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Methods of Teaching Physical Science

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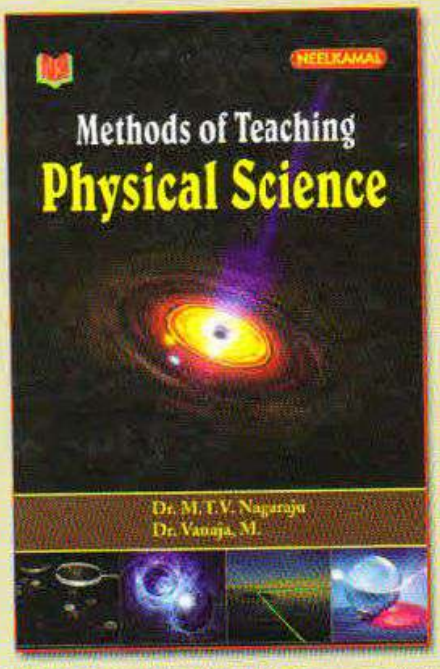

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About the Book

The curriculum of the school is evolving from an emphasis upon subjects and textbooks to a concern for student experience. If the teacher is to remain effective in such a changing scenario he/she has to develop competencies suitable for it. The academic and professional preparation of teachers has been of a formal nature; their teaching, as a consequence, has tended to be equally formal.

The content of the book reflects a detailed discussion on the theory and practice of Physical Science as it deals with Nature of Science - Process and Product aspects of Science, Development of Oriental and Western Science, Contributions of some eminent scientists, Organisations promoting Science and technology in India, Objective based instruction, Learning experiences in Science and, Different approaches in Science teaching. Also, Innovative practices, Theories of learning - contribution to Science education, Curriculum organization etc. are covered in a simplified and detailed manner. Constructivism, Methods of teaching, Evaluation in science teaching, Co-curricular activities, Creativity in Science classrooms, are also detailed.

The book may be useful to the physical science teachers and prospective teachers, scholars and the readers having interest in the subject.

About the Authors

Dr. M.T.V. Nagaraju is a Ph.D. (Education). He is credited for 15 published books, 7 developed materials, 23 research papers in National and International Journals/Edited books and presented 34 research papers in International and National Seminars/Conferences/Workshops. He guided 13 M. Phil. Degrees in Education which were awarded. He is currently guiding 3 Ph.D. Scholars. He is enthusiastically participating in the NCERT, NCTE, UGC, RCI, APOSS, SCERT and DPEP/SSA programmes and is also a resource-person for different teacher-oriented programs and also enlightens the students through personality development classes.

Dr. Vanaja, M., a post graduate in Science Education, completed her Doctoral work as UGC JRF in Education and is currently working as an Associate Professor, Dept. of Education and Training, Maulana Azad National Urdu University, Hyderabad. Prior to this, she worked in Acharya Nagarjuna University, Guntur and IASE, S.V. University, Tirupati, teaching Physical Science Methodology to B.Ed. students and Research Methodology and to M.Ed. Students. She has authored more than 12 books on Education. To her credit she has 25 research papers in National and International Journals/Edited books and presented 40 research papers in International and National Seminars/ Conferences/Workshops. She has guided 6 Scholars for their doctoral and 20 for their M. Phil. Degrees in Education. 6 Ph.D. Scholars are pursuing their research work under her guidance.

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Preface

Post National Curriculum Framework (NCF) 2005, the curricular revision in school education, regarding 'teaching-learning' process has considerably evolved with an emphasis on varied subjects and textbooks for the benefit of a students to gain a thorough experience in the process of studying. If the teacher is to remain effective in such scenario, his/her competence must increase accordingly. The academic and professional preparation of teachers has been of a formal nature. Their teaching as a consequence, has equally benefited. Since the academic and professional preparation of the teachers has been of formal nature, their teaching as a consequence, has been equally formal. They lack in the essential competence and encouragement required, which provides them with a genuine experience and deep inside. This book proposes ways of building competence in the teacher who imparts the teaching of physical science, which includes extensively and importantly, the usage of the laboratory. Therefore the book has many suggestions which are useful in learning procedures, techniques, skills and details of specific experiences.

The **'Methods of Teaching Physical Science'** is a science-teaching book designed for the professional development of high-school science teachers. This book may be a useful reference for the teacher who is attempting to provide a broad range of worth-while experiences. In many instances, this book may be placed in the hands of the student-teacher so that he/she may have their own source of new ideas. Prospective teachers of science may profitably use this book not only to gain some specific knowledge of value in their day-to-day work of teaching but also to obtain a perspective of the problems and also its solutions, faced by a science teacher.

Many sources of literature have made contribution to the materials presented. The experiences of many persons, including the authors, find an expression in these pages. The bases for many such experiences are impossible to specify, has they have come from teachers, colleagues, students, and readers. In most cases, the credits have been given clearly and duly. But some inclusions which are unclear, have not been credited. So any omission of credit for original ideas is unintentional.

We wish to thank all those who supported us in the successful completion of this book. We record our sincere thanks to Mr. Suresh Chandra Sharma, Managing Director, Neelkamal Publications Pvt. Ltd., for his constant motivation and support to write this book.

Any suggestions to improve the contents of this book will be gratefully acknowledged.

– Authors