Heinemann PHYSICS 12

4TH EDITION

VCE Units 3 & 4

COORDINATING AUTHORS:
Doug Bail
Greg Moran

AUTHORS:
Keith Burrows
Rob Chapman
Ann Conibear
Carmel Fry
Mark Hamilton
David Madden
Jeffrey Stanger

CONTRIBUTING AUTHORS:
Daniela Nardelli
Craig Tilley
Alistair Harkness
Jack Jurica

Contents

Unit 3: How do fields explain motion and electricity?

Unit 4: How can two contradictory models explain both light and matter?

AREA OF STUDY 1
How can waves explain the behaviour of light?

and AREA OF STUDY 2
How are light and matter similar?

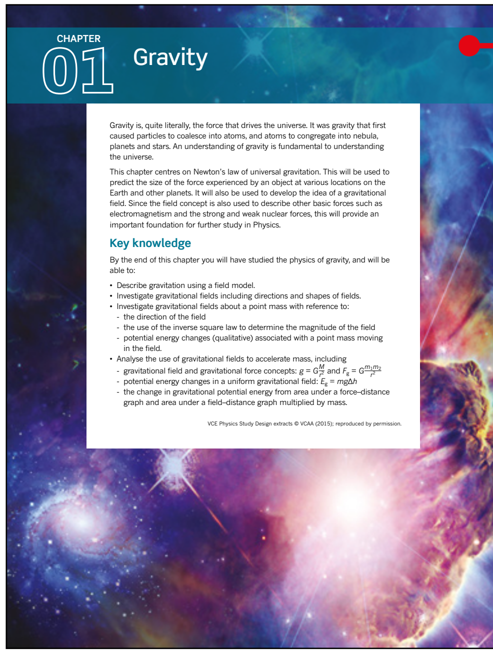
AREA OF STUDY 3: PRACTICAL INVESTIGATION

Heinemann Physics 12 4th Edition ProductLink provides extensive support material for Unit 4 Area of Study 3 Practical Investigation. This includes teacher notes and advice, logbook template and sample logbook, poster template and sample poster, rubrics, checklists and more.

How to use this book

Heinemann Physics 12 4th Edition

Heinemann Physics 12 4th Edition has been written to the new VCE Physics Study Design 2017–2021. The book covers Units 3 and 4 in an easy-to-use resource. Explore how to use this book below.



Chapter opener

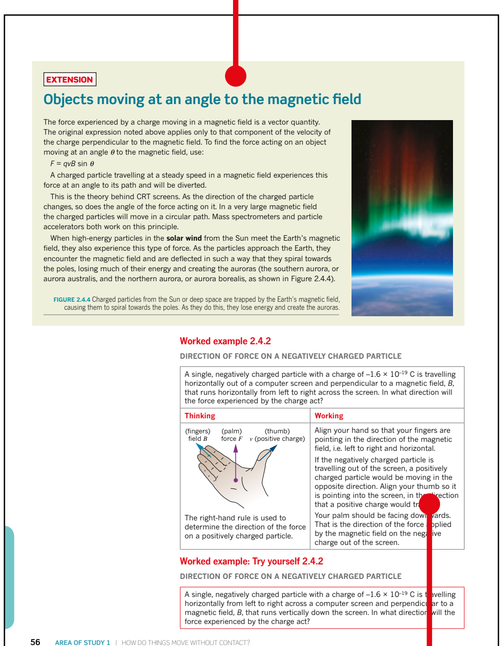
Chapter opening pages links the Study Design to the chapter content. Key knowledge addressed in the chapter is clearly listed.

