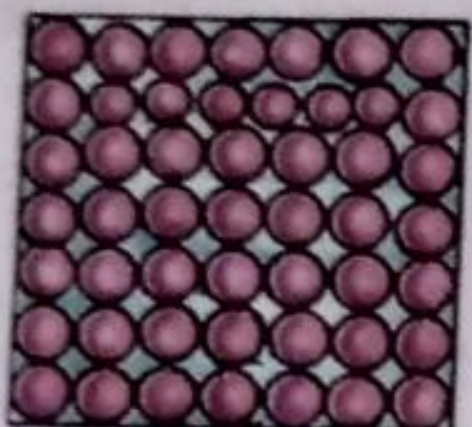

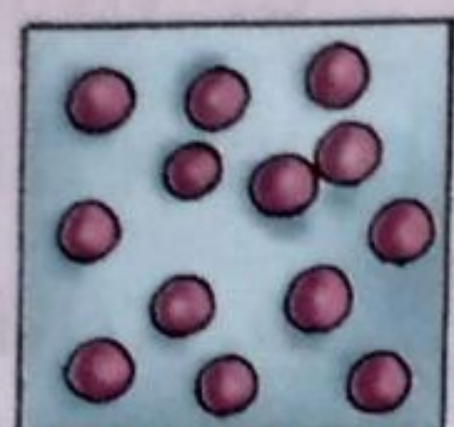

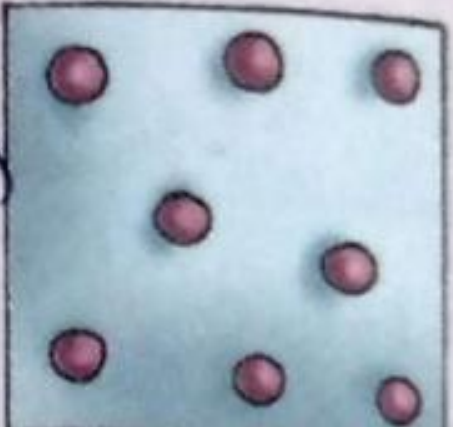



The Physical Phenomena

A tree occupies some space, the air filled in the football occupies space and water contained in a glass also occupies space. Anything that occupies space is called **matter**. Matter can be in three states—solids, liquids or gases.

What is Matter Made of?

Matter is made of tiny units called **molecules**. The arrangement of these molecules varies in different states of matter.

<p><i>Ans C1</i></p>  <p>Solids</p> <p>(Molecules are tightly arranged. They attract each other with great force. The molecular arrangement makes the solids hard and rigid.)</p> 	<p><i>Ans C5(a)</i></p>  <p>Liquids</p> <p>Molecules have some space to move freely. The force of attraction amongst the molecules is less. The molecular arrangement makes the liquids free flowing.</p> 	<p><i>Ans C2</i></p>  <p>Gases</p> <p>(Molecules are very loosely packed. The force of attraction amongst molecules is least. The molecular arrangement causes the gases to spread easily.)</p> 
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Quick Revision:

Write True or False against the following statements:

- The molecules in solids attract each other with great force.
- Solids are free flowing.
- The molecules of liquids are very loosely packed.

T
F
F

4. Gases are hard and rigid.
5. Liquids spread easily.

F
F

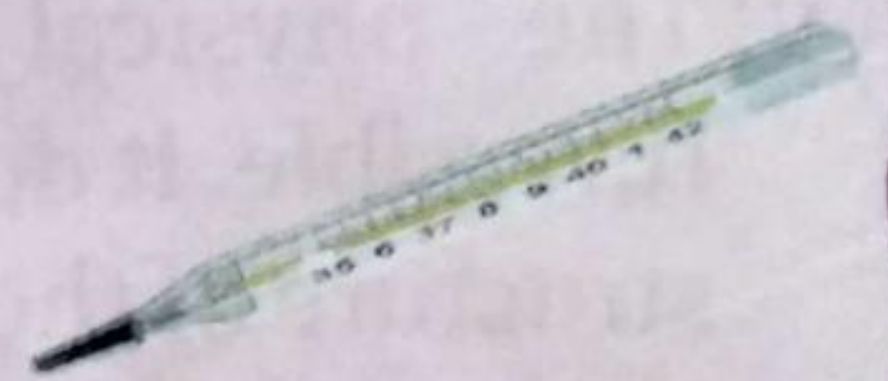
Atoms

Molecules are further made up of tiny units called the **atoms**. They are the tiny building blocks that give matter its characteristics. Based on the type of atoms the substances can be classified into two—elements and compounds.

Elements

Elements are the substances made of similar kind of atoms. These atoms are unique to that particular atom and they are not found in any other atom, therefore, the characteristics of a particular atom are unique to it. For example, gold has a unique shine, iron is a hard element and carbon is black in colour.

Mercury is the only element that is liquid at room temperature. It is used in thermometers to measure temperature.



Carbon



Iron

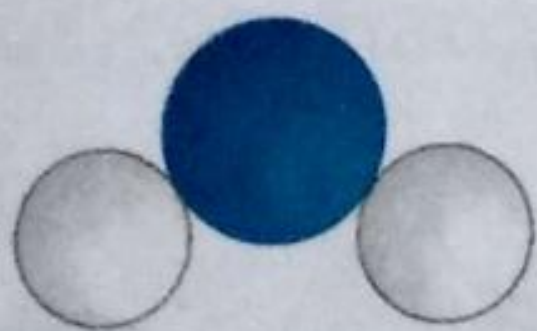


Gold

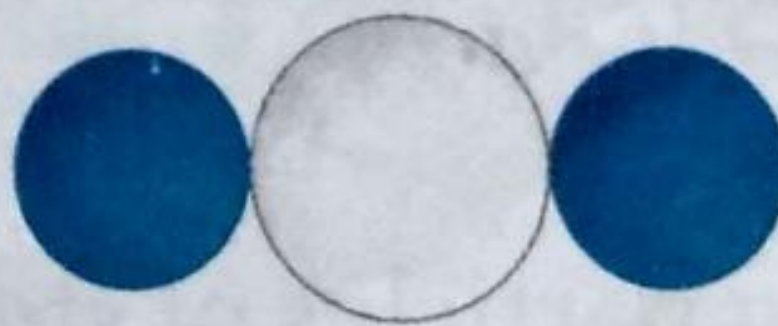
Compounds

The substances that are made of more than one type of atom are called **compounds**.

