NEW CENTURY SENIOR PHYSICS

Concepts in context

SECOND EDITION

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This text has been written to support a variety of popular contexts. The following table shows the link between these contexts and the chapters that support them.

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PREFACE

This is a fully revised edition of *New Century Senior Physics* and is designed to complement the 2004 Queensland Senior Physics Syllabus. The new syllabus is about learning in context. This book continues to provide a rich source of contextual detail as the key concepts are developed. The research literature suggests that concepts are best understood when they are presented in more than one context, and we have done this over and over again. We have also tried to maintain the arrangement of material so that teachers and students have little difficulty in finding what they want. This text will be a great resource for students and teachers alike as they seek to understand the world from a physics perspective.

Students

- Don't be alarmed at the amount of work in this book. There's more than enough for a two-year course. Your teacher will often be saying 'we're not doing this for assessment in our course'. The rest of the text you may well treat as extra background material or read just for your own interest.
- You might think that some questions are too easy or repetitive. We intended this. Expert problem solvers practise the easy work until it becomes automatic. Become that sort of person.
- You might also think that our worked examples are laborious. As you learn physics, you'll develop your own shortcuts. Remember — there is no one right way to solve a problem. Developing these techniques is what physics is about.
- If you get stuck, have a look at our web page on the Internet. You'll find worked solutions to selected questions. Find us at:
  http://www.mbc.qld.edu.au/oxford/physics.html

Teachers

- Choosing a text is the easy part; knowing what to put in your course is harder. This text should support most of the contexts you would want, as it is based on the most popular contexts chosen by teachers for their school work programs.
- Any suggestions are welcome from you or your students. Please e-mail us at school. The e-mail addresses are on the web page at www.mbc.qld.edu.au/oxford/physics.html
- Examples of a wide range of contexts, work programs, sample assessment tasks, discussion papers and networking opportunities can be found on the 2004 Senior Physics Syllabus web page at www.mbc.qld.edu.au/physics/sp.html
- We have included a huge range of questions and stimulus material, providing both practice and assessment opportunities for students. They include open and/or closed tasks inviting open or closed responses. Questions and tasks presented are suitable as practice and exemplars of **written tests**, **extended response tasks (assignments and stimulus-response items)** and **extended experimental investigations**.
- Please make your students aware of both web addresses. Students have found them very useful in the past.

Richard Walding, Greg Rapkins and Glenn Rossiter

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- colleagues on the QSA Science Subject Advisory Committee, the Physics Syllabus Sub-committee and the Physics State and District Panels for their thoughts on what a textbook should be like if it is to support their school's work program
- the physics teachers in the Trial Pilot schools whose discussions about choices of learning experiences and the development of interesting and useful contexts gave us great ideas for inclusion in this text.

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KEY

Experimental Investigations

Stimulus Response

Non-experimental Investigations