



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

SUBJECT- CHEMISTRY

CLASS IX

CHAPTER 1: MATTER IN OUR SURROUNDINGS

Guidelines

Dear Students

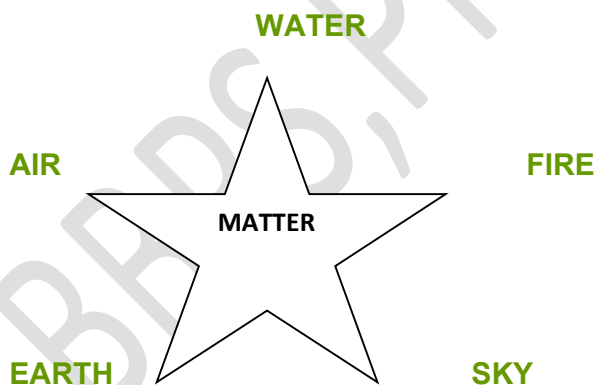
- Refer to the content given below.
- These notes will help you to understand the concept and complete the assignment that follows.
- The assignment is to be done in the Chemistry notebook.
- Link of the lesson: - http://ncertbooks.prashanthellina.com/class_9.Science.Science/CHAP%201.pdf

Sub-Topics

- Introduction of *matter*
- Physical nature of *matter*
- Characteristics of the particles of *matter*

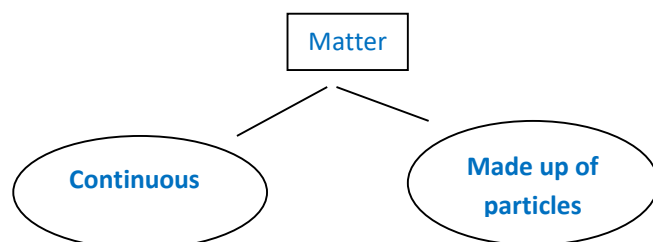
Matter

- Anything that occupies **space and has mass** is called *matter*.
- For example: Chair, bed, river, mountain, dog, tree, building, smell of perfume etc.
- Ancient philosophers believed that *matter* is made up of 5 basic elements:

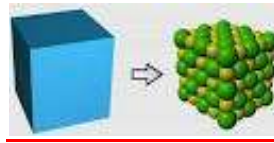


Physical Nature of Matter

There were two schools of thoughts regarding the nature of *matter*. One believed that *matter* is **continuous** while the other said that it was made up of **particles**.

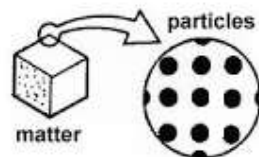


However, it was found that **Matter is made up of particles** which are too small to be observed with naked eye.



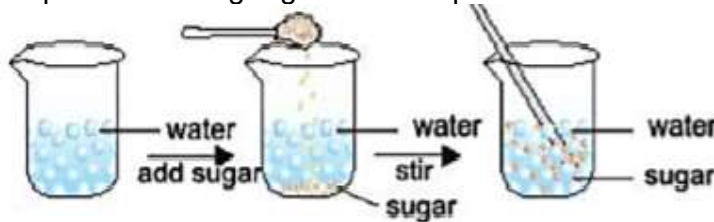
Characteristics of Particles of Matter

1. Particles of *matter* have spaces between them

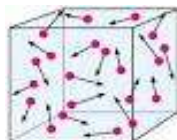


All matter is made of tiny particles that have empty spaces between them.

For example: When sugar is dissolved in water, the particles of sugar disappear in water. This happens because the particles of sugar get into the spaces between the particles of water.



2. Particles of *matter* are constantly moving



- Particles of the *matter* show continuous random movements. They are said to possess kinetic energy.
- Kinetic Energy is the energy possessed by a body due to its motion.
- **A rise in temperature increases the kinetic energy** of the particles, making them move more vigorously.

$$\text{Kinetic Energy} \propto \text{Temperature}$$

- Particles of *matter* intermix on their own with each other. They do so by getting into the spaces between the particles of other substances. **This intermixing of particles of two different types of *matter* on their own is called Diffusion.**
- For example: The colour of water changes on addition of few drops of ink. This is because the particles of ink diffuse (intermix) with the particles of water.

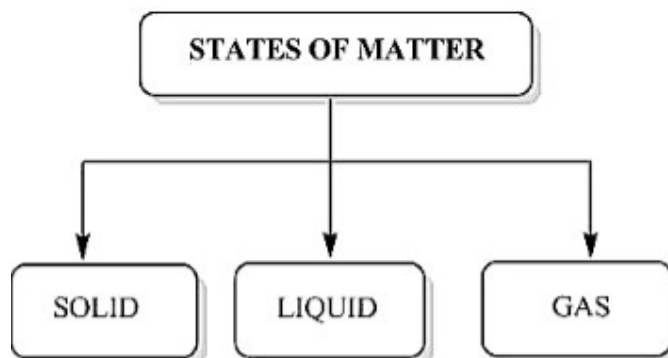


This shows that the particles have spaces between them and are continuously moving on their own.

- Similarly, fragrance of an incense stick (agarbatti) lit in one corner of a room, spreads in the whole room quickly.
- The particles of gases (or vapours) produced on burning the incense stick move rapidly in all directions and diffuse (mix) with the moving particles of air in the room.

