



# CHEMISTRY

SAMPLE BOOK



# CHEMISTRY



I'm the  
**Intelli Kid**

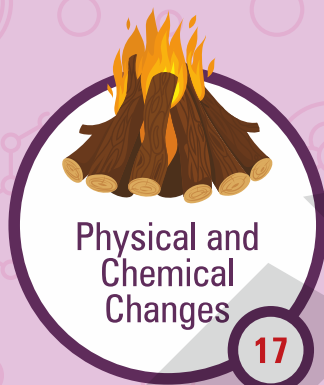
and  
I'm becoming the  
**Best Version**  
of myself with





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GRADE-7








Experiential Experimental Edutaining



# I AM PROGRESSING

(Tick mark the columns after achieving the Learning Milestones)



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 Fibre to Fabric				
 Physical and Chemical Changes				
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 Waste Water Management				

# CHEMISTRY

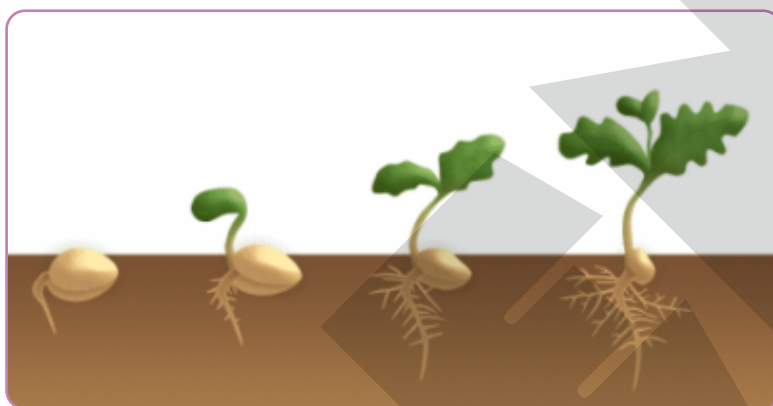
## SAMPLE THEORY

# CHAPTER 2

## PHYSICAL AND CHEMICAL CHANGES

### INTRODUCTION

Many changes take place around us. We can say that a change has occurred if a substance or object changes its shape, size, texture, appearance, odour, colour or any other chemical properties. Everything in the universe keeps on undergoing a change in a few seconds, minutes, hours or even years.



*Growing of a Plant*

### REVERSIBLE & IRREVERSIBLE CHANGES

#### REVERSIBLE CHANGES

The changes which can be reversed, i.e., the objects or substances undergoing such changes can be brought back to their original form are called **reversible changes**.

**Examples:** Inflating a balloon, melting of chocolate, folding a paper, etc.

#### IRREVERSIBLE CHANGES

The changes which cannot be reversed, i.e., the objects or substances undergoing such changes cannot be brought back to their original form are called **irreversible changes**.

**Examples:** Tearing a paper, burning of wood, cooking food, etc.



*Reversible change*

*Irreversible change*



## Expansion & Contraction

When a substance is heated, it expands (increases) in size and this process is called **expansion**. On the other hand, when a substance is cooled, it contracts (decreases) in size and this process is called **contraction**.

This expansion & contraction of metals is useful in many things. Like, when a metal rim of a jar gets jammed, it is heated so that the metal gets expanded and it can be opened easily. So, we can say that expansion is a reversible change.

## PHYSICAL & CHEMICAL CHANGES

Changes can be classified as physical and chemical changes also.

### PHYSICAL CHANGES

Changes in which **no new substances** are formed and the chemical composition of the substance does not change are called physical changes.

- It is mostly a **change in the shape or state** of any substance.
- Some physical changes are reversible changes and some are irreversible changes.

**Examples:** Cutting of vegetables, crushing a can, tearing of paper, breaking a glass, glowing of an electric bulb, melting of ice, freezing of water, changing of a liquid substance into crystals (crystallisation), etc.



Cutting of vegetables

### CHEMICAL CHANGES

The changes in which **new substances** are formed and there is a change in the chemical properties of a substance are called chemical changes.

- Whenever a substance undergoes a chemical change, its **colour, odour or appearance changes**.
- Also, chemical changes can be indicated by release of some gas. Chemical changes cannot be mostly reversed.

**Examples:** Ripening of fruits, burning of fuel, cooking of food, baking of chapatti, rusting of iron, digestion of food, burning of paper, etc.



Ripening of a Mango

# CHEMISTRY

## SAMPLE EXERCISE





# EXERCISE

GRADE - 7

## Physical and Chemical Changes



**Directions:** Solve each of the following multiple choice questions by choosing the most appropriate option.

1. Rayna listed down the methods using which the prevention for rusting can be done. These are as given below:

- (i) Tinning                      (ii) Galvanising                      (iii) Plastic coating  
(iv) Alloying                      (v) Oil painting                      (vi) Enamel coating

The number of non-metallic coatings listed above are \_\_\_\_\_.

- (1) 4                      (2) 5                      (3) 3                      (4) 6

2. Read the statements given below and state whether they are true (T) or false (F) by choosing the correct option.

A: Change is a universal phenomenon.

B: New substances are formed during physical change.

C: Expansion and contraction of railway crossings during summers is an example of reversible change.

D: Burning a paper is not a change.

- (1) TTFF                      (2) TFTF                      (3) FFTT                      (4) FTTF

3. A change in a substance can be brought by doing which of the following ?

- (1) Applying force                      (2) Mixing it with something else  
(3) Heating                      (4) All of the above

4. Below given are some characteristics of a change. Which of the following does not belong to chemical change ?

- (1) It is a permanent change.  
(2) It cannot be easily reversed.  
(3) Only a little heat is absorbed during this change.  
(4) There is no change in mass during this change.

5. Match Column-I with Column-II and select the correct option.

Column-I		Column-II	
A.	Boiling of eggs	1.	Slow change
B.	Melting of wax	2.	Irreversible change
C.	Glowing of an electric bulb	3.	Reversible change
D.	Rusting of iron	4.	Fast change

- (1) A-1, B-2, C-3, D-4                      (2) A-2, B-3, C-4, D-1                      (3) A-4, B-3, C-2, D-1                      (4) A-3, B-2, C-4, D-1

6. Read the given statements and select the correct option.  
Statement 1: The substances taking part in the chemical reaction are called reactants.  
Statement 2: The new substances formed in the chemical reaction are known as products.  
(1) Both the statements are true. (2) Only statement 1 is true.  
(3) Only statement 2 is true. (4) Both the statements are false.
7. Make a list down some reactive elements as given below. Which of these is the most reactive element?  
(1) Lead (2) Hydrogen (3) Copper (4) Mercury
8. Which of the following separation techniques can be followed for separating a pure solid in the form of its crystals from a solution?  
(1) Crystallisation (2) Evaporation (3) Handpicking (4) Chromatography
9. Refer to the Venn diagram given below and select the correct option for X.



- (1) Reversible change  
(2) Periodic change  
(3) Irreversible change  
(4) Slow change
10. A few characteristics of X are given below:  
(i) Colour may change.  
(ii) Solid material may be formed.  
(iii) Gas may form or colour may change.  
(iv) Heat, light or sound may be given off.  
Which of the following can be X?  
(1) Rusting (2) Chemical reaction (3) Sublimation (4) Tearing of paper
11. Balancing of chemical equations is done in accordance to which of the following laws?  
(1) Law of conservation of gravity  
(2) Law of conservation of matter  
(3) Law of conservation of mass  
(4) Law of conservation of gas
12. Which of the following is another name for combination reaction?  
(1) Decomposition reaction (2) Synthesis reaction  
(3) Double displacement reaction (4) Reduction reaction