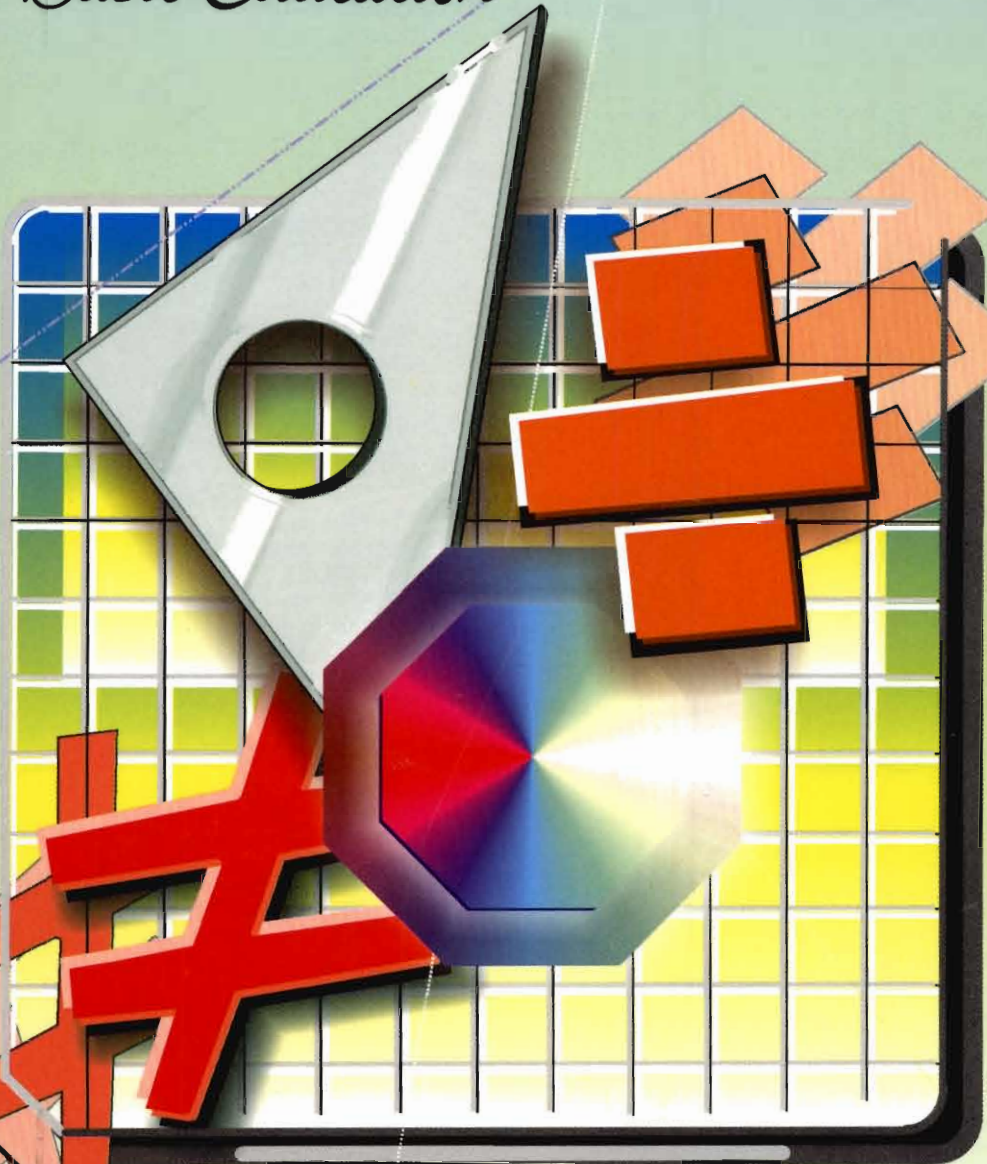


Building ^{UP} Mathematics

Grade **5** Basic Education



SPECIMEN

Center for Educational Research and Development



New Curricula

Republic of Lebanon

Ministry of Education and Higher Education

■
**BUILDING UP
MATHEMATICS**
■

Basic Education
Grade Five

Center for Educational Research and Development







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BUILDING UP MATHEMATICS



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The National Textbook Project

This is the second installment of textbooks completed by the Center as part of a three-stage effort to produce the books called for by the New Curricula. We are placing these books in the hands of students with the great hope that we are moving, step by step, toward the goal of acquiring sound and modern learning, using sophisticated educational means and up-to-date methodology that encourage and reinforce individual thinking and research, the acquisition of skills, the development of ethical and national attitudes, the feeling of national belonging as well as the feeling of belonging to humanity at large.

