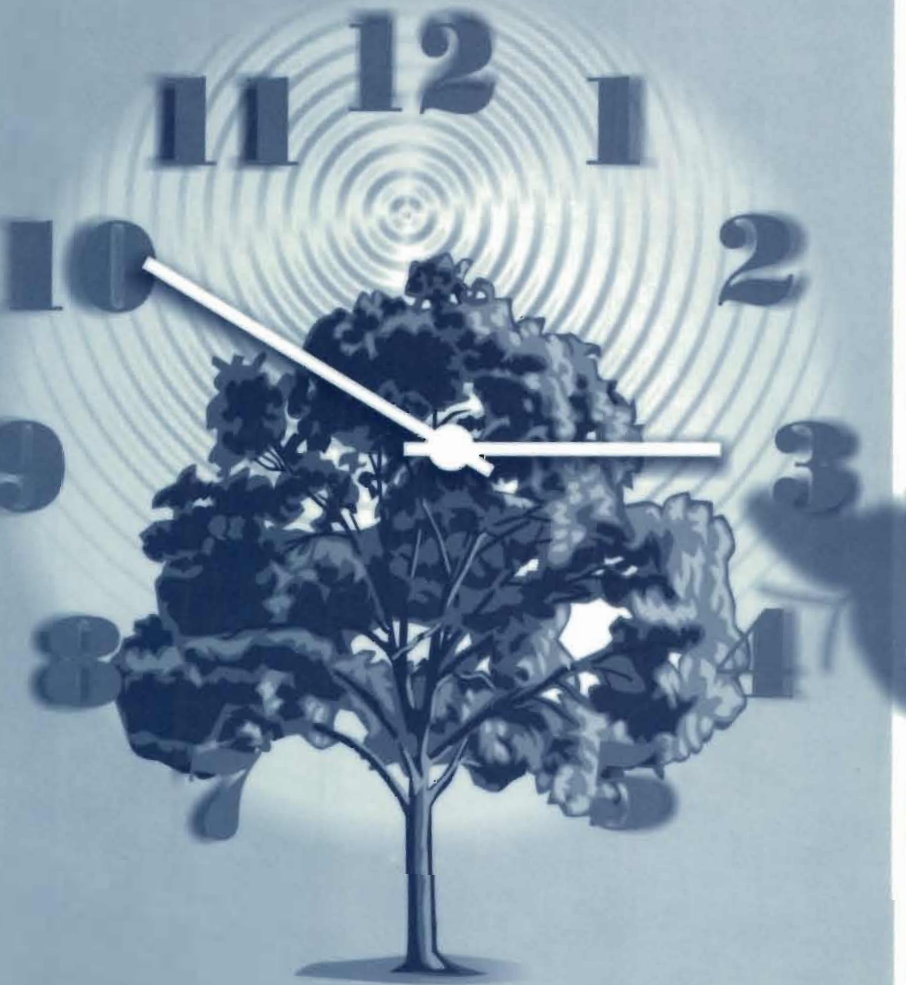


# Science *For* Life

Grade **5**  
Basic Education

## Teacher's Guide



National Center for Educational Research and Development



National  
Textbook

New Curricula





# Republic of Lebanon

Ministry of National Education, Youth and Sports

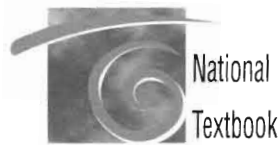
## ■ SCIENCE FOR LIFE

Teacher's Guide ■

**Basic Education**

Grade Five

National Center for Educational Research and Development



National  
Textbook

New Curricula

General Coordinator  
**Moustapha Yaghi**

Translator  
**Jamal Jaouni Rachidi**

# SCIENCE FOR LIFE

Teacher's Guide

**Basic Education**

Grade Five

**Ismail Iskandarani** (Coordinator)

**Mohamad Daher**

**Magdi El Hajj**

**Ahmad Sbeity**

**Sami Wehbeh**

National Center for Educational Research and Development

Lebanese Publishers Company s.a.r.l.

**Illustrations:** Graphics Team ■ NCERD  
**Artistic and Technical Preparation:** Technical Team ■ L.P.C.  
**Edition and Distribution:** Lebanese Publishers Company s.a.r.l.  
**Tel:** 01/277414  
**Printing:** AL Zein Printing Press

© NCERD 1999, Sin-EI-Fil, Lebanon, P.O.Box: 55264  
All Rights Reserved for NCERD  
First Published 1999

# 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**





The teacher's guide covers five units: Plants and Their Habitats, Animals and Their Habitats, Man and His Health, Matter and Energy, and Earth and the Universe. Each unit is divided into chapters and each chapter is divided into lessons.

For each lesson, the teachers are provided with the following: Title of the Lesson, Instructional Objectives, Background Information, Recommendations, Answers to In-text Questions, and Answers to Exercises.

To get the best out of the teacher's guide and the Student's Book, the following recommendations should be taken into consideration.

- Read each unit guide before starting to teach the unit, especially that some of the activities require prior preparations.
- Present some instruments or sample models relating to a certain activity before having the students do the activity.
- Photocopy some pages to be used by students whenever needed.

In accordance with the new curricula, each lesson is based on a set of objectives which direct the teaching-learning process and help the students acquire the knowledge, skills, and attitudes required at this level.

Following is a list of skills and attitudes that must be developed at this level:

- Observing, inferring, communicating.
- Comparing, distinguishing, classifying.
- Questioning, explaining, problem-solving.
- Measuring.
- Experimenting and drawing conclusions.
- Constructing models and simple science equipment.
- Reading and following technical instructions.
- Scientific testing.
- Developing proper health and environmental habits.
- Cooperation and positive interaction among students.

# Introduction

- Self-confidence.
- Honesty and persistence in science activities.
- Sense of beauty and love of nature.

We hope that this guide will be a tool in the hands of teachers to help create scientifically literate students.

The Authors

---

# Content

## *UNIT 1: PLANTS AND THEIR HABITATS*..... 11

### Chapters:

1 - Plants Also Need Food.....	12
2 - Green Plants: Life Processes.....	17
3 - Plant Adaptations.....	21
4 - Benefits of Plants to Man.....	25

## *UNIT 2: ANIMALS AND THEIR HABITATS*..... 29

### Chapters:

1 - Nutrition Patterns.....	30
2 - Food Chains.....	33
3 - Animal Adaptations.....	37

## *UNIT 3: MAN AND HIS HEALTH*..... 43

### Chapters:

1 - Nutrition and Health.....	44
2 - The Food Journey.....	50
3 - Respiration.....	57
4 - Blood Circulation.....	62
5 - Food Preservation and Safety.....	67

## *UNIT 4: MATTER AND ENERGY*..... 72

### Chapters:

1 - Light and Matter.....	73
2 - Behavior of Light.....	77

# Content

3 - Eye and Vision.....	86
4 - Battery and the Electric Current.....	89
5 - The Electric Current: Utilization and Protection.....	93
6 - Composition of Water.....	96
7 - Air: Composition and Pollution.....	100

## *UNIT 5: EARTH AND THE UNIVERSE.....* 102

### Chapters:

1 - The Solar System.....	103
2 - The Earth: a Special Planet.....	105
3 - The Changing Earth Surface.....	110

---