



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

Class- 9
Chemistry

Ch-1: Matter in Our Surroundings

Guidelines

Dear Students,

- Refer to the content given below and view the links.
- These notes will help you to understand the concept and complete the assignment that follows.
- The assignment is to be done in the Chemistry notebook
- Please read Science NCERT book before you begin to answer the questions.
- Link for Class 9 Science NCERT book:

http://ncertbooks.prashanthellina.com/class_9.Science.Science/CHAP%201.pdf

Sub-Topics

1.1 Can matter change its state?

2.1 Change of states of matter

2.2 Effect of change of temperature on the states of matter

1.1 Can Matter Change Its State?

We all know that water exists in three states which can be converted into one another.



Ice (Solid)



Water (Liquid)

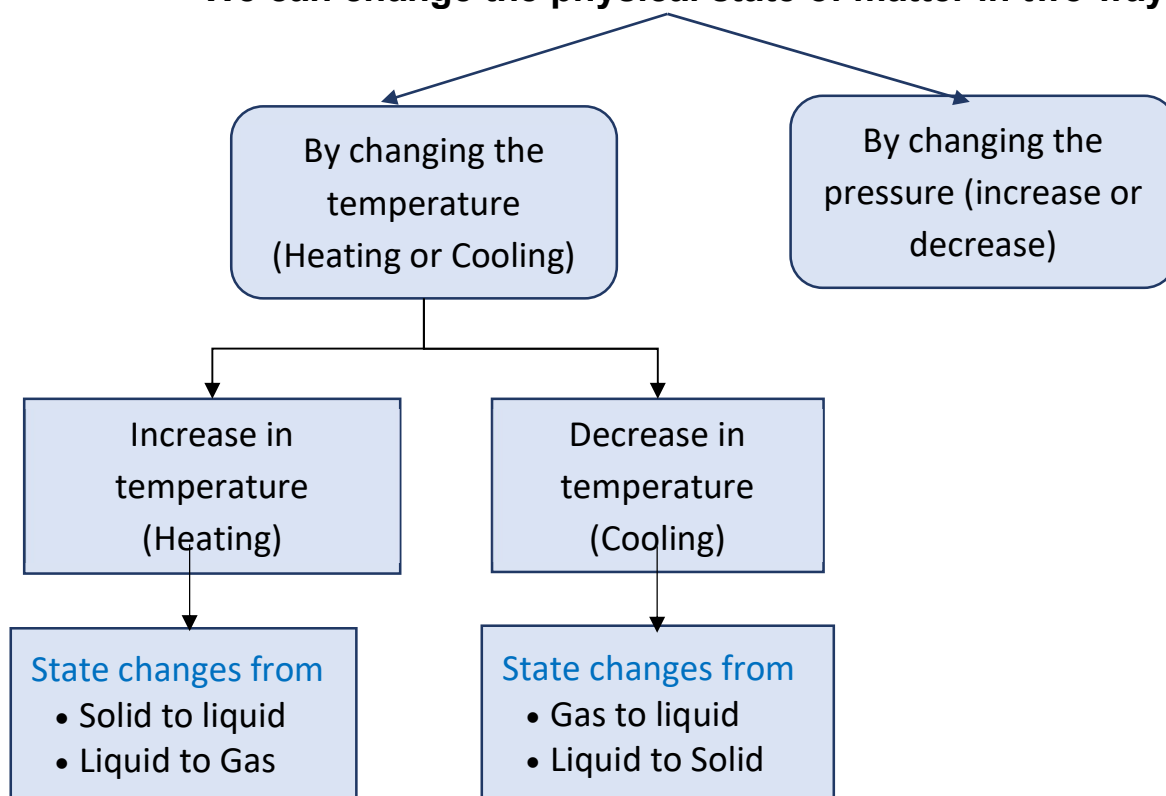


Water vapour (Gas)

This is an indication that matter can change its state.

2.1 Change of States of Matter

We can change the physical state of matter in two ways:



2.2 Effect of Change of Temperature on the States of Matter

a) Solid to Liquid: Melting

- When a solid substance is heated, the heat energy is used to increase the kinetic energy of the particles.
- The particles start vibrating at a great speed.
- A stage is reached when the particles of solid have enough kinetic energy to overcome the strong forces of attraction and change the state to form a liquid.