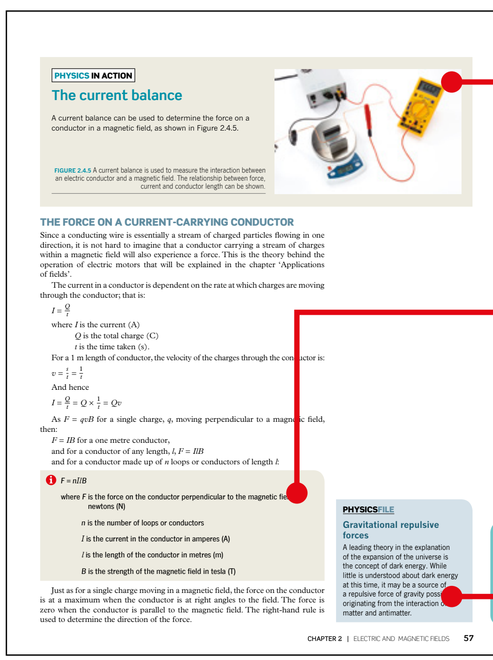
Extension

The extension boxes include material that goes beyond the core content of the Study Design and are intended for students who wish to expand their depth of understanding.

Physics in Action

Physics in Action place physics in an applied situation or relevant context. These refer to the nature and practice of physics, applications of physics and the associated issues and the historical development of concepts and ideas.





Highlight

The highlight boxes provide important information such as key definitions, formulae and summary points.

PhysicsFile

PhysicsFiles include a range of interesting information and real world examples.

Worked examples

Worked examples are set out in steps that show both thinking and working. This enhances student understanding by linking underlying logic to the relevant calculations.

Each **Worked example** is followed by a **Worked example: Try Yourself**. This mirror problem allows students to immediately test their understanding.

The fully worked solution to each **Worked example: Try Yourself** is available on *Heinemann Physics 12 4th edition ProductLink*.

Chapter review

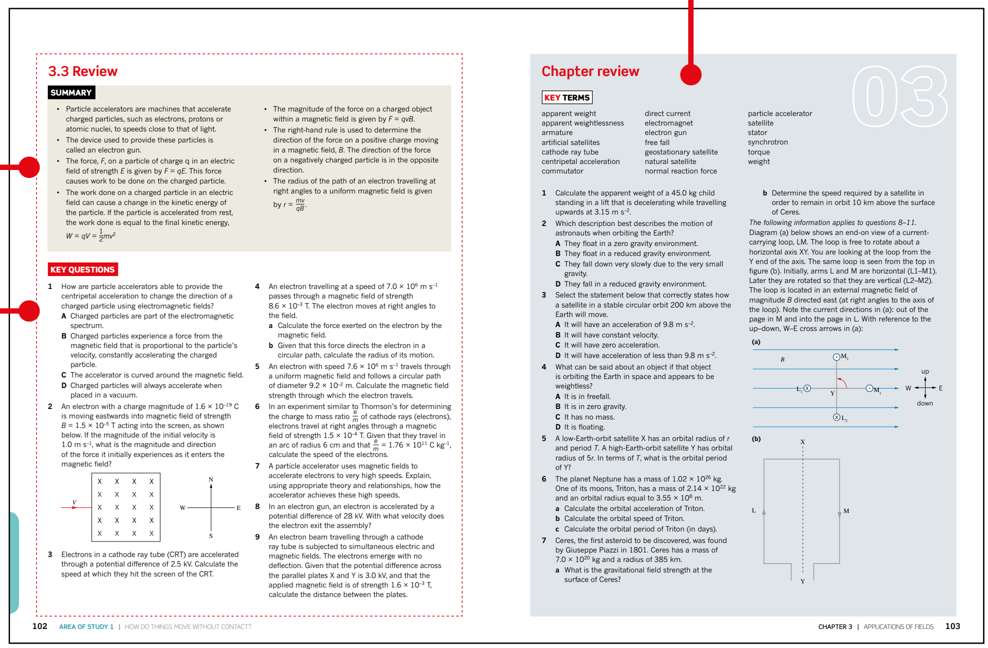
A set of higher order questions are provided at the end of each chapter to test students' ability to apply the knowledge gained from the chapter.

Section summary

A summary is provided at the end of each section to assist students consolidate key points and concepts.

