

EXEMPLAR PROBLEMS

SCIENCE

CLASS VI



राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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OFFICES OF THE PUBLICATION DIVISION, NCERT

NCERT Campus
Sri Aurobindo Marg
New Delhi 110 016 Phone : 011-26562708

108, 100 Feet Road
Hosdakere Halli Extension
Banashankari III Stage
Bangaluru 560 085 Phone : 080-26725740

Navjivan Trust Building
P.O.Navjivan
Ahmedabad 380 014 Phone : 079-27541446

CWC Campus
Opp. Dhankal Bus Stop
Panihati
Kolkata 700 114 Phone : 033-25530454

CWC Complex
Maligaon
Guwahati 781 021 Phone : 0361-2674869

Publication Team

Head, Publication Division : N. K. Gupta
Chief Production Officer : Kalyan Banerjee
Chief Editor : Shweta Uppal
Chief Business Manager : Gautam Ganguly
Editor : Bijnan Sutar
Production Assistant : Prakash Veer Singh

Cover

Shweta Rao

FOREWORD

The *National Curriculum Framework -2005* (NCF-2005) initiated a new phase of development of syllabi and textbooks for all stages of school education. Conscious effort has been made to discourage rote learning and to diffuse sharp boundaries between different subject areas. This is well in tune with NPE – 1986 and Learning without Burden 1993 that recommend child centred system of education. The textbooks for Classes VI, VII and VIII were released respectively in 2006, 2007 and 2008. Overall the books have been well received by students and teachers.

NCF – 2005 notes that treating the prescribed textbooks as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. It further reiterates that the methods used for teaching and evaluation will also determine how effective these textbooks prove in making children's life at school a happy experience, rather than a source of stress or boredom.

The NCF further recommends that evaluation has to be integrated with the learning process and the routine activities and exercises going on in the classroom can be employed effectively to assess learning. This is so as the purpose of assessment is necessarily to improve the teaching learning process and be able to gauge the extent to which capacity of learners have been developed.

With regard to development of questions for evaluation of students, NCF – 2005 has made specific recommendations. It emphasises that the types of questions which are set for evaluation, need to be beyond the textbook questions. Questions that are open ended and challenging should be used and they should test reasoning and creative abilities rather than memorisation of facts and figures. The question in constructivist evaluation should be framed in such a way that they do not seem to be an exercise that the teacher wants children to do.

In order to address such issues, the Department of Education in Science and Mathematics (DESM) has made an attempt to provide this additional learning material at the upper Primary Stage. This resource book contains different types of questions of varying difficulty level. These problems are not meant to serve merely as question bank for examinations but are primarily meant to improve the quality of teaching/learning process in schools. It is expected that these problems would encourage

teachers to design quality questions on their own. Students and teachers should always keep in mind that examination and assessment are meant to test comprehension, information recall, analytical thinking and problem-solving ability, creativity and speculative ability.

A team of experts and practicing teachers with an understanding of the subject worked hard to accomplish this task. The material was thoroughly discussed and edited.

NCERT welcomes suggestions from students, teachers and parents which would help us to further improve the quality of the material in subsequent editions.

New Delhi
21 May 2008

YASH PAL
Chairperson
National Steering Committee
National Council of Educational
Research and Training

PREFACE

In view of the changes recommended in the *National Curriculum Framework-2005* (NCF-2005) with regard to evaluation approaches the Department of Education in Science and Mathematics (DESM), National Council of Educational Research and Training (NCERT) initiated the development of Exemplar Problems in Science and Mathematics for upper primary, secondary and higher secondary stage after completing the development of textbooks based on NCF-2005. The present book is a part of this series and is based on the contents of Science textbook for Class VI published by the Council.

The main objective of the book on 'Exemplar Problems in Science' is to provide the teachers and students a large number of quality problems in various forms and format with varying levels of difficulty to facilitate teaching-learning of concepts in Science that are presented through the textbook for Class VI. It is envisaged that the problems included in this book would help the teachers to design tasks to assess effectiveness of their teaching and to know about the achievement of their students besides facilitating preparation of balanced question paper for testing their students. In addition, the problems given in this book are also expected to help the teachers to perceive the basic characteristics of good quality questions and motivate them to frame similar questions on their own. Students too can benefit themselves by attempting the exercises given in the book for self assessment and also in mastering the basic techniques of problem solving. Some of the problems given in the book are expected to challenge the students understanding of Science concepts and to apply them in new situations.

The problems in this book were developed in workshop mode organised by the DESM involving practicing teachers, subject experts from universities and institutes of higher learning and the members of the Science group of the DESM whose name appear separately. I gratefully acknowledge their efforts and thank them for their valuable contribution in our endeavour to provide good quality instructional material for the school system.

I express my gratitude to Professor G. Ravindra, Acting Director, NCERT for his valuable motivation and guidance from time to time.

Special thanks are due to Ms. Sunita L. Varte, *coordinator* of this programme for her dedicated efforts and valuable contribution in making the manuscript pressworthy.

We look forward to feedback from students, teachers and parents for further improvement of the contents of the book.

HUKUM SINGH
Professor and Head
DESM, NCERT
New Delhi

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DEVELOPMENT TEAM

MEMBERS

Anand V. Venkatesh, *Associate Professor*, RIE, Mysore

Anjni Koul, *Assistant Professor*, DESM, NCERT, New Delhi

Bharati Sarkar, *Associate Professor*, Retd. (Zoology), Maitreyi College, University of Delhi, New Delhi

Charu Maini, *PGT*(Chemistry), Amity International School, Noida

C. V. Shimray, *Assistant Professor*, DESM, NCERT, New Delhi

K. K. Sharma, *Principal*, Retd., College Education, Ajmer

Meenambika Menon, *TGT* (Science), Cambridge School, Sec.-27, Noida

Monika Chopra, *PGT* (Chemistry), NC Jindal Public School, New Delhi

Rachna Garg, *Assistant Professor*, DESM, NCERT, New Delhi

R. Joshi, *Associate Professor*, Retd., DESM, NCERT, New Delhi

R.R. Koireng, *Assistant Professor*, DESM, NCERT, New Delhi

R.S. Sindhu, *Professor*, DESM, NCERT, New Delhi

Sarita Kumar, *Associate Professor*, (Zoology), Acharya Narendra Dev College, University of Delhi, New Delhi

Shashi Prabha, *Assistant Professor*, DESM, NCERT, New Delhi

Sher Singh, *PGT* (Physics), Navyug School, Laxmibai Nagar, New Delhi

Shyam Kumar Singh, *TGT* (Science), DMS, RIE, Bhopal

Vandana Saxena, *TGT*(Science), Retd., Kendriya Vidyalaya Sangathan

V. B. Bhatia, *Professor*, Retd. (Physics), University of Delhi, Delhi

MEMBER COORDINATOR

Sunita L. Varte, *Assistant Professor*, DESM, NCERT, New Delhi

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Do You Know

According to the 86th Constitutional Amendment Act, 2002, free and compulsory education for all children in the 6–14-year age group is now a Fundamental Right under Article 21-A of the Constitution.

**EDUCATION IS NEITHER A
PRIVILEGE NOR FAVOUR BUT A
BASIC HUMAN RIGHT TO
WHICH ALL GIRLS AND WOMEN
ARE ENTITLED**

*Give Girls
Their Chance !*

