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# SCIENCE ACTIVITIES

VOLUME I



As Per New Continuous and Comprehensive Evaluation (CCE) Scheme



CLASS IX

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# CONTENTS

Experiments  
Syllabus

Pages  
(ix)–(x)

## FIRST TERM

### UNIT 1 : MATTER—ITS NATURE AND BEHAVIOUR ... 3

#### • Solution • ... 3

|                 |   |     |    |
|-----------------|---|-----|----|
| <i>Exp-1</i> :  | To test the presence of starch in the given food sample   | ... | 3  |
| <i>Exp-2</i> :  | To test the presence of adulterant metanil yellow in dal (pulse)  | ... | 4  |
| <i>Exp-3</i> :  | To prepare true solution of common salt solution in water   | ... | 5  |
| <i>Exp-4</i> :  | To prepare true solution of sugar in water  | ... | 6  |
| <i>Exp-5</i> :  | To prepare true solution of alum in water   | ... | 7  |
| <i>Exp-6</i> :  | To prepare suspension of soil in water  | ... | 8  |
| <i>Exp-7</i> :  | To prepare suspension of chalk powder in water  | ... | 9  |
| <i>Exp-8</i> :  | To prepare suspension of fine sand in water   | ... | 10 |
| <i>Exp-9</i> :  | To prepare a colloidal solution of starch in water  | ... | 11 |
| <i>Exp-10</i> : | To prepare a colloidal solution of egg albumin in water   | ... | 12 |
| <i>Exp-11</i> : | To prepare a colloid of starch, a true solution of common salt, and suspension of chalk powder in water and distinguish between these on the basis of : |     |    |
|                 | (i) Transparency (ii) Filtration criterion (iii) Stability  | ... | 13 |

#### • Mixture and Compound • ... 16

|                 |  |     |    |
|-----------------|--|-----|----|
| <i>Exp-12</i> : | (A) To prepare (a) mixture and (b) a compound using iron filling and sulphur powder<br>(B) To distinguish between the mixture and compound on the basis of : |     |    |
|                 | (i) Appearance <i>i.e.</i> , homogeneity and heterogeneity   |     |    |
|                 | (ii) Behaviour towards a magnet  |     |    |
|                 | (iii) Behaviour towards carbon disulphide (as solvent)   |     |    |
|                 | (iv) Effect of heat  | ... | 16 |

#### • Chemical Reaction • ... 19

|                 |  |     |    |
|-----------------|--|-----|----|
| <i>Exp-13</i> : | To carry out the following chemical reactions and record your observations.      |     |    |
|                 | (i) iron with copper sulphate solution in water,                                 |     |    |
|                 | (ii) burning of magnesium in air,  |     |    |
|                 | (iii) zinc with dilute sulphuric acid,   |     |    |
|                 | (iv) heating of lead nitrate,  |     |    |
|                 | (v) sodium sulphate with barium chloride in the form of their aqueous solutions. | ... | 19 |

### UNIT 2 : ORGANISATION IN THE LIVING WORLD ... 23

#### • Study of Cell • ... 23

|                 |   |     |    |
|-----------------|---|-----|----|
| <i>Exp-14</i> : | To prepare temporary mounts of an onion peel, identify their parts and draw labelled diagrams               | ... | 23 |
| <i>Exp-15</i> : | To prepare temporary mount of human cheek epithelial cells, identify their parts and draw labelled diagrams | ... | 26 |

|                 |   |     |    |
|-----------------|---|-----|----|
| <i>Exp-16</i> : | To identify different types of plant tissues (parenchyma, sclerenchyma and collenchyma) from prepared slides and draw their labelled diagrams | ... | 27 |
| <i>Exp-17</i> : | To identify different type of animal tissues (striated muscle, nerve cells) from prepared slides and draw their labelled diagrams             | ... | 29 |
| <i>Exp-18</i> : | To separate the components of a mixture of sand, common salt and ammonium chloride or camphor by sublimation                                  | ... | 31 |

### UNIT 3 : HEAT

|                 |  |     |    |
|-----------------|--|-----|----|
| <i>Exp-19</i> : | To determine the boiling point of water  | ... | 33 |
| <i>Exp-20</i> : | To determine the melting point of ice  | ... | 35 |
| <i>Exp-21</i> : | To establish relationship between weight of a rectangular wooden block lying on a horizontal table and the minimum force required to just move it using a spring balance | ... | 37 |
| <i>Exp-22</i> : | To determine the percentage of water imbibed by raisins  | ... | 39 |

