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SCIENCE ACTIVITIES

VOLUME I



As Per New Continuous and Comprehensive Evaluation (CCE) Scheme

CLASS X

Comprehensive

SCIENCE ACTIVITIES

Volume I

FOR CLASS X

Strictly according to new syllabus prescribed by

Central Board of Secondary Education (CBSE)
and
State Boards of Chhattisgarh, Haryana, Bihar, Jharkhand, Kerala, Mizoram, Meghalaya, Uttarakhand and other States following NCERT Curriculum

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PREFACE

Dear students,

In this age of nail-biting competition, it really helps to be well equipped in subject knowledge in order to break the ice in the competitive area. So, while the market is flooded with numerable repetitions of book which mars your intellectuality and competency. We have endeavoured to reach out to your widen examination needs in this edition. Keeping in mind the broader comprehensive needs of subject knowledge we have put in our best efforts in this book.

Science is learnt best by doing. We can understand the principles of science by doing experiments. Therefore, the practical work in laboratory is an essential part of the student's life. Special features of this practical book are :

- ★ It is strictly in accordance with the latest curriculum (CCE) for Xth class prescribed by C.B.S.E., New Delhi.
- ★ Experiments are given termwise.
- ★ Subject matter is presented in simple and lucid manner.
- ★ Properly labelled diagrams are provided in experiment.
- ★ Sufficient theory is provided at the beginning of each experiment.
- ★ Tables are given for direct recording the observations.
- ★ Precautions are given for each and every experiment.
- ★ The procedure required for each experiment is written in an orderly.
- ★ Viva-Voce questions and Multiple Choice Questions with answers are given in Volume II.

We sincerely hope that the present book will prove to be more useful for the students in their practical class.

Although we have taken care and laid down all efforts to remove any discrepancy which might have crept in, yet criticism or suggestions are always solicited from your end. Thanking you in anticipation for your co-operation.

—Authors

SYLLABUS

(*Central Board of Secondary Education*)

SCIENCE

(Code No. 086/090)

Practical should be conducted alongside the concepts taught in theory classes

FIRST TERM

1. To find the pH of the following samples by using pH paper/universal indicator.
(*i*) Dilute Hydrochloric acid
(*ii*) Dilute NaOH solution
(*iii*) Dilute Ethanoic acid solution
(*iv*) Lemon juice
(*v*) Water
(*vi*) Dilute Sodium bicarbonate solution.

2. To study the properties of acids and bases HCl and NaOH by their reaction with
(*i*) Litmus solution (Blue/Red)
(*ii*) Zinc metal
(*iii*) Solid Sodium carbonate

3. To perform and observe the following reactions and classify them into :
(*i*) Combination reaction
(*ii*) Decomposition reaction
(*iii*) Displacement reaction
(*iv*) Double displacement reaction
1. Action of water on quicklime.
2. Action of heat on ferrous sulphate crystals.
3. Iron nails kept in copper sulphate solution.
4. Reaction between Sodium sulphate and Barium chloride solutions.

4. (*a*) To observe the action of Zn, Fe, Cu and Al metals on the following salt solutions.
(*i*) $ZnSO_4$ (*aq.*)
(*ii*) $FeSO_4$ (*aq.*)
(*iii*) $CuSO_4$ (*aq.*)
(*iv*) $Al_2(SO_4)_3$ (*aq.*)
(*b*) Arrange Zn, Fe, Cu and Al metals in the decreasing order of reactivity based on the above result.

5. To study the dependence of potential difference (V) across a resistor on their current (I) passing through it and determine its resistance. Also plot a graph between V and I.

6. To determine the equivalent resistance of two resistors when connected in series.

7. To determine the equivalent resistance of two resistors when connected in parallel.

8. To prepare a temporary mount of a leaf peel to show stomata.

9. To show experimentally that light is necessary for photosynthesis.

10. To show experimentally that carbon dioxide is given out during respiration.

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1. To study the following properties of acetic acid (ethanoic acid) :
   (*i*) odour
   (*ii*) solubility in water
   (*iii*) effect on litmus
   (*iv*) reaction with sodium bicarbonate.
2. To study saponification reaction for preparation of soap.
3. To study the comparative cleaning capacity of a sample of soap in soft and hard water.
4. To determine the focal length of
   (*a*) Concave mirror
   (*b*) Convex lens
   by obtaining the image of a distant object.
5. To trace the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result.
6. To study (*a*) binary fission in Amoeba and (*b*) budding in yeast with the help of prepared slides.
7. To trace the path of the rays of light through a glass prism.
8. To find the image distance for varying object distances in case of a convex lens and draw corresponding ray diagrams to show the nature of image formed.
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FIRST TERM

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