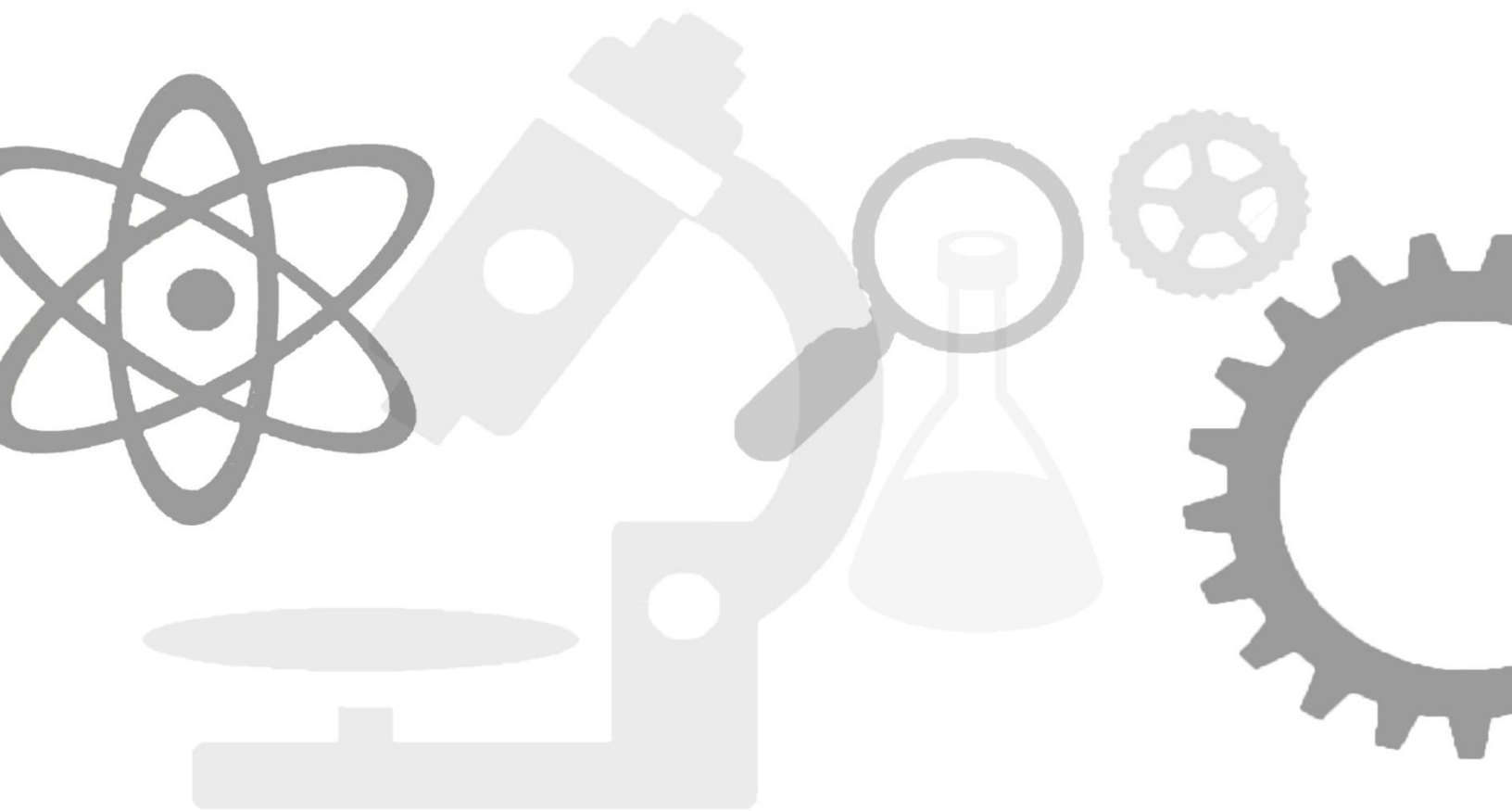








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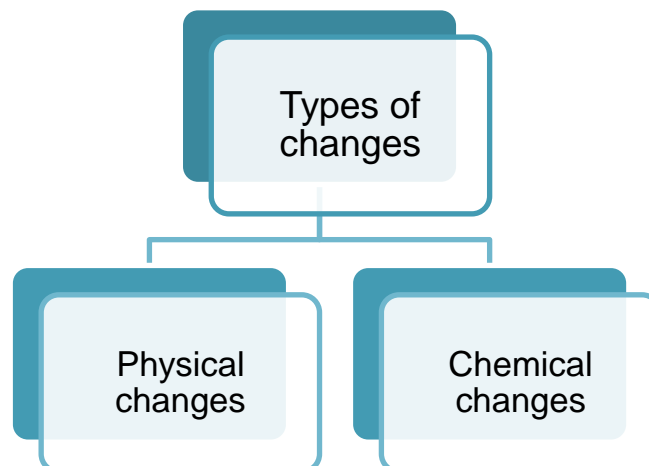


