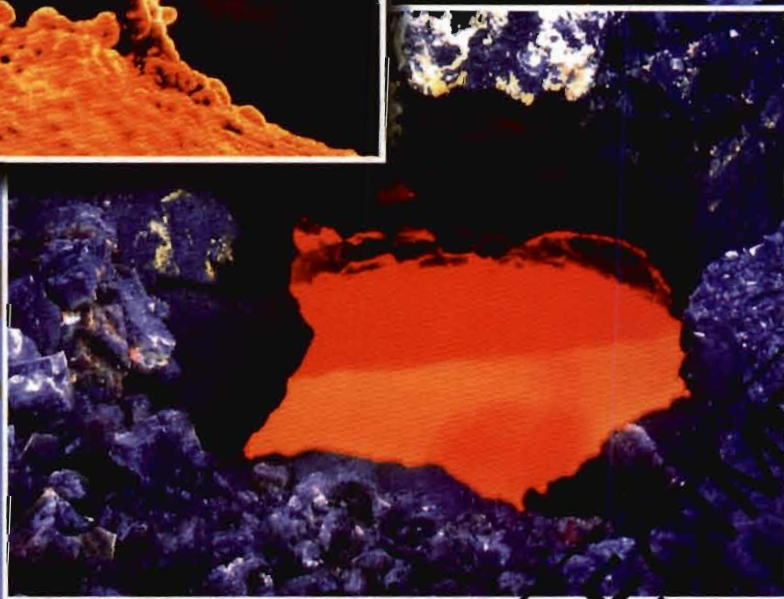
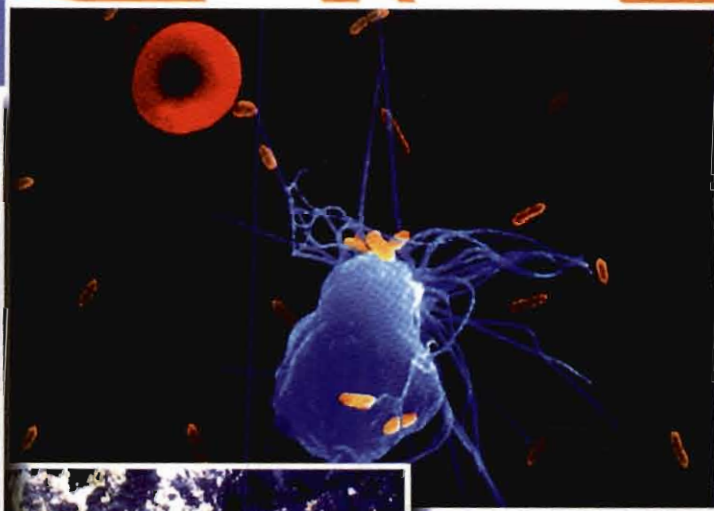
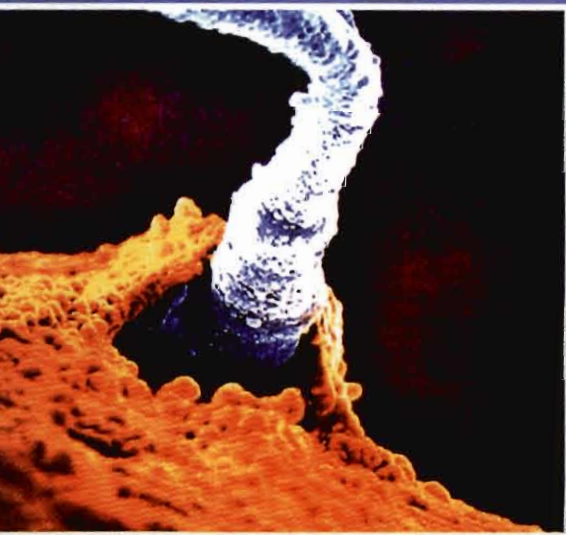


Life and Earth Sciences



8th
grade
Basic
Education

REVISED EDITION

Center for Educational Research and Development

SPECIAL MEN
معرض للكتاب



National
Textbook

New Curricula

Republic of Lebanon

Ministry of Education and Higher Education

■

**LIFE AND
EARTH SCIENCES**

■

Basic Education

Grade Eight

for Educational Research and Development





National
Textbook

New Curricula



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LIFE AND EARTH SCIENCES

Basic Education

Grade Eight

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for Printing, Publishing and Distribution S.A.R.L.

Acknowledgments

The Center for Educational Research and Development expresses its thanks and appreciation to the Geophysics Research Center for its cooperation in contributing the required pictures, illustrations and documents.

Technical Preparation: Technical Team ■ CERD

Illustrations: Graphics Team ■ CERD

Production and Distribution:  **Educational Company**
for Printing, Publishing and Distribution S.A.R.L.

Printing: AL-ARZ Printing Press

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First Edition 1999

14th Impression 2011

Together We Build Through Education!

