

PHYSICS

Teacher's Guide



Basic Education - Grade Eight



National
Textbook



New
CURRICULA

Center for Educational Research and Development

Republic of Lebanon

Ministry of Education and Higher Education

PHYSICS

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New Curricula

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English Version
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Grade Eight

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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

Preface

The Teacher's Guide aims at helping the teacher prepare the lessons and achieve the objectives set forth in the curriculum.

It should be noted that we hope to make the job of the teacher easier but we do not intend to impose our point of view.

In every chapter, the teacher finds the same five parts that were considered in the Teacher's Guide of "Grade 7– Basic education", namely:

- A) The official program of physics for grade 8 of basic education.
- B) Materials and instruments.
- C) Progress of the Teaching process.
- D) Expanded answers of the exercises of the Student's Book.
- E) Supplementary exercises and their answers.

In addition, this book:

- Clarifies the learning objectives of the official program.
- Specifies the necessary materials needed to perform the experimental activities in the Student's Book (These materials are readily available, abundant and easily obtained.)
- Provides tips on how to perform the activities that are to be done mostly by the student himself except those that may cause harm if not controlled properly: these must be done by the teacher in front of the students.
- Suggests the steps to be followed in teaching the chapter; however, the teacher may follow any other appropriate procedure.
- Helps the teacher, through the supplementary exercises, to evaluate the work of students as well as the efficiency of his own teaching.

Here, we wish to highlight general rules that will not be repeated in every chapter:

1. We listed in detail only the learning objectives as they are related to grade 8 of basic education. As to the objectives that are related to attitude, methodology and behavior, these should be implanted and always present in the mind of the teacher to facilitate his job, evaluate the aptitude of his students as well as the efficiency of his own pedagogical means.

For example, the student should be able to:

- Know how to reinvest the acquired knowledge
- Know how to summarize a text
- Arrive at a hypothesis
- Suggest a method

- Discriminate between eventual variables
- Express himself orally and/or graphically.

2. When a certain concept seems too complicated (like force or wave), the best course to follow is to give one good explanation, avoid repetitious elaboration, leaving detailed study to later sessions where other instances of the concept may make it clearer.

3. The activities of the first part about “Mechanics and Energy” are not so easy to perform experimentally however, we must not do much “chalk and talk” that may lead us away from the domain of experimental science. All the experiments, even those called “thought experiments,” are important at this level.

We hope that this book would meet the needs of the teachers and make their teaching job easier.

The authors

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