

Sciences

For Life

Grade 4
Basic Education

Part 1



SPECIMEN
نموذج

National Center for Educational Research and Development



National
Textbook

New Curricula

Republic of Lebanon

Ministry of Education and Higher Education



SCIENCE FOR LIFE



Basic Education

Grade Four

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National
Textbook

New Curricula



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The translation into english of this book was reviewed
and corrected by faculty members at the American
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SCIENCE FOR LIFE

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... WE BUILD THROUGH EDUCATION

Four years ago, under the leadership of the Minister of National Education, Youth and Sports, the National Center for Educational Research and Development (NCERD) initiated the overall reform of the educational system in Lebanon. Today, NCERD is pleased to present the first collection of textbooks, developed in conformity with the new curricula announced by decree no. 10227, dated the 8th of May, 1997, to all those involved in the education sector.

This collection covers the first year of each of the three basic education cycles, as well as the first year of the secondary cycle. It will be followed, over the next two years, by the textbooks addressed to the remaining two years of each cycle.

The publication of these textbooks follows directly from previous steps undertaken as part of the overall effort to rebuild the educational system. The Plan for Educational Reform, the adoption of a new educational ladder, the new curricula and the new textbooks are all part of a continuous and coherent reform effort. The reform process views the education of the individual learner as a means to develop citizens capable of serving their country and self-confident adults ready to face the challenges of the twenty-first century.

Textbooks play an important role in this ambitious project because they embody the educational and civic objectives of the new curricula. In keeping with the spirit and philosophy of the new curricula, a large number of specialists who had contributed to shaping the new curricula were called upon, from both the private and the public sector, to become members of author committees. The Higher Committee for Planning and the Advisory Committee, which were created by NCERD to oversee the whole reform process, closely monitored the development of the new textbooks. In addition, NCERD sought the assistance of experts from outside Lebanon.

However, we do not claim that the textbook we present to you today is perfect, or that it does not require any revisions whatsoever. Our work is certainly far from complete. After thirty years of stagnation, it was important to act and to do so promptly. We thus considered it appropriate to view this first edition as a starting point and to subject the first collections to the classroom test. A textbook's strengths and weaknesses can really only be identified in the classroom. It is now

up to teachers and students to evaluate these new textbooks. Thanks to their collaboration, we should arrive at concrete proposals for the improvement of subsequent editions.

It should also be pointed out that textbooks have become only one of many available sources for the transfer of knowledge. Indeed, our students are confronted with a constant deluge of information from a variety of media. Consequently, it becomes imperative for students to "learn how to learn" from textbooks, as well as from other sources. This means that we must adopt new work and teaching strategies in order to transform the classroom into an interactive space between a dynamic and enterprising learner and an informed teacher. The teacher's role must lie in assisting the student to acquire knowledge and competencies, to heighten his or her critical sense and to develop teamwork and participatory skills. This is why the educational reform calls for teacher training, the establishment of a structure capable of advising teachers and providing guidance and counseling to students, and the modernization of the exam and evaluation systems to be undertaken alongside the development of new textbooks.

Our attention is now focussed on the next three years. This period will provide an experimental phase, not only for the new textbooks, but also for all the activities that have preceded or accompanied their launch. Thus, the next three years should be viewed as an evaluation phase for the overall educational system of Lebanon.

Finally, I wish to thank sincerely all those who contributed to writing, editing, designing and producing the new textbooks. We hope that our combined efforts to build the future for the children of Lebanon will contribute to the reconstruction of our country.

Beirut, July 22, 1998

President, NCERD
Mounir ABOU-ASSALI

Introduction

Science is a field that strives to understand and explain the natural phenomena.

Following the new official science curriculum and its objectives, this book develops a wide range of science concepts and methodologies, in addition to the integration of health and environmental education.

Consequently, the topics of the grade four science book center around what interests the students starting with their body and health, and expanding to include the environment in which they live.

All topics are dealt with at a level which is suitable to that of the students' cognitive development and their ability to understand the various science concepts and principles.

All science lessons are based on a pedagogical approach that balances science knowledge content with indoor and outdoor activities which require the use of everyday material and resources.

This approach requires the students to actively participate in the learning process either as individuals or in groups. The various activities include: experiments, hands-on activities, exploitation of documents, study of illustrations and pictures, collecting specimens, field trips, constructing models, simulations, functional stories, etc. Moreover, the science curriculum at this level emphasizes the development of science process skills, attitudes and values so that students acquire a science education that helps them become decision-makers and life-long learners.

It is hoped that this science book will help the students develop and attain:

- Clear understanding of the nature of contemporary science.
- Great deal of science experience.
- Positive attitudes and practices towards their health, society and environment.

The Authors

21 USING THIS BOOK

Unit...



Introduction and illustration. It gives you a general idea about the theme of the unit.

Unit 2 ANIMALS AND THEIR HABITATS

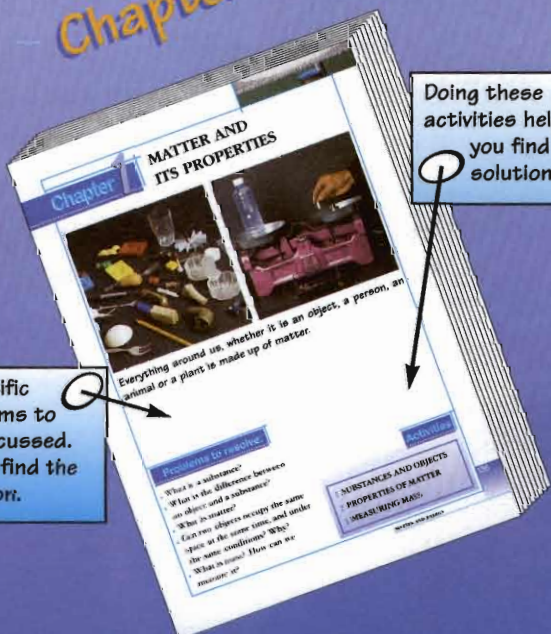
Lebanon has varied land features such as coasts, plains, mountains, and valleys. These features have made it a habitat for many plants and animals.



The titles of the chapters included in the unit.

- Chapter
- 1 SOIL
 - 2 CLAY IN CRAFTS
 - 3 SOIL EROSION
 - 4 SANDSTONE AND LIMESTONE
 - 5 WEATHERING AND SOIL FORMATION
 - 6 GROUND WATER

Chapter...



Doing these activities helps you find the solutions.

Scientific problems to be discussed. Try to find the solution.

Everything around us, whether it is an object, a person, an animal or a plant is made up of matter.

Problems to resolve

- What is a substance?
- What is the difference between an object and a substance?
- What is matter?
- Can two objects occupy the same space at the same time, and under the same conditions? Why?
- What is mass? How can we measure it?

ACTIVITIES

SUBSTANCES AND OBJECTS
PROPERTIES OF MATTER
(WEIGHING MASS)

Activity...



Answering these questions will help you find a solution to the problem and lead you to make conclusions. Follow the instructions as presented in the activity: I observe, I use, I explore.

Activity 1: TREES, SHRUBS, AND HERBS

PLANTS CAN BE GROUPED ACCORDING TO THE SIMILARITIES IN THEIR SIZE AND SHAPE

I observe



I think

Compare the different plants in Fig. 1

- Which plant is the tallest?
- Which plant is the shortest?
- Classify the plants in Fig. 2 into three groups: tall, medium and short.
- Give a name for each group.



I conclude

There are three main groups of plants: trees, shrubs, and herbs

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