

Lesson at a Glance

- Changes are important for our life.
- There are some factors, like, heating, pressure or mixing with other materials that are responsible for the changes around us.
- **Contraction:** It is a phenomenon in which a substance shrinks or changes its shape.
- **Dissolve:** To mix a solid, liquid or gas with water or any other solvent to form a solution.
- **Expansion:** A phenomenon in which a substance expands or changes its shape.
- **Freezing:** The phenomenon of a liquid turning into solid form at low temperature.
- **Melting:** It is a process in which solid substances melt and turn into liquid.
- **Physical Change:** It is a change in which the physical property of a substance changes and no new substance is formed.
- **Chemical Change:** It is a change in which the chemical properties of a substance or substances change and form a new substance.
- **Solution:** A mixture of two or more solids (solutes) in a liquid (solvent).
- **Slow Change:** It is a kind of change that takes long time to complete.
- **Fast Change:** It is a change that takes short time to complete.
- **Reversible Change:** It is a change that can be reversed and the original shape and size of the substance can be obtained.
- **Irreversible Change:** It is a change that cannot be reversed.

• **Characteristics of Physical Change:**

- No new substances are formed.
- Products are identical to reactants in chemical properties.
- These changes are reversible.

• **Characteristics of Chemical Change:**

- Properties of products are different from the reactants.
- Most of the chemical changes are irreversible.
- Loss or gain of energy is involved in a chemical change.

■ **TEXTBOOK QUESTIONS SOLVED** ■

Q.1. To walk through a waterlogged area, you usually shorten the length of your dress by folding it. Can this change be reversed?

Ans. Yes, it can be reversed by unfolding the dress.

Q.2. You accidentally dropped your favourite toy and broke it. This is a change you did not want. Can this change be reversed?

Ans. No, this change (breaking of toy) cannot be reversed.

Q.3. Some changes are listed in the following table. For each change, write in the blank column, whether the change can be reversed or not.

S. No.	Change	Can be reversed (Yes/No)
1.	The sawing of a piece of wood	
2.	The melting of ice candy	
3.	Dissolving sugar in water	
4.	The cooking of food	
5.	The ripening of a mango	
6.	Souring of milk	

Ans. 1. No 2. Yes 3. Yes
4. No 5. No 6. No.

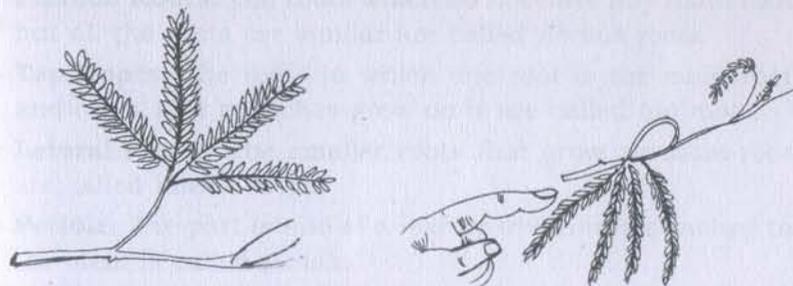
Q.4. A drawing sheet changes when you draw a picture on it. Can you reverse this change?

Ans. No, we cannot get fresh drawing sheet once a picture is drawn on it with paint/oil or water. However, we can reverse the change, if soft pencil is used to draw the picture.

Q.5. Give examples to explain the difference between changes that can or cannot be reversed.

Ans. Examples of reversible and irreversible changes.

Reversible changes	Irreversible changes
1. Glowing of electric bulb. (It glows when switched on and becomes dark when switched off.)	1. Burning of paper or wood. (It gives smoke and ash, which cannot form paper or wood again.)
2. Distillation of liquid: Liquid $\xrightleftharpoons[\text{condensation}]{\text{evaporation}}$ Vapour	2. Rusting of iron. (Rust cannot be changed into iron again.)
3. Sublimation Solid $\xrightleftharpoons[\text{cool}]{\text{heat}}$ Vapour	3. Making of curd from milk.
4. Collapsing of mimosa (touch me not) leaves on touching and opening up on removing the finger.	4. Growth of plants and animals.



Collapsing and opening up of Mimosa leaves represent a reversible change.

Q.6. *A thick coating of a paste of Plaster of Paris (POP) is applied over the bandage on a fractured bone. It becomes hard on drying to keep the fractured bone immobilised. Can the change in POP be reversed?*

Ans. No, the change in POP cannot be reversed since it is a chemical change.

Q.7. *A bag of cement lying in the open gets wet due to rain during the night. The next day the sun shines brightly. Do you think the changes, which have occurred in the cement, could be reversed?*

Ans. No, these are irreversible chemical changes.