Qualification Accredited

OCR
Oxford Cambridge and RSA

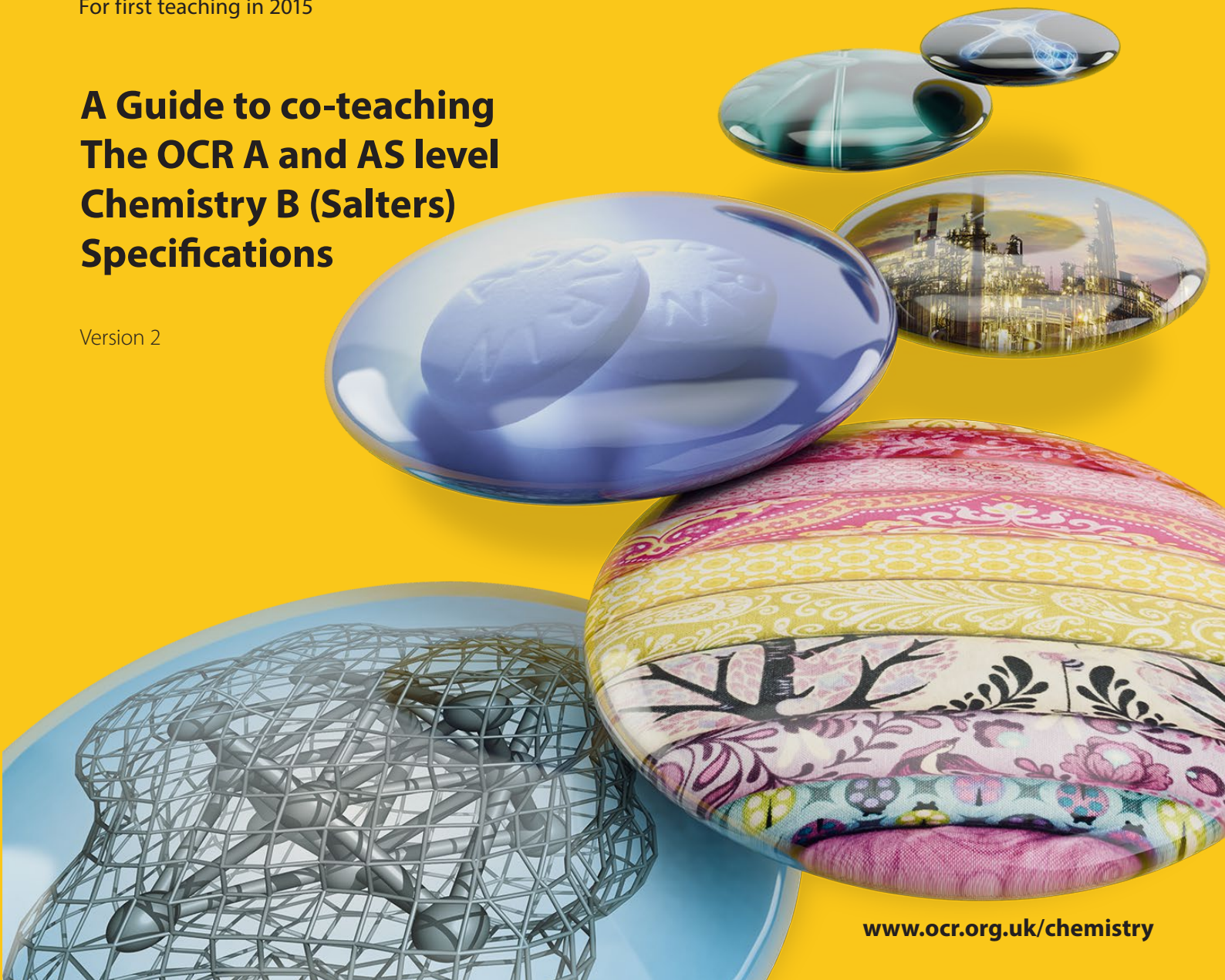
AS and A LEVEL
Co-teach Guide

CHEMISTRY B (SALTERS)

H033/H433
For first teaching in 2015

A Guide to co-teaching The OCR A and AS level Chemistry B (Salters) Specifications

Version 2



www.ocr.org.uk/chemistry

CONTENTS

INTRODUCTION

The OCR AS and A Level specifications in Chemistry are deliberately structured to facilitate co-teaching. As such they have been designed to be as accessible as possible for teachers.