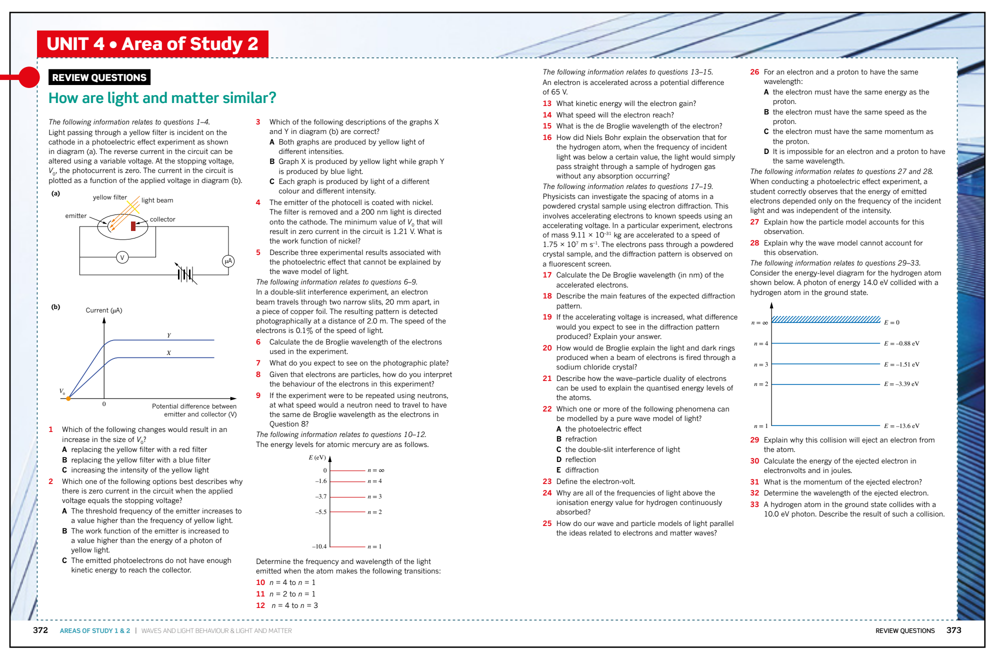
Section review

A set of 'key questions' are provided at the end of each section to test students' understanding and ability to recall the key concepts of the section as well as highlight areas that they need to revise.



Area of Study review

A comprehensive set of exam-style questions, including multiple choice and extended response are provided at the end of each Area of Study section. The questions are designed to assist students in to apply their knowledge and understanding across the entire Area of Study.



Answers

Numerical answers and key short response answers are included at the back of the book. Comprehensive answers and fully worked solutions for all section review questions, each Worked example: Try Yourself, chapter review questions and Area of Study review questions are provided via *Heinemann Physics 12 4th edition ProductLink.*

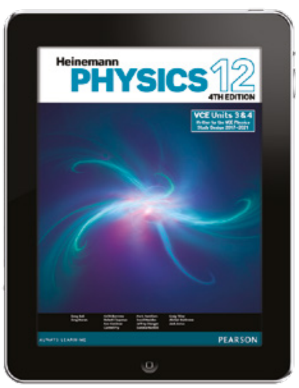
Glossary

Key terms are shown in bold and listed at the end of each chapter. A comprehensive glossary at the end of the book provides comprehensive definitions for all key terms.

Heinemann Physics 12
4th Edition

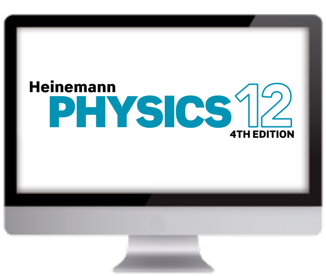
Student Book

Heinemann Physics 12 4th Edition has been written to fully align with the *2017–2021 VCE Physics Study Design*.



Pearson eBook 3.0

Pearson eBook 3.0 is the digital version of the student book. It retains the integrity of the printed page and is available online or offline on any device—PC/Mac, Android tablet, iPad.



ProductLink

Heinemann Physics 12 4th Edition ProductLink provides comprehensive support for teachers and students completely free of charge. ProductLink includes comprehensive answers and worked solutions to all student book questions, teaching programs, risk assessments and access to SPARKlabs.

Heinemann Physics 12 4th Edition ProductLink provides extensive support material for Unit 4 Area of Study 3 Practical Investigation. This includes teacher notes and advice, logbook template and sample logbook, poster template and sample poster, rubrics, checklists and more.

PearsonDigital

Browse and buy at **pearson.com.au**
Access the ProductLink at **pearsonplaces.com.au**