The Center for Educational Research and Development (CERD) has embarked on an extensive workshop for assessing and developing the educational framework and curricula which have been placed into effect more than three years ago. With full realization of the fact that the educational cycle must continue normally through its components, and until the development process attains its aspired objectives, we are placing in the hands of students, teachers and directors of public schools, this corrected version of textbooks issued by CERD as part of the National Textbook Series.

This version is an interim stage incorporating the corrected typographical and linguistic errors discovered by CERD specialists as well as teachers and students through their daily dealings with the books. The process of assessment and development of the framework and curricula will take into consideration all the comments that have been made, or will be made, in this regard.

It is expected that once the curricula are developed and aligned with the general and specific objectives set for them, the textbooks will be realigned with the new curricular and framework requirements, including tying the content of a course to the number of teaching hours set for it during the school year, taking into consideration vertical alignment within the same course as well as the horizontal alignment with the rest of the courses.

I take this opportunity to invite all school administrators, teachers and students and all officials concerned in public and private schools alike, to promptly send their comments on these curricula and books as their contribution to enrichment of this momentous national process.

This workshop, which was launched under the kind sponsorship of His Excellency the Minister of Education and Higher Education in implementation of Decree No. 10227 embodying the educational curricula and their objectives, fits in with CERD's proclaimed new motto "Together We Build Through Education".

It is our earnest desire to see this national, all-inclusive workshop attracting the greatest amount of interest and participation to define the safest and soundest educational options that directly affect our children, as we vow to continually modernize education and develop its ways and means to keep abreast of modern developments and progress in science and technology.

Dr. Leila MALEEHA
President CERD

Introduction

This book of Life and Earth Sciences is intended for Basic Education, grade eight students. It is written, in content and spirit, in accordance with the official curriculum. It includes the following two topics:

- Immunology
- Earth and Environment

It is conceived and written to answer the goals of the teaching of Life and Earth Sciences. It allows the student:

- ◆ to be active and in a problem situation;
- ◆ to acquire skills such as making scientific reasoning and mastering communication, observation and experimentation techniques;
- ◆ to develop a responsible attitude towards his own health, his environment and the management of its natural resources.

This book will be used for a teaching based on activities for the development of scientific spirit and knowledge building. These activities are designed to train the student in scientific thinking. The topics of immunology and geology are approached starting from scientific problems.

Sometimes, given the novelty of these topics, texts are added in the documents in order to facilitate their exploitation.

To facilitate its use, this book is designed in parts, each divided in chapters, according to a clear and simple presentation. All the chapters are organized in the same manner:

- A double front page states the problems to be solved and the problematics of the chapter.
- Activity pages include a selection of documents, used as studying aids (such as pictures, text, diagrams, data tables, charts...), followed by a few questions that will guide the exploitation of the activity and will allow the student to find answers to the stated problems. A glossary of the new words, indicated by an asterisk, is added.
- "Summing up" sections summarize the major notions acquired from the activities.
- A "concept mapping" visually illustrates these notions.
- A solved exercise teaches the student how to write his answers.
- Exercises allow an evaluation of acquired knowledge.
- Supplementary readings provide an opening onto current events.

We hope that this book will be an efficient support for the teacher and an attractive working aid for the student, who will develop his interest in Life and Earth Sciences.

The authors

PART

1

Chapter 1 The immune response

Activities

- 1 "Self" and "non-self"
- 2 Cells, molecules and organs of the immune system
- 3 Non-specific immune response
- 4 Specific immune response
- 5 Characteristics of the specific immune response

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

Chapter 2 Methods of anti-microbial prophylaxis and therapeutics

Activities

- 1 Vaccination and serotherapy
- 2 Antisepsis, asepsis, chemotherapy and antibiotherapy

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

Chapter 3 Disorders of the immune system

Activities

- 1 Deficiencies of the immune system
- 2 Allergies

Summing up

Concept mapping

Exercises

Supplementary reading

PART

2

Earth and environment

Chapter 4 **Geology: Earth science**

- Activities**
- 1 Rock deposits
 - 2 The use of rocks by Man

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

Chapter 5 **Volcanism**

- Activities**
- 1 Volcanic eruptions
 - 2 Rocks of volcanic origin
 - 3 World distribution of active volcanoes

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

Chapter 6 **Rock deformations**

- Activities**
- 1 Faults and folds
 - 2 Deep deformations of rocks
 - 3 World distribution of rock deformations

Summing up

Concept mapping

Solved exercise

Exercises

Chapter 7 **Earthquakes and terrestrial globe structure**

- Activities**
- 1 Earthquakes and seismic waves
 - 2 World distribution of earthquakes
 - 3 Deep structure of the terrestrial globe

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

Chapter 8 **Terrestrial globe dynamics**

- Activities**
- 1 External morphology of the terrestrial globe
 - 2 Lithospheric plates
 - 3 Consequences of plates mobility
 - 4 Matter circulation in the terrestrial globe

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

Chapter 9 **Geology and human responsibility**

- Activities**
- 1 Management of the subterranean water resource
 - 2 Management of an energy rock: coal
 - 3 Detection and prevention of natural hazards

Summing up

Concept mapping

Solved exercise

Exercises

Supplementary reading

