

Science

Grade

6

For

Life

Basic Education



SPECIMEN

غير مختص مسبق

Center for Educational Research and Development



National
Textbook

New Curriculum

Republic of Lebanon

Ministry of Education and Higher Education

SCIENCE FOR LIFE

Basic Education

Grade Six



National
Textbook

New Curricula

Center for Educational Research and Development



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SCIENCE FOR LIFE

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The National Textbook Project

By issuing the textbooks for the third year of each educational cycle, the Educational Center for Research and Development will have completed the third and last installment of 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 learning, using sophisticated educational means and up-to-date methodology that encourage and reinforce individual thinking and research, acquisition of skills, 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-aids 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 qualities. Yet the textbooks of the last two years contained some negative aspects. Such is the nature of human work, no matter how good the intentions or how great the effort extended. Here constructive criticism constitutes a real contribution to raising the standard of authorship, minimizing errors and filling gaps. We say that, with all due appreciation and respect to all those who have contributed to the success of this project.

The Educational Center for Research and Development is embarking this year on a process of evaluating the New Curricula and related textbooks, teacher training courses and student achievement. This is a natural and necessary step now that the new system has been put into effect. This process aims at identifying the curricular objectives that have been achieved as well as those that have not been achieved, with a view to proceeding with the positive aspects and correcting the negative ones.

As part of this correction process, we plan to review the versions that have been issued in order to secure good textbooks for our students, who always deserve the best.

March 13, 2000

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

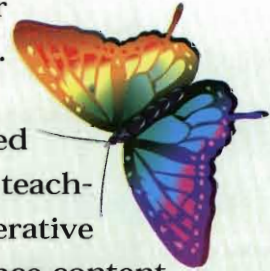
Nemer FRAYHA

Introduction

The topics of the sixth grade science textbook center around six themes in the form of units. The units included are: Living Things, Reproduction, Man and His Health, Man and His Environment, Matter and Energy, and Earth and the Universe. Each unit is divided into chapters and each chapter is divided into lessons.

The inclusion of health and environmental education within the themes aim at encouraging the students to adopt positive attitudes and appropriate behaviors towards their own health and their environment.

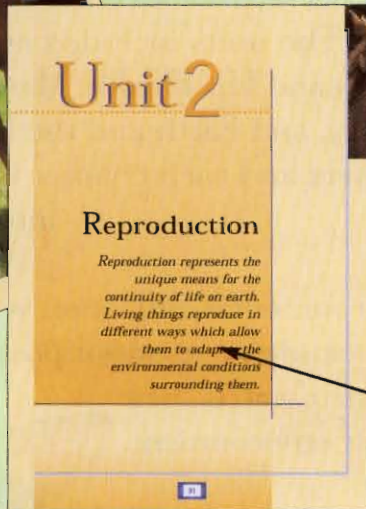
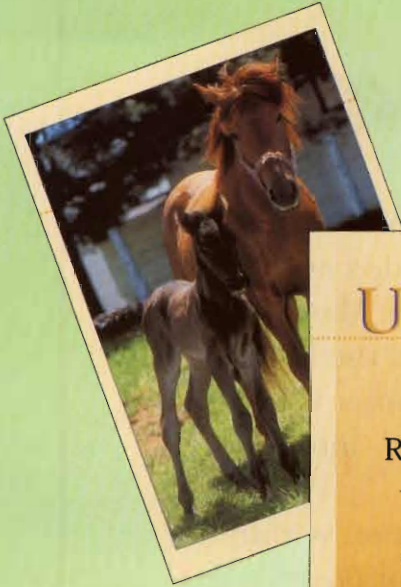
The learning approach on which this book is based requires the students to actively participate in the teaching-learning process either individually or in cooperative groups. This approach also incorporates the science content with hands-on and minds-on activities that promote the acquisition of skills and the critical and creative thinking of the students.



