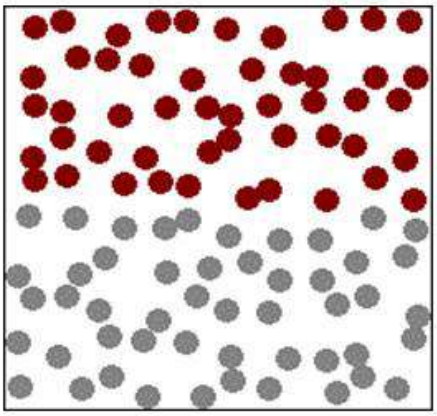
These three forms of matter are inter convertible by increasing or decreasing pressure and temperature.

For example, ice can be converted from solid to a liquid by increasing the temperature.

- **Atomic view of the three states of matter**







- Solid

Liquid

Gas

- The phenomenon by which molecules in liquid state undergo a spontaneous transition to the gaseous phase at any temperature below its boiling point is called evaporation.
- For example, the gradual drying of damp clothes is caused by the evaporation of water to water vapour.

Factors affecting evaporation

- **Temperature:** The rate of evaporation increases with an increase in temperature.
- **Surface area:** The rate of evaporation increases with an increase in surface area.
- **Humidity:** The rate of evaporation decreases with an increase in humidity.
- **Wind speed:** The rate of evaporation increases with an increase in wind speed.

Cooling due to evaporation

- During evaporation, the particles of a liquid absorb energy from the surroundings to overcome the interparticle forces of attraction and undergo the phase change. The absorption of heat from the surrounding makes the surrounding cool.
  For example, sweating cools down our body.

Physical Nature of Matter

- A physical property is that aspect of the matter that can be observed or measured without changing its nature or composition.
- It is independent of the amount of matter present.
- Physical properties include appearance, colour, odour, density, texture, melting point, boiling point, solubility, etc.

Matter

- Matter is anything that has mass and occupies space.
- Everything that we can touch, see, hear, taste, and also smell is matter.
- It is made up of really tiny particles which cannot be seen through the eye.
- The particles of which the matter is comprised of influence its state and properties (physical and chemical).

- **1. <u>Particles of matter have spaces between them</u>**
- This characteristic is one of the concepts behind the solubility of a substance in other substances. For example, on dissolving sugar in water, there is no rise in water level because the particles of sugar get into the interparticle spaces between the water particles