

# 5

# Changes around us Physical and Chemical

## Chapter Notes:

### Physical Changes

- Only physical properties like shape, size, and state change.
- No new substance is formed.
- Examples: Melting ice, cutting paper, folding cloth.

### Chemical Changes

- New substances with different properties are formed.
- Involve chemical reactions.
- Examples: Rusting iron, burning wood, curdling milk.

### Some Important Chemical Changes

- Rusting: Iron + Water + Oxygen  $\rightarrow$  Rust (iron oxide)
- Combustion: Magnesium + Oxygen  $\rightarrow$  Magnesium oxide + Heat + Light

### Physical and Chemical Change Together

- Example: Burning a candle:
- Melting of wax – Physical change
- Burning of wax vapour – Chemical change

### Reversible and Irreversible Changes

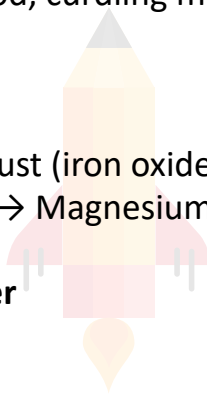
- Reversible: Can be undone. (e.g., melting wax)
- Irreversible: Cannot be undone. (e.g., curdling milk)

### Desirable and Undesirable Changes

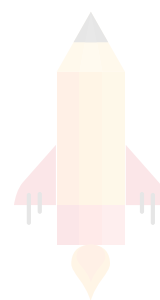
- Desirable: Cooking, digestion, composting.
- Undesirable: Rusting, food spoilage.

### Natural Changes

- Weathering: Physical and chemical breakdown of rocks.
- Erosion: Transport of sediments by wind or water.



One Point Learning



One Point Learning

## Fill in the blanks

1. Changes in which no new substance is formed are called \_\_\_\_\_.
2. Rusting of iron is a \_\_\_\_\_.
3. The gas formed during vinegar and baking soda reaction is \_\_\_\_\_.
4. The formation of soil from rocks is called \_\_\_\_\_.
5. \_\_\_\_\_ requires fuel, oxygen, and heat.

## Multiple Choice Questions (MCQs)

1. Which of the following is a chemical change?  
a) Boiling water                                      b) Melting wax  
c) Rusting                                              d) Freezing water
2. The burning of magnesium ribbon produces:  
a) Carbon dioxide                                      b) Water  
c) Magnesium oxide                                      d) None of these
3. What turns lime water milky?  
a) Carbon dioxide                                      b) Oxygen  
c) Hydrogen                                              d) Nitrogen

## True or False

1. Physical changes are always reversible.
2. Cutting paper is a physical change.
3. Burning wood is a chemical change.
4. Ripening of fruit is a physical change.
5. All chemical changes produce heat.

## Short Answer Questions

Q1. What is a physical change?

Ans: \_\_\_\_\_

Q2. What is a chemical change?

Ans: \_\_\_\_\_

Q3. Define ignition temperature.

Ans: \_\_\_\_\_

Q4. Name a natural process that includes both physical and chemical changes.

Ans: \_\_\_\_\_

Q5. Why is burning a candle both physical and chemical?

Ans: \_\_\_\_\_

## More Questions

Q1. What happens to lime water when carbon dioxide is passed through it? Why?

Ans: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Q2. Why is curdling of milk considered a chemical change? Give reason.

Ans: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Q3. Define combustion.

Ans: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Q4. Why is rusting of iron a chemical change?

Ans: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Q5. What is meant by weathering?

Ans: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

One Point Learning

## Answers

### Fill in the Blanks

1. physical changes
2. chemical change
3. carbon dioxide
4. weathering
5. Combustion

### Multiple Choice Questions (MCQs)

1. → c) Rusting
2. → c) Magnesium oxide
3. → a) Carbon dioxide

### True or False

1. → False
2. → True
3. → True
4. → False
5. → False

### Short Answer Questions

Ans 1: A change in which no new substance is formed and only the appearance or state changes.

Ans 2: A change in which one or more new substances are formed with different properties.

Ans 3: The lowest temperature at which a substance catches fire.

Ans 4: Weathering of rocks.

Ans 5: Wax melts (physical), vapour burns (chemical).

### Extra Question

Q1. Ans: Lime water turns milky when carbon dioxide is passed through it because calcium carbonate (a white insoluble substance) is formed.

Equation:

Calcium hydroxide (lime water) +  $\text{CO}_2$  → Calcium carbonate + Water

Q2. Ans: Curdling of milk is a chemical change because a new substance, curd, is formed with different taste, texture, and properties. The original milk cannot be recovered.

Q3. Ans: Combustion is a chemical reaction in which a substance combines with oxygen to produce heat and/or light. Example: Burning wood or kerosene.

Q4. Ans: Rusting of iron is a chemical change because a new substance, iron oxide (rust), is formed that cannot be converted back into iron.

Q5. Ans: Weathering is the breaking down of rocks into smaller particles due to physical factors (like wind and rain) and chemical reactions (like oxidation).