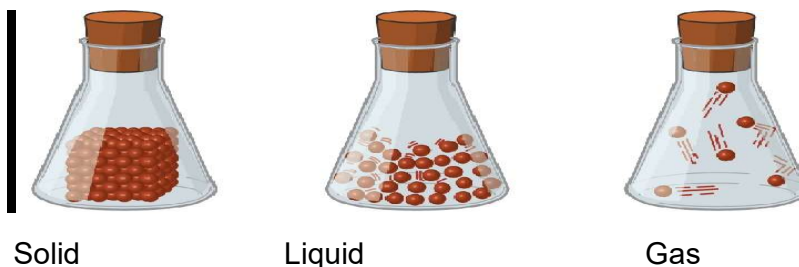
3. Particles of *matter* attract each other.

- **The particles of *matter* are always held together** because of the presence of **forces of attraction** between them.
- Have you ever observed that we cannot cut a stream of water with our hands? The reason behind this is that the water molecules are held together by strong forces of attraction.
- **The amount of this force between the particles varies in different forms of *matter*.**
- Based on the difference in the strength of forces of attraction, *matter* can be classified in three states:

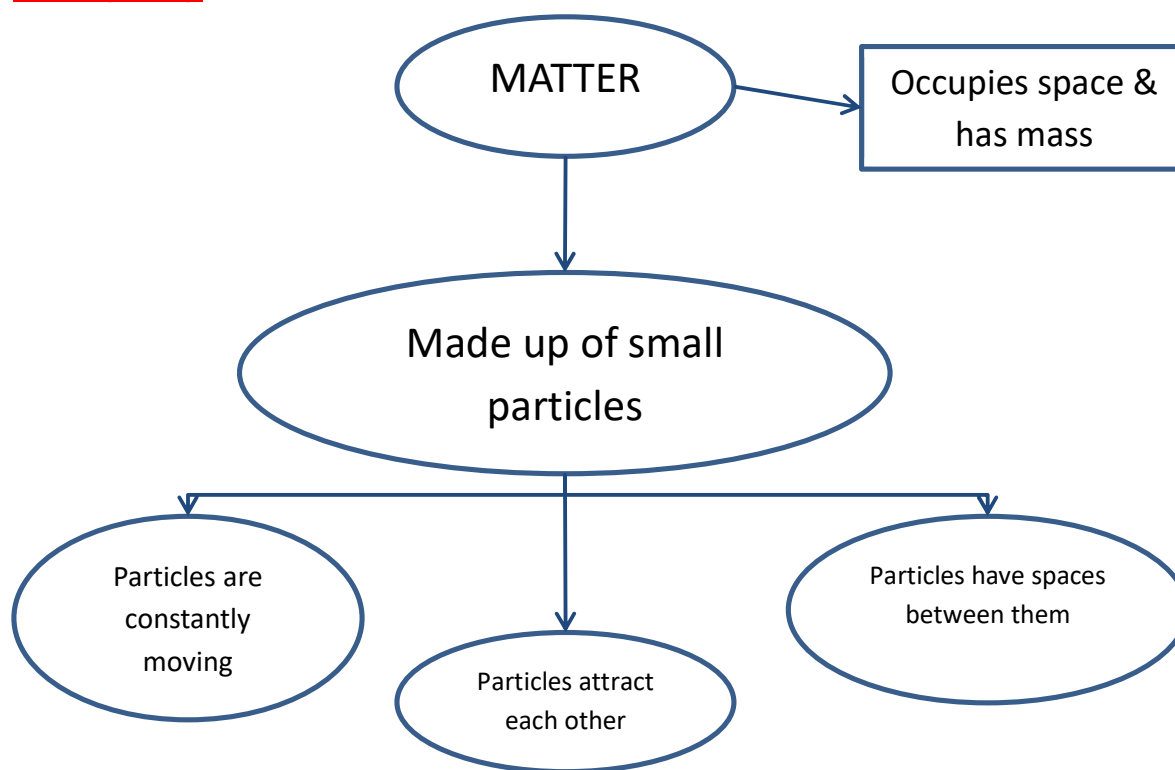


- The decreasing order of forces of attraction in the three states of *matter* is

Solids > Liquids > Gases



Concept Map



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

<https://www.youtube.com/watch?v=CBCc014OAJE>

<https://www.youtube.com/watch?v=gFIURykyUCE>

ASSIGNMENT QUESTIONS

1. Choose the correct answer from the options given below:

A. What is the effect of increase in temperature on particle motion?

- a) Particle motion increases with increase in temperature.
- b) Particle motion decreases with increase in temperature.
- c) Particle motion remains unaffected with increase in temperature.
- d) Only temperature cannot predict the change in particle motion.

B. Which of the following is not *matter*?

- a) Cold drink
- b) Smell
- c) Air
- d) Chair

C. When we add salt in water, particles of salt disappear because:

- a) they are very small.
- b) they get into the particle spaces of water.
- c) they are moving.
- d) all of the above.

D. How does the kinetic energy of the particles vary with the increase in temperature?

- a) Increases
- b) decreases
- c) does not change
- d) None of the above

E. The intermixing of the particles of different states of *matter* on their own is called

_____.

- a) Melting
- b) Boiling
- c) Diffusion
- d) Evaporation

2. Answer the following questions in brief:

- a) How does the smell of burning incense stick spread in the whole room?
- b) Define the term Kinetic energy.
- c) We cannot cut a stream of water with our hands. Why?
- d) What happens to the kinetic energy of particles on decreasing the temperature?

3. Fill in the blanks with suitable words:

- a) Matter is made up of small _____.
- b) The forces of attraction between the particles are _____ in solids and _____ in gases.
- c) Solid, liquid and gas are called the three _____ of matter.
- d) The smell of perfume gradually spreads across a room due to _____.

4. Design an activity to show that particles of *matter* are very small.