## SECOND TERM

### UNIT 1 : MOTION, FORCE AND WORK

|                     |   |     |           |
|---------------------|---|-----|-----------|
| <b>• Sound •</b>    |   | ... | <b>43</b> |
| <i>Exp-23</i> :     | To verify the reflection of sound   | ... | 43        |
| <b>• Density •</b>  |   | ... | <b>45</b> |
| <i>Exp-24</i> :     | To determine the density of a solid (denser than water) by using a spring balance and a measuring cylinder  | ... | 45        |
| <i>Exp-25</i> :     | To establish the relation between loss in weight of a solid when fully immersed in (i) tap water (ii) strongly salty water, with the weight of water displaced by it by taking atleast two different solids | ... | 48        |
| <b>• Pressure •</b> |   | ... | <b>52</b> |
| <i>Exp-26</i> :     | To observe and compare the pressure exerted by a solid iron cuboid on sand while resting on its three different faces and to calculate the pressure exerted in the three different cases                    | ... | 52        |
| <b>• Waves •</b>    |   | ... | <b>54</b> |
| <i>Exp-27</i> :     | To determine the velocity of a pulse propagated through a stretched string/slinky   | ... | 54        |
| <i>Exp-28</i> :     | To determine the velocity of a pulse propagated through a slinky spring   | ... | 56        |

### UNIT 2 : ORGANISATION IN THE LIVING WORLD

|                                   |  |     |           |
|-----------------------------------|--|-----|-----------|
| <b>• Diversity of Plants •</b>    |  | ... | <b>58</b> |
| <i>Exp-29</i> :                   | To study the characteristics of Spirogyra/Agaricus, Moss/Fern, Pinus (either with male or female cone) and an angiospermic plant. Draw and give two identifying features of each group they belong to          | ... | 58        |
| <b>• Adaptations in Animals •</b> |  | ... | <b>62</b> |
| <i>Exp-30</i> :                   | To observe and draw the given specimens—Earthworm, cockroach, bony fish and bird. For each specimen record<br>(a) One specific feature of its phylum<br>(b) One adaptive feature with reference to its habitat | ... | 62        |
| <i>Exp-31</i> :                   | To verify the law of conservation of mass in a chemical reaction   | ... | 66        |
| <i>Exp-32</i> :                   | To study the external features of root, stem, leaf and flower of monocot and dicot plant   | ... | 68        |
| <i>Exp-33</i> :                   | To study the life cycle of a mosquito  | ... | 71        |

## 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 syllabus (CCE) for IXth class prescribed by C.B.S.E., New Delhi.
- ★ 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 soliciated from your end. Thanking you in anticipation for your co-operation.

—Authors



# SYLLABUS

## PRACTICALS

### CLASS IX

### FIRST TERM

Practical should be conducted alongside the concepts taught in theory classes

#### LIST OF EXPERIMENTS

- To test (a) the presence of starch in the given food sample  
(b) the presence of the adulterant metanil yellow in dal
- To prepare  
(a) a true solution of common salt, sugar and alum  
(b) a suspension of soil, chalk powder and fine sand in water  
(c) a colloidal of starch in water and egg albumin in water and distinguish between these on the basis of :
  - transparency
  - filtration criterion
  - stability
- To prepare  
(a) a mixture  
(b) a compound  
using iron filings and sulphur powder and distinguish between these on the basis of :  
(i) appearance *i.e.*, homogeneity and heterogeneity  
(ii) behaviour towards a magnet  
(iii) behaviour towards carbon disulphide as a solvent  
(iv) effect of heat.
- To carry out the following chemical reactions and classify them as physical or chemical changes :  
(a) Iron with copper sulphate solution in water  
(b) Burning of magnesium in air  
(c) Zinc with dilute sulphuric acid  
(d) Heating of copper sulphate  
(e) Sodium sulphate with barium chloride in the form of their solutions in water.
- To prepare stained temporary mounts of (a) onion peel and (b) human cheek cells and to record observations and draw their labelled diagrams.
- To identify parenchyma and sclerenchyma tissues in plants, striped muscle fibers and nerve cells in animals, from prepared slides and to draw their labelled diagrams.
- To separate the components of a mixture of sand, common salt and ammonium chloride (or camphor) by sublimation.
- To determine the melting point of ice and the boiling point of water.
- To establish relationship between weight of a rectangular wooden block lying on a horizontal table and the minimum force required to just move it using a spring balance.
- To determine the mass percentage of water imbibed by raisins.