The on-going revolution in information, communication and educational technology has undoubtedly limited the role of the textbook and lowered the rank it used so recently to occupy. However, in our society and in many other societies, the textbook remains the basic means of education, and it is our duty to exert our utmost effort and care to come up with the best product as to form and content. Yet we should not lose sight of the fact that the textbook is not sufficient by itself but should rather be used as a stepping stone to access other sources of information. What is important is to keep a clear vision and maintain the right course toward our objective. The means should not turn into the end and the student should always remain the focus of the learning/teaching process.

No one ignores or denies the fact that textbook writing requires very high academic and educational qualifications and very wide field experience. The authors committees undeniably possess such qualifications and qualities, yet last year's textbooks did contain some faults and gaps which were duly pointed out by researchers in many articles, and, indeed, we have benefited from some of them. Such is the nature of human work, no matter how good the intentions or how great the effort exerted.

Constructive criticism is a real contribution to raising the standard of authorship, minimizing errors and filling gaps. We only hope that criticism will always be objective and motivated by a desire to enhance educational reform in order to achieve better products.

A favorite adage handed down from our old scholars: "He who criticizes you is as helpful as a co-author". Let all criticism directed at the Center be of this caliber.

In closing, we hope that we all will have benefited from our experience and that the textbooks of the third and final stage be closer to realizing our hopes and more beneficial to our students. We are now preparing ourselves to assess the parts so far achieved of the new curricula and to assure that our educational movement is proceeding on the right track for achieving the best results.

June 2, 1999

**President, National Center for Educational
Research and Development**

Nemer FRAYHA

Preface

This textbook is designed according to the new curriculum. This curriculum is based on results of pedagogical research and on principles of epistemology, as much genetically as mathematically, and requires appropriate methodology based on the action and autonomy of the learner.

- Under this methodology, mathematics is treated through a measurable continuous and unlimited action. This action lies in the actual environment of the child where the utilitarian aspects of mathematics are often revealed. Thus, the student faces real problems and has to guess, try, and verify solutions, gradually devising approaches that allow him to construct his own models later on.
- On the other hand, the independence and individuality of the child is the major concern that directs all activities and methods of this book. This book is concerned with developing the student's forms of expression and communication skills.

In hopes of attaining the goals of the programs, it is recommended that the users, teachers, parents, and students observe the following:

- 1) The structural layout of the book and the order of chapters.
- 2) The methodological structure of each chapter (Refer to *Using this book*).
- 3) The suggestions offered in the *Pedagogical Guide*.

All comments, questions, and suggestions are welcomed and will be treated with great attention.

The authors

Using this book

A) To benefit from this book, you should:

- 1- Know how it is structured (succession of paragraphs).
- 2- Understand the role of each paragraph.
- 3- Complete the task set for each paragraph, before moving to the next one.

B)

Structure of each chapter

Corresponding Tasks and Roles

Activities



These are real and simple work situations that allow the learner to invest his knowledge in a new search while giving him a better grasp of the *subject* of the chapter. Failing to participate in this activity would be similar to missing the entire lesson.

Text



This is the theoretical part that:

- is derived from the situation treated in *Activities*.
- makes possible the solution of all similar situations.
- constitutes the mathematical core of the chapter.

Focus



This is a reminder that summarizes the ideas and skills presented in the *Text*.

Exercises



These are designed for training in various situations, numerically or formally, to handle the new idea of the chapter, to generalize it, and to become familiar with all sorts of relevant questions.

Self-Evaluation



Here the student can test his own knowledge of the newly acquired knowledge.

Problems



They re-examine the studied concept along with other knowledge. This helps the student balance various types of learning.

Just for Fun



These are intellectual games whereby the student thinks freely as he enjoys the game. It does not really matter whether he finds the solution or not.

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