St. Andrews Scots Sr. Sec. School

9th Avenue, I.P. Extension, Patparganj, Delhi-110092

Session: 2022-2023

Class: V Subject: Science Topic: Solids, Liquids and Gases Lesson No: 4

- **Reading of the chapter**
- **Explanation (will be done in class)**

(Textbook exercise)

Section- A

Class Response

- **A. Oral Questions.**

1. Air is a matter because it has mass and occupies space .

2. Solid has a definite shape .

3. On heating, the solids expand because the movement of particles increases and the space between them also increases.

- **B. Science Quiz.**

1. Table and book
2. Molecules
3. Liquids and gases.

Worksheet

- **A. Multiple Choice Questions.**

1. (c) Solids
2. (b) decreases
3. (b) Water vapour

4. (a) expands

- **B. Circle the odd ones . Give reason .**
  1. **Oxygen**: It is a gas, whereas book and pen are solids.
  2. **Condensation**: It is the process which takes place on cooling, whereas evaporation and boiling take place on heating.
  3. **Orange juice**: It is a liquid, whereas carbon dioxide and oxygen are gases.

- **C. Fill in the blanks .**
  1. solids
  2. hard
  3. cool
  4. contraction
  5. molecules
  6. freezing

D. Complete the following table. First one is done for you:

	Properties	Solid	Liquid	Gas
1.	Definite shape	✓	✗	✗
2.	Definite volume	✓	✓	✗
3.	Can flow	✗	✓	✓
4.	Can be compressed	✗	✓	✓
5.	Molecules very tightly/closely packed	✓	✗	✗
6.	Force of attraction between the molecules is very weak	✗	✗	✓

E. **Match the following .**
  1. (b)
  2. (c)
  3. (a)

Section- B

- **A.(MCQs) Scientific/ Practical skills.**
  1. (b) liquid
  2. (b) contracts

- **B. Very Short Answer Questions.**

1. What is a physical change ?

Ans. When the change occurs only in the shape, size and state of matter, it is called physical change. E.g., melting of ice.

2. Why does the size of a substance increase on heating ?

Ans. On heating a substance, the movement of particles increases and the space between them also increases. So, the substance expands on heating and its size increases.

(Notebook Work)

- **New Words**

Any 10 words

- **Defines**

1. Matter - Anything that has mass and occupies space .

2. Molecules - Very small particles of matter.

3. Evaporation - Liquid changes into gaseous state on heating .

4. Melting - Solid changes into liquid state on heating.

5. Condensation - Gases change into liquid state on cooling .

6 Freezing - Liquid changes into solid state on cooling .

- **Short Answer Questions.**

1. Write two properties of solids.

Ans. Properties of solids :-

(i) Solids have definite shape and volume .

(ii) Molecules are very closely packed. So, solids cannot flow .

2. Write two properties of gases.

Ans. Properties of gases :-

(i) Gases have no fixed shape and volume.

(ii) Molecules in gases are far apart from each other . So, gases can flow easily.

- **Long Answer Questions.**

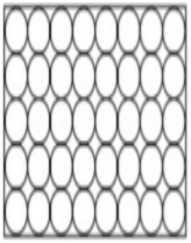
1. Describe arrangement of molecules in solids and liquids.

Ans. **Arrangement of molecules in solids :-**

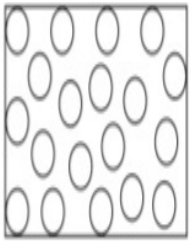
- Molecules are very closely packed.
- There is a strong force of attraction between molecules. So, they cannot move away from each other .

Arrangement of molecules in liquids:-

- Molecules are not very close to each other.
- There is a weak force of attraction between the molecules.So, they can slide over one another and flow.



Arrangement of molecules in solids



Arrangement of molecules in liquids

2. What happens to the particles of water when heated ?

Ans. When water is heated, the particles of water start moving faster. It results in increase in distance between the molecules of water. They become free and escape into the air in the form of water vapour. These molecules can move much more freely.

