SCIENCE AND TECHNOLOGY

Class - VII



State Council of Educational Research and Training Chhattisgarh, Raipur

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Preface

Syllabus revision and modernisation followed by preparation of textbooks on that basis is an essential component of educational process. In this direction State Council of Educational Research and Training, Raipur (Chhattisgarh) initiated the process of changing the syllabus and preparing textbooks from 2004-05 session. This book Science and Technology for Class VII is another step in that direction. The objective of this book is to help students to understand the basic concepts of Science rather than to load them with scientific information. Due to developments in technology, it has become important to give such education that establishes a relationship between Science, Technology and Society and provides students with the necessary knowledge and skills. It is necessary that the principles of Science be learnt and taught through activities. The activities given in the book can be easily performed by students using materials available at the local level. These activities will help them to develop a perspective that will motivate them to be curious and take up exploration and research.

We hope that this book will not only develop an interest in Science learning but would also help to develop the ability and attitude in students to analyse and to be constructive.

Right to Education Act 2009 gives emphasis on imparting quality education to children. NCERT, New Delhi has developed class wise, subject wise learning outcomes and pedagogical processes for classes I to VIII which will help to achieve the objectives of all-round development of children. So, textbook for the session 2018-19 have been made contextual and significant which will provide more opportunities to achieve desired outcomes. We hope that textbooks will be helpful for students and teachers to achieve these goals.

In the process of development of this book we have got help and support from teachers of many government and private schools, district institutes of education and training, Professors of colleges, non-governmental organisations and well informed citizens. We are extremely grateful to all of them.

We look forward to the well informed citizens of the State to give us more feedback and suggestions to improve the textbook as changes for improvements are always needed.

> Director S.C.E.R.T. Chhattisgarh, Raipur

Contribution of India to the World of Science

3000 years before the birth of Christ the development of science in India was surprisingly advanced. The people of ancient India had phenomenal success in solving difficult and unknown scientific problems. The contributions of Indians in the field of Mathematics, physics, chemistry, astronomy and medicine are very significant.

Last year we recollected the contribution of several of these scientists. This year too we will study the contributions of some Indian scientists which brought about revolutionary changes in the lives of human beings.



1. Shishir Kumar Mitra: He is famous for his contribution to studies of the 'Ionosphere'. He also explained why the night sky instead of being jet black is greyish. According to him this was due to one strata of the atmosphere being rich in ions and dispersing light rays. This is called 'alok deepti' of the night sky. 'Upper Atmosphere' – the book written by him has been appreciated all over the world.



2. **Raja Ramanna:** His chief contribution is in the area of 'Nuclear fission'. He also worked towards the use of atomic energy without harmful effects and for peaceful purposes. However, the 'Pokhran Atomic Test' was the brainchild of Ramanna. He contributed to development and establishment of the atomic reactors Apsara, Cyrrus and Purnima.



3. K.S.Krishnan: He was physicist of distinction and a philosopher. Krishnan studied the sequential arrangement of atoms in solid substances and the forces which help to maintain equilibrium of atoms and particles. He also studied the behaviour and ways to control electrons coming out of hot substances.



4. Satyendra Nath Bose: In order to understand radiation he postulated a new constant called 'Bose constant'. The basic particles like photons and alpha particles which follow the 'Bose formulae' are called 'Bosons'. Bose has also worked in other areas like X rays, crystallography and thermo-luminesence. A chemical developed by him is still used as a medicine for treatment of eyes.



5. Birbal Sahni: He was a Botanist. He conducted research on ferns, conifers, and Gymnosperms. He discovered some new Genera. His studies helped to understand the evolutionary connections between the ancient and the present-day plants. He discovered some new varieties of Gymnosperms.



6. John Warden Saderson Haldane: He was English by birth but later took Indian citizenship. He made basic contributions in several areas like functioning of the human body, medical science, development of life, micro-organisms, life science, mathematics and cosmology. He was famous for experimentation on himself.



7. Salim Ali: He is a known Ornithologist. He has written the book 'Indian Birds' which describes the various birds found in India and also has their pictures. He along with Dillon Ripleys wrote 'Handbook of the birds of India and Pakistan – The 10 volumes' of this describe the birds of the Indian peninsula.



8. Praphul Chandra Ray: He is considered the Father of Indian Chemistry. He helped in the development of research centres in Chemistry. His discovery of mercurous nitrate in 1896 is a major contribution to chemistry.



9. Ashima Chaterji : She was a Botanist she conducted research on medicinal plants specially found in India. She explained medicinal use of chemicals found in these plants. Her studies helped to develop industrial production of medicinal plants.



10. Anna Mani : She was a Deputy director of Indian Meterologic Institute. She also worked at Raman Research Institute as guest lecturer. She studied spectroscopic properties of Diamond and Ruby. Her major contribution is in the area of 'Wind energy'.

Content

1	Life on Earth	01
2	Water	06
3	Structure of Matter	18
4	Acids, Bases and Salts	29
5	Measurement	39
6	Organization in the Living World	52
7	Heat and Temperature	61
8	Transfer of Heat	72
9	Nutrition in the Living Organisms	81
10	Respiration in the Living Organisms	87
11	Fiber to Fabric : Animal Fiber	90
12	Reflection of Light	96
13	Transportation in the Living Organisms	111
14	Excretion in the Living Organisms	119
15	Static Electricity	123
16	Control and Coordination in the	132
	Living Organisms	
17	Skeleton, Joints & Muscles	138
18	Movement and Locomotion in the	144
	Living Organisms	
19	Soil	149
20	Reproduction in the Living Organisms	160
21	Electric Current and its Effects	172