Physical and Chemical Changes

- Every day we observe changes taking place around us.
- Some of the changes observed in our daily life are

	
<p>Formation of curd from milk</p>	<p>Drying of clothes</p>
	
<p>Cooking of food</p>	<p>Ripening of fruits</p>
	
<p>Melting of ice</p>	<p>Rusting of iron</p>

Types of Changes

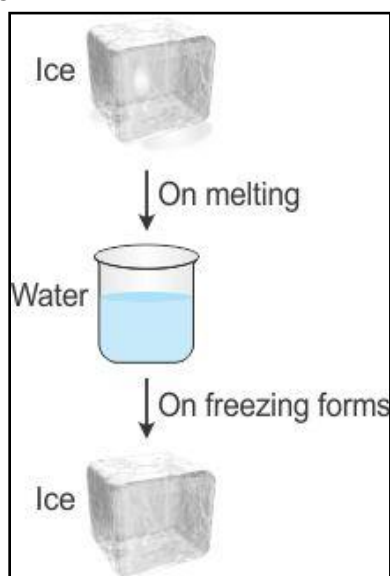


Physical Changes

- In physical change, no new substances are formed.
- Changes in size, shape, state and colour of a substance are the physical changes.
- The properties such as size, shape, state and colour of a substance are called its physical properties.
- So, we can say that a change in which a substance undergoes a change in its physical properties is called a physical change.
- In physical change, the changes are temporary and can be easily reversed to form the original substance.

Examples:

- i. Melting of ice and freezing of water



- ii. Boiling of water and condensation of steam
- iii. Breaking of a glass tumbler



Chemical Changes

- In chemical change, new substances are formed.
- The new substances formed have properties entirely different from the original substances.
- In a chemical change, a substance undergoes a change in its chemical properties.
- Chemical changes are also called chemical reactions.
- In chemical change, the changes are permanent which can usually not be reversed to form the original substances.

Characteristics of Chemical change

Heat, light or any other radiation may be given off or absorbed.

Sound may be produced.

A change in smell may take place or a new smell may be given off.

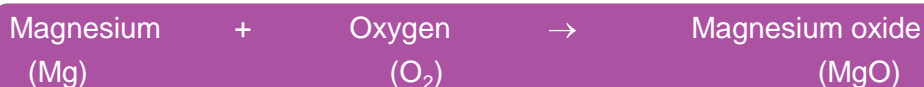
A colour change may take place.

A gas may be formed.

Examples:

i. Burning of Magnesium Ribbon

- Burning of a magnesium ribbon is a chemical change. When magnesium ribbon is held over the flame of the burner, it burns with a dazzling white light to give a new substance, magnesium oxide.



- The magnesium oxide obtained on dissolving in water also forms a new substance, magnesium hydroxide which turns the red litmus paper to blue, indicating that it is basic in nature. So, the dissolving of magnesium oxide in water is a chemical change.



ii. Reaction between Copper sulphate and Iron

- The reaction between copper sulphate and iron is a chemical change. When an iron object is placed in copper sulphate solution, a chemical reaction takes place to give two new substances, iron sulphate and copper.

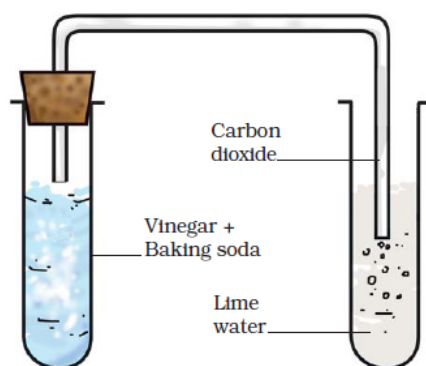


iii. Reaction between Baking soda and Vinegar

- The reaction between baking soda and vinegar is a chemical change. Baking soda is sodium bicarbonate and vinegar contains acetic acid. So, on mixing baking soda with vinegar, a chemical change takes place to form three new substances, sodium acetate, carbon dioxide and water.



- The carbon dioxide produced in the reaction is used to carry out another chemical change. Carbon dioxide on passing through freshly prepared lime water (calcium hydroxide solution) turns the limewater milky, to give a new substance, calcium carbonate.



Distinguish between Physical & Chemical Change

Physical change	Chemical change
No new substance is formed.	New substance is formed.
Change is temporary.	Change is permanent.
It is easily reversible.	It is usually irreversible.
Very little energy is given out or absorbed.	A lot of energy is absorbed or given out.