- **Give Reason.**

1. When your mother cooks food , you can smell the food across the house.

Why ?

Ans We can get the smell of cooked food across the house because the molecules of gas are very far apart and freely movable. When food is cooked, they get heated and start moving faster and we smell the food across the house..

2. What kind of change is there in the following activities: physical or chemical ?

Ans (a) sharpening a pencil - Physical change

(b) burning a matchstick- Chemical change

(c) curdling of milk by adding lemon juice -Chemical change

(d) cutting potatoes into small pieces- Physical change

Activity.

To show that gases flow easily and occupy all the space.

Aim - To show that gases flow easily and occupy all the space .

Material required- Incense stick

Procedure - Take an incense stick and burn it in one corner of a room.

Observation- After few minutes, you smell the fragrance and see the smoke in the entire room.

Conclusion - It is because the molecules in gas are far away from each other and are free to move . Since , the gases occupy the space , you see smoke and smell the fragrance in the entire room.

Dictation:

Any 10 words

Textbook Exercise

Points to Remember

- All the matter is made up of molecules.
- The arrangement of molecules is different in solids, liquids and gases.
- Matter changes state on heating or cooling.
- When a substance is cooled, the movement of molecules slows down.
- When a substance is heated, the movement of molecules becomes faster.
- When the change occurs only in the shape, size and state of matter, it is a physical change.
- When the matter changes to form a new substance, it is called chemical change.

Exercises

*(Use **Cordova Smart Class Software** on the **smart board** in class to do these exercises.)*

SECTION - A

Class Response

A Oral Questions:

1. Why is air a matter?
2. Which form of matter has a definite shape?
3. Why do solids expand on heating?

B Science Quiz:

1. Name two solid substances. Table, book
2. Name the particles that form matter. Molecules
3. Name two matter that can flow. liquid, gas.

Worksheet

A Multiple Choice Questions (MCQs):

1. In which of the following, the particles are very close to each other?
   (a) gases ○ (b) liquids ○ (c) solids ✓
2. On cooling, the movement of particles of a substance _____ .
   (a) increases ○ (b) decreases ✓ (c) remains the same ○
3. When we heat water, it changes into _____ .
   (a) ice ○ (b) water vapour ✓ (c) solids ○
4. On heating, a solid _____ .
   (a) expands ✓ (b) contracts ○ (c) freezes ○

B **Circle the odd ones. Give reason for your choice:**

1.	book	oxygen	pen
2.	condensation	evaporation	boiling
3.	carbon dioxide	orange juice	oxygen

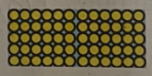
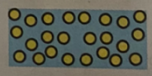
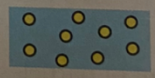
C **Fill in the blanks:**

1. Particles are more closely-packed in solids than in liquids. (gases/solids)
2. Solids are generally hard. (hard/soft)
3. When we cool water, it changes into ice. (heat/cool)
4. The effect of cooling is contraction. (expansion/contraction)
5. The arrangement of molecules decides the three states of matter. (moles/molecules)
6. The change of liquid to solid on cooling is called freezing (melting/freezing)

D **Complete the following table. First one is done for you:**

S.No.	Properties	Solid	Liquid	Gas
1.	Definite shape	✓	✗	✗
2.	Definite volume	✓	✓	✗
3.	Can flow	✗	✓	✓
4.	Can be compressed	✗	✓	✓
5.	Molecules very closely-packed	✓	✗	✗
6.	Force of attraction between the molecules is very weak	✗	✗	✓

E **Match the following matter with the arrangement of their molecules:**

Matter		Arrangement of molecules
1. Cold drink	(a)	 3
2. Air	(b)	 1
3. Book	(c)	 2

SECTION - B

A **Multiple Choice Questions (MCQs) Scientific/Practical skills:**

1. The molecules of a matter are loosely-packed. The state of matter is
   (a) solid. (b) liquid. ✓ (c) gas.
2. On cooling, the matter
   (a) expands. (b) contracts. ✓ (c) has no effect.