Potassium Chlorate is a compound containing potassium, chlorine and oxygen. It is used as a disinfectant and in fireworks and explosives. On burning it releases oxygen gas and is therefore used as a source of oxygen in airplanes, space stations and submarines.



Water



Carbon dioxide

A compound is always different from the elements that combine to form it. For example hydrogen and oxygen are gases, but water is a liquid. Sodium and chlorine are two different elements that combine to form sodium chloride which is the common salt that we use at home.

7/9/20

Changes in States of Matter

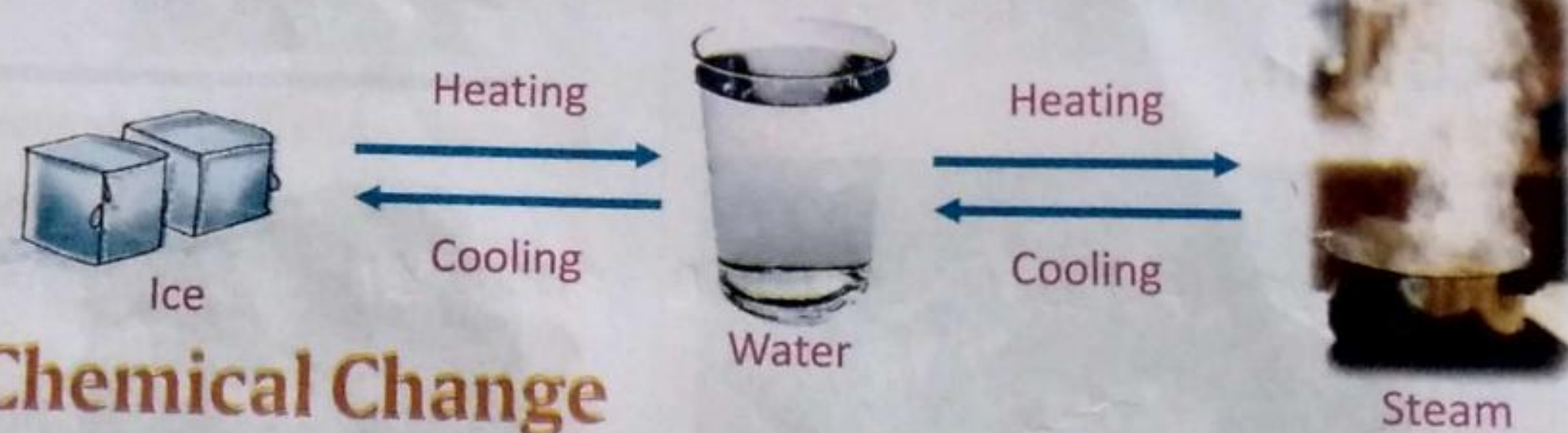
The changes in states of matter takes place in two ways:

Physical Change

A physical change is a change in the physical state of matter. The change of ice into water on heating or water into ice on cooling is called a physical change.

Ans C5(b)

The physical change is temporary and reversible. It does not change the basic atomic structure of the substance.



Chemical Change

Changes in which the chemical properties of the substance undergo a change are called **chemical changes**. The cooking of egg, rusting of a nail etc., are chemical changes.

Ans C3

Evaporation

(When water is heated, the molecules of water begin to vibrate faster. They move away from each other and escape into the air as water vapour.)



Condensation

(When the freely moving particles of steam touch a cold surface, they vibrate less and also move less. The particles change into water.)



A chemical change makes a new substance altogether. A chemical reaction is accompanied by emission of light, heat, colour change, gas production, odour, or sound. The starting and ending materials of a physical change are the same, even though they may look different.



Melting wax is a physical change



Ans C4

Let's Answer

A. Fill in the blanks with suitable words from the bracket:

1. Particles are more tightly packed in solids (gases/solids) than in liquids (solids/liquids).
2. Atoms are the tiniest building blocks of matter (atoms/molecules).
3. Substances with similar type of atoms are called elements (compounds/elements).
4. A compound is always different from the elements that combine to form it (compound/element).

B. Rewrite the following statements correctly:

1. Heating causes the molecules to form a rigid structure.
Cooling causes the molecules to form a rigid structure.
2. Cooking of egg is a physical change.
Cooking of eggs is a chemical change.
3. The force of attraction in solids is the least.
The force of attraction in gases is least.
4. Characteristics of a particular element are due to different kinds of atoms in it.
Characteristics of a particular elements are due to same kind of atoms.
5. Physical change is irreversible.
Chemical change is irreversible.

C. Answer these:

1. Why do solids have a rigid shape? Pg-68 (C1)
2. Why can gases spread easily? Pg-68 (C2)
3. What happens when water is heated? Pg-70 (C3)
4. What happens to molecular movement during condensation? Explain with example. Pg-70 (C4)
5. Differentiate with examples:
 - a. Liquid Vs Gas Pg-68 (C5, a)
 - b. Physical change Vs Chemical change Pg-70 (C5-b)