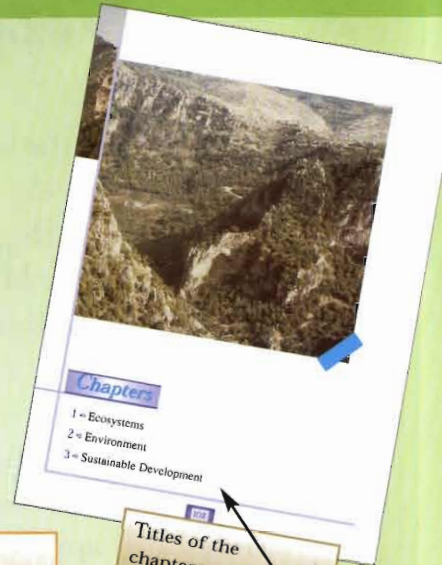
It is hoped that this science textbook will help the students develop and attain a clear understanding of science and its application in daily life.

The Authors

Using This Book

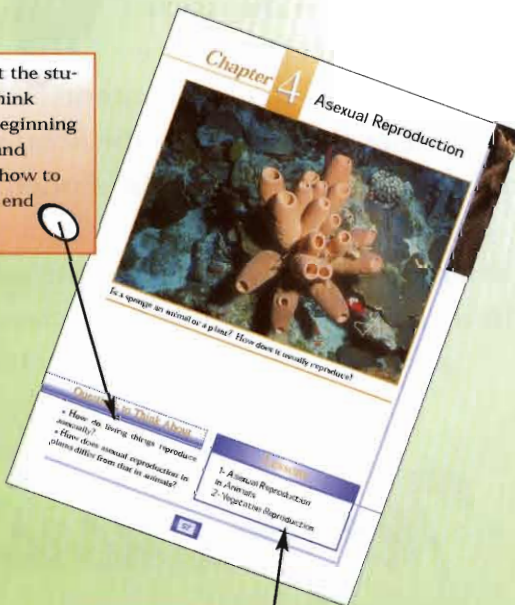


Introduction and illustration to give the student a general idea about the theme of the unit.



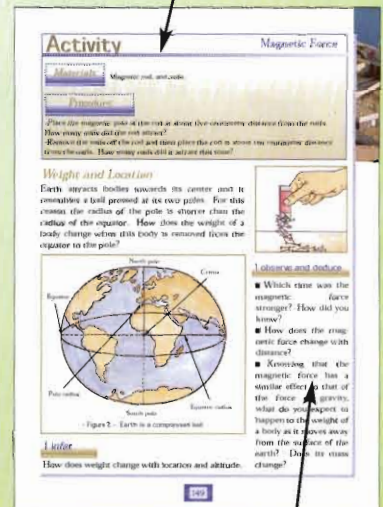
Titles of the chapters included in the unit.

Questions that the student should think about at the beginning of the lesson and should know how to answer at the end of the lesson



Titles of the lessons included in the chapter

Activity to be performed by the student or demonstrated by the teacher.



Questions that will lead the student through the processes of observation and deduction.

Unit 1

Living Things

- | | |
|--|----|
| - Chapter One:
The Cell | 15 |
| - Chapter Two:
From a Cell to an Organism | 22 |



Unit 2

Reproduction

- | | |
|---|----|
| - Chapter One:
Types of Reproduction | 33 |
| - Chapter Two:
Sexual Reproduction
in Animals | 37 |
| - Chapter Three:
Reproduction
in Flowering Plants | 49 |
| - Chapter Four:
Asexual Reproduction | 57 |
| - Chapter Five:
Humans' Role in Animal
and Plant Reproduction | 63 |



Content

Unit 3

Man and His Health

- Chapter One: Body Control	73
- Chapter Two: The Skin and the Urinary System	85
- Chapter Three: The Human Body: Coordination and Protection	93



Unit 4

Man and the Environment

- Chapter One: Ecosystem	103
- Chapter Two: Environment	110
- Chapter Three: Sustainable Development	122



Unit 5

Matter and Energy

- Chapter One: Chemical Compounds and Reactions	137
- Chapter Two: Work and Power	147
- Chapter Three: Machines and Devices	156
- Chapter Four: Energy	169



Unit 6

Earth and the Universe

- Chapter One: Earth	185
- Chapter Two: Moon and Earth	193
- Chapter Three: Satellites and Space Vehicles	199