## SECOND TERM

**Practical should be conducted alongside the concepts taught in theory classes**

1. To verify laws of reflection of sound.
2. To determine the density of solid (denser than water) by using a spring balance and a measuring cylinder.
3. To establish the relation between the loss in weight of a solid when fully immersed in
  - (a) tap water
  - (b) strongly salty water, with the weight of water displaced by it by taking at least two different solids.
4. To observe and compare the pressure exerted by a solid iron cuboid on sand/wheat flour while resting on its three different faces and to calculate the pressure exerted in the three different cases.
5. To determine the velocity of a pulse propagated through a stretched string/slinky.
6. To study the characteristic of Spirogyra/Agaricus, Moss/Fern, Pinus (either with male or female cone) and an Angiospermic plant. Draw and give two identifying features of groups they belong to.
7. To observe and draw the given specimens—earthworm, cockroach, bony fish and bird. For each specimen record
  - (a) one specific feature of its phylum
  - (b) one adaptive feature with reference to its habitat.
8. To verify the law of conservation of mass in a chemical reaction.
9. To study the external features of root, stem, leaf and flower of monocot and dicot plants.
10. To study the life cycle of mosquito.









**FIRST TERM**

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# UNIT 1

## MATTER—ITS NATURE AND BEHAVIOUR

### SOLUTION

#### FORMATIVE ASSESSMENT

##### EXPERIMENT 1

###### OBJECTIVE

*To test the presence of starch in the given food sample.*

###### MATERIALS REQUIRED

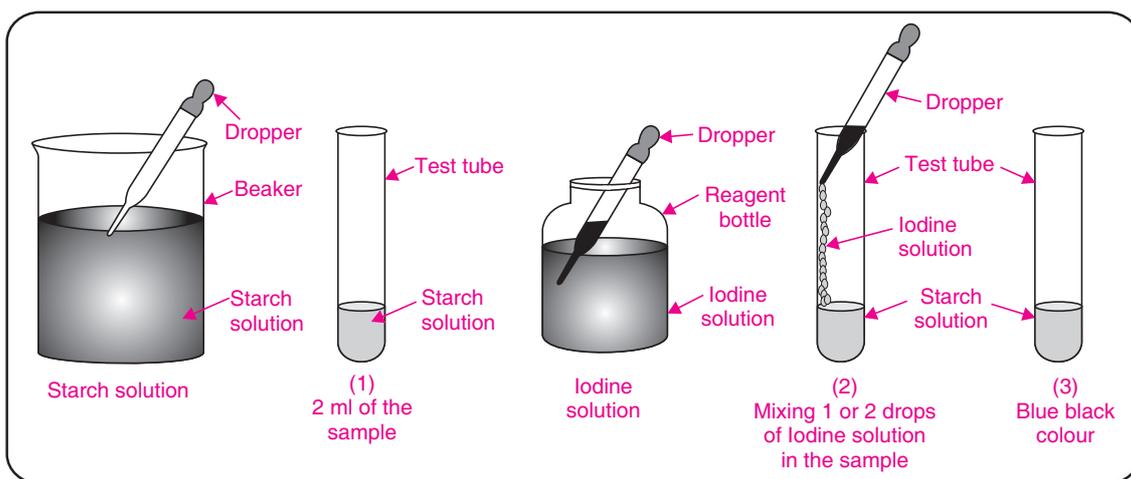
Test-tube, beaker, food sample (boiled rice or boiled potato), test-tube stand, iodine solution and droppers.

###### THEORY

Starch is a Carbohydrate, it is the polymer of glucose, starch sparingly soluble in water, it gives blue black colour when mixed with iodine solution.

###### PROCEDURE

Firstly we take starch sample like boil rice, or potato in a beaker and then put two drops of iodine in each sample.

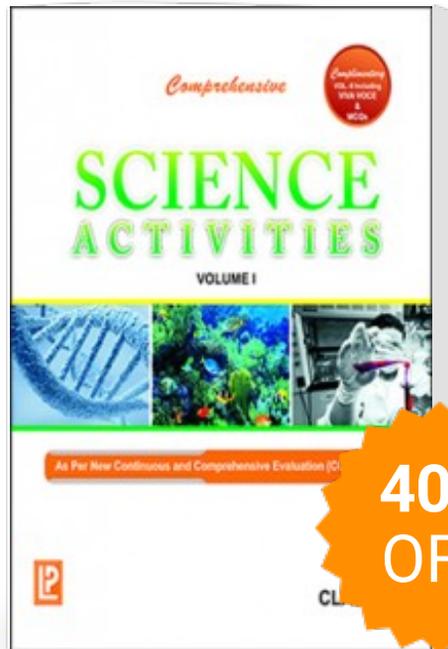


**Fig. 1.1.** Steps for starch test.

###### RESULT

The given food sample contain starch because a blue black colour appear when food sample mixed with iodine solution.

# Comprehensive Science Activities Vol.I Class-IX



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