Melting or Fusion: The process in which the state of a substance changes from **solid to a liquid** is known as melting or fusion.

Melting point: The fixed temperature at which the state of a substance changes from solid to a liquid at atmospheric pressure is called melting point of the substance.

- **During the process of melting, the temperature of the substance does not increase even though heat is continuously supplied.**
- This happens because the heat energy is used to overcome the forces of attraction between the particles and to change the state.

- This heat energy is hidden in the contents of the container and is known as **Latent Heat of Fusion**.

Latent Heat of Fusion is the amount of heat energy required to convert 1 kg of solid into liquid at atmospheric pressure and its melting point.

b) Liquid to Gas: Boiling (or Vapourisation)

Boiling: The process of change of state of a substance from **liquid to gas** upon heating is known as boiling.

Boiling Point: The fixed temperature at which the state of a substance changes from liquid to gas at atmospheric pressure is called boiling point of the liquid.

Note:

- The process of boiling is quite similar to melting.
- The state changes from liquid to gas.
- This heat energy hidden in the contents of the container during the change of state from liquid to gas is known as **Latent Heat of Vaporization**.

Latent Heat of Vaporization is the amount of heat energy required to convert 1kg of liquid into gas at atmospheric pressure and its boiling point.

c) Gas to Liquid : Condensation

The process by which the state of a substance changes from **gas to liquid** is known as **condensation**.

d) Liquid to solid : Freezing

The process by which the state of a substance changes from **liquid to a solid** is known as **freezing or solidification**.

e) Sublimation

The process of **change of state directly from solid to gas and vice-versa** without changing into the liquid state is called **sublimation**.

Examples of substances which sublime on heating:

Ammonium chloride, Camphor, Naphthalene, Dry ice, Iodine etc.

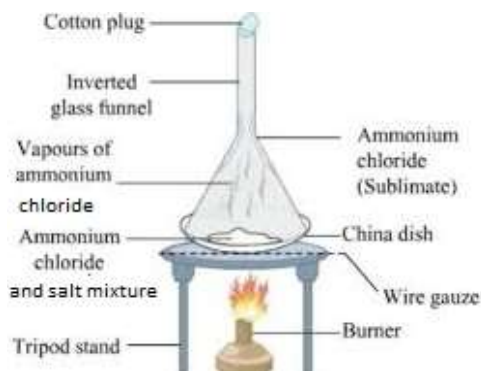
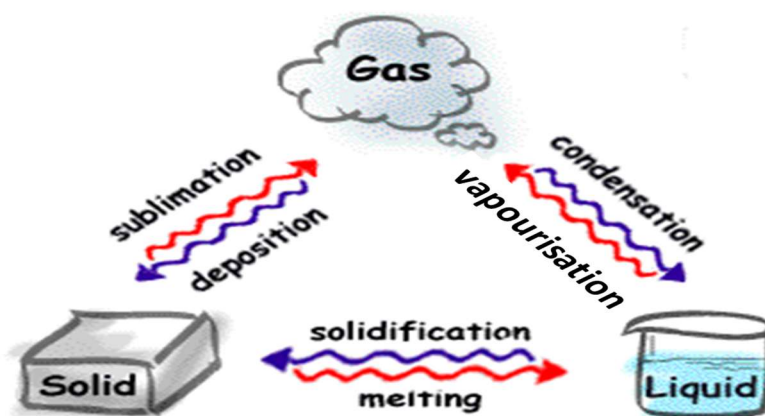


Diagram showing Separation of Ammonium chloride from a mixture of Ammonium chloride and Common salt by Sublimation

Let's Summarize



For further reference, you may refer to the following links:

- https://www.youtube.com/watch?v=r7XtuY_fr4E (watch it till 7th minute)
- <https://www.youtube.com/watch?v=gwHvEBkb3T0>

ASSIGNMENT QUESTIONS (To be done in the Chemistry Notebook)

1. a) Define the term *sublimation*.
b) Name any two solids which sublime on heating.
2. Why does the temperature remain constant during the process of melting?
3. Draw a neat and labelled diagram showing the separation of solid ammonium chloride from a mixture of ammonium chloride and sodium chloride (Common salt).
