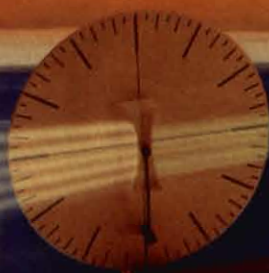
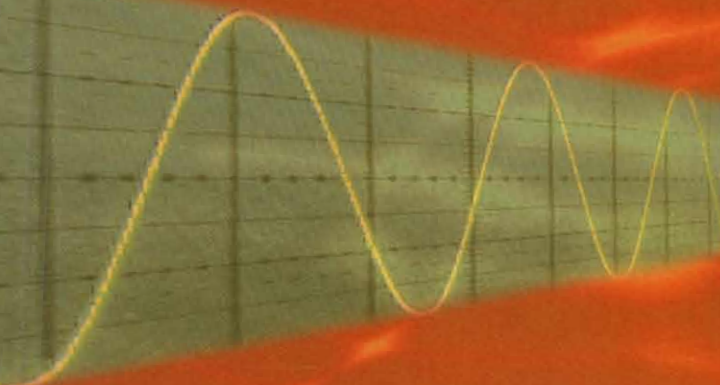


PHYSICS

Basic Education
Grade Nine

REVISED EDITION



SPECIMEN

ational
extbook



Center for Educational Research and Development

New Curricula

Republic of Lebanon

Ministry of Education and Higher Education

PHYSICS

Basic Education

Grade Nine

Center for Educational Research and Development



National
Textbook

New Curricula



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PHYSICS



Basic Education
Grade Nine

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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

The physics course syllabus of grade 9 (Basic Education) introduces new concepts about Electricity, Optics, Heat and Mechanics.

As in textbooks of grades 7 and 8, these subjects are presented here in conformity with the spirit of the syllabus to keep in the line with the level of the students at this grade.

Mostly all the steps of the activities and experiments in this textbook are supplied with diagrams and photos of real experiments to make it easier for the student to understand the scientific phenomena.

Each chapter in this textbook ends with “concept review” that summarizes the basics of the chapter which have to be put to memory.

This “review” is followed by a number of exercises that start with “conceptual” questions that checks on the student’s understanding of the main concepts, then another set of exercises, meant as a direct application and related, in most cases, to our everyday life.

We hope that this textbook will convey the main concepts of physics and hence respond to everybody’s curiosity about the real world.

The authors

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