

Fysika 1A

Investigations, Theories, and Problems
for Students of Physics

Part A: Oscillations and Waves

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The material presented on our web-pages, including text material and the software executable may be freely shared as you feel fit. The text is in draft form; no attempt at overall coherence has been made. The software executable is in development and no guarantee can be made on its effectiveness. Since this may lead to a future publication, the copyright remains with the authors, © C.B.Price, F.B.Osborne 2024.

Nature of these resources

These resources are intended to be a **demonstrator**. A demonstrator is a very initial release of our project materials; it is intended to showcase our vision for physics education (see below) at this beginning stage. We would really appreciate your feedback on *any aspect* of these resources. Key contact is pric4@affiliate.worc.ac.uk.

There are huge limitations in what we have done so far. The written **chapters** are not coherently linked; they are more of a 'mind dump'. They will contain errors but hopefully no bad physics or maths. Our software has been verified and validated, but we cannot guarantee its effectiveness when run on any Windows computer.

Please freely share these resources, and we would really appreciate feedback to help us move forward. Please email us via pric4@affiliate.worc.ac.uk.

Our Vision

The study and research of Natural Sciences aims to help us understand the natural world we experience. Physics is a guiding component of this. Together with Mathematical underpinnings, the application of physics informs our contemporary engineering discipline, architecture, energy debate and existence.

Fundamental study and research require an education preparation, and this is where our project kicks in. There seems to be a widening gap between High-School courses intended to prepare for University Education, compared with similar courses 20 or so years ago. There is less time for experimentation, and a lower level of expected mathematics understanding. Student problems have become almost entirely formulaic.

Our project aims to address these issues. We would like to provide a golden triangle of integrated experimentation, associated theory expressed through mathematics, and problems which will excite and stretch the students' minds.

Our target audience is those UK Sixth Form students, and their international equivalents, who wish to progress through University or College education to become practicing physicists, theoretical, experimental, or applied.