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Cambridge IGCSE®

# Chemistry

Coursebook

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## **CD-ROM**

- Study and revision skills
- Self-assessment practice tests
- Practice exam-style papers and marking schemes
- Syllabus contents table
- Syllabus coverage by book chapter
- Glossary
- Notes on Activities for Teachers/Technicians
- Self-assessment checklists
- Activities
- Answers to Coursebook end-of-chapter questions
- Revision checklists
- Animations

# Introduction

Chemistry is a laboratory science: its subject material and theories are based on experimental observation. However, its scope reaches out beyond the laboratory into every aspect of our lives – to our understanding of the nature of our planet, the environment we live in, the resources available to us and the factors that affect our health.

This book thoroughly covers the Cambridge International Examinations (IGCSE) Chemistry syllabus and includes features which are aimed at helping you grasp the concepts and detail involved. The areas that cover the **Core** and **Supplement** material of the syllabus are clearly marked (the **Supplement** material having a purple bar like the one here in the margin) so that you can see which topics will be tested on each exam paper that you will take. The topic summaries, questions and end-of-chapter questions are also clearly marked so that you can pick out, study and revise the material relevant to the ‘core’ and ‘extended’ papers.

In addition to covering the syllabus, the book also contains additional information. This will not be examined, but is there to help develop your scientific skills and broaden your knowledge. Areas of additional information are marked by the green bar like the one here in the margin.

The first chapter of the book serves to set chemistry in its broader context and as such contains material that ‘sets the scene’ as well as syllabus material. At various points in this and other chapters there is material that provides and develops some of the context in which chemical ideas are important. These are areas such as:

- ◆ the importance of chemistry to life, and the nature of the universe (Chapter 1)
- ◆ renewable and non-renewable resources (Chapter 1)
- ◆ our need to develop alternative energy sources (Chapter 11).

The introduction to each chapter aims to highlight some of the more novel aspects of chemistry – from unusual alloys and the visualisation of the bonding in molecules to the analytical laboratory on the surface

of Mars. The introductions are found in boxes and as with the additional information, the material within these will not be examined.


## Features of the book and the Student CD-ROM

The book is divided into broad **chapters** covering important areas of the syllabus. These chapters are then divided into different **sections** to help you manage your understanding of the ideas involved. At the end of each section there are short **questions** to help you check that you have followed the ideas covered. The **answers** to these short questions are provided at the end of the book to help you with this. Included in the text are a series of **study tips** and **key definitions**. These highlight important areas of learning and useful approaches to a particular topic.

Each chapter finishes with a **summary** of Core and Supplement material to help you particularly with your revision. This is followed by a selection of **end-of-chapter questions** which are there to help you become familiar with the style of question set in each examination.

Answering questions is a great way to get to grips with each of the topics. However, it is not the only way! The **Student CD-ROM** provides information on revision skills and resources available on the internet to help with your study of chemistry. A copy of the syllabus is provided on the CD-ROM, which shows where the different topics are covered in the book – and you can use this interactively as a checklist during revision. ‘Mind-mapping’ ideas and other revision strategies are discussed on the CD-ROM, and we hope that you can find ideas that will help you study in the most personally effective way.

An important feature which appears both in the book and on the Student CD-ROM is the **glossary**. The terms included in the glossary are highlighted in the text in **dark red bold**. Do use this resource in



addition to the text in order to help you understand the meaning of chemical terms. But more than that, it is important that you can express your ideas clearly in an exam – that is why we have included so many practice questions in the book and in the **practice tests** that appear on the CD-ROM. The information boxes and ‘key definitions’ placed throughout the chapters are there to help you learn how to summarise your knowledge in an effective and clear way. Chemistry, and science in general, can often use certain words in a very precise way, so it is important to read carefully and get used to writing down your answers clearly.

## Practical work

We began by saying that chemistry was a practical science and, in this edition, we have included **Activities** throughout the chapters, which we hope will encourage your enjoyment of the practical aspect of the subject. Worksheets for these practicals are included on the Student CD-ROM. In addition, we have aimed to help your preparation for the practical element of the exam in various ways:

- ◆ Chapter 12 of the book gives a summary of the different ways that practical work is assessed and some exemplar questions.
- ◆ There are practice ‘alternative to practical’ papers (Paper 6) on the Student CD-ROM.
- ◆ The separate **Student Workbook** contains exercises involving practice at the key skills of writing up your observations and making deductions from your results. Included there are methods that you can use to assess (by yourself, and with your teacher) how well you are developing your data handling and presentation skills.

Chemistry is an important, exciting and challenging subject that impacts on every aspect of our lives. As we face the challenges of the future, the chemical ‘angle’ on things will figure in our thinking, whatever future course we personally take in our careers. We hope that this book will help you enjoy chemistry, give you some understanding of the ideas involved and help you be successful in the IGCSE course.

Richard Harwood  
Ian Lodge