- Both specifications share the same: Assessment Objectives, assessment aims and outcomes. There is the same approach to the subject apparent at each level.
- The content of the AS Level specification is a subset of the content of the A Level specification, which can be taught in the first year of the A Level course. This allows AS and A Level learners to be taught together throughout the first year until the AS assessments.
- Assessments will contain the same question types (multiple choice questions, structured questions, extended response questions), allowing similar materials to be used in revision and exam preparation.
- The textbook, published by OUP and endorsed by OCR, will be the same for AS and the first year of A Level.
- The creative and innovative teaching and learning resources being developed by OCR will be equally useful for AS and A level students in the first year.

THE NEW QUALIFICATIONS

The AS Chemistry B (Salters) is a separate qualification to the GCE A Level in the subject. Its structure does, however, reflect that of the A Level. The content of the A Level in Chemistry B (Salters) is divided into 1 practical module and 10 teaching modules. The content of the AS Level in Chemistry B (Salters) consists of the first half of the practical module and the first 5 teaching modules.

Learners are not required to sit the AS Level before proceeding to the A Level, as in the current 'legacy' system. If learners do take the AS and then move on to the A Level, this means that they will be reassessed on the material that they have already covered at AS. The experience of sitting the AS could therefore in itself be useful practice for taking the A Level components. This is true in terms of question types as well as content, as can be seen from the summaries of the papers for each qualification in the table below.

	AS paper 1 Foundations of chemistry	**AS Paper 2** Chemistry in depth	**A level Paper 1** Fundamentals of chemistry	**A level Paper 2** Scientific literacy in chemistry	**A level Paper 3** Practical skills in chemistry
Length/marks	1.5 hours/70	1.5 hours/70	2.25 hours/110	2.25 hours/100	1.5 hours/60
Multiple choice	20 marks	–	30 marks	–	–
Structured questions	Yes	Yes	Yes	Yes	Yes
Extended response	No	Yes	Yes	Yes	Yes
Practical questions	About 15%	About 20%	About 10%	About 10%	About 75%
Specification coverage	First five teaching modules (synoptic)		All ten teaching modules (synoptic)		

In addition to the three externally assessed examinations, the A Level assessment includes the Practical Endorsement, which is internally assessed by the centre and externally moderated. The Practical Endorsement is reported separately from the overall grade issued for the A Level, which is determined by performance in the examinations.

PRACTICAL SKILLS

Ofqual has decided that there will be no direct assessment of practical skills in AS Chemistry qualifications. There is therefore no internally assessed practical assessment in the OCR AS model. This does not mean that the development of practical skills should not form part of the teaching and learning at this level. Practical skills will be assessed in the written examinations at both AS and A Level.

OCR have embedded practical skills into the AS and A Level Chemistry B (Salters) specifications, so that practical activities may be easily integrated into the course, and will support teaching and assessment of the content of both AS and A Level. AS learners will benefit from taking part in the activities, and will be able to count their performance (as long as adequate records are kept) towards the A Level Practical Endorsement if they decide to proceed to the full A Level after taking the AS examinations. OCR recommends that AS learners join in with any Practical Endorsement activities undertaken in the first year of the A Level course.

SUMMARY

Taken together, these factors all ensure that the AS and A Level in Chemistry B (Salters) can be co-taught such that members of the same Year 12 (or equivalent) teaching group are able to follow the same Scheme of Learning – delivered by the same teacher or teachers – whether individual students are planning:

- **either** to sit the subject at AS and then drop it completely
- **or** to sit AS Chemistry B with a view to going on to take A Level the following year
- **or** to go through to take A Level without sitting the AS exams at the 'half-way' stage.

SUGGESTED PLANNER

Here is a possible planner for teaching both years of the course, with the AS course co-taught alongside the first year of A Level. This planner will need to be adapted to fit the needs of the individual centre. It should always be possible to teach the AS and A Level at the same time within a centre.

Timeline	Content	Notes
Throughout course	Development of practical skills	Teaching of Specification section **1.1** – Practical skills assessed in a written examination should be embedded in teaching throughout, ideally combined with teaching of the practical techniques included in the specification content. Many of these practicals can also be used to develop and assess competency in practical skills to count towards the Practical Endorsement, as set out in section **1.2** of the A Level specification.
Year 1, Term 1	Elements of life	Supporting practical work: • experiments involving reacting masses and moles (Practical Endorsement) • acid–base titrations (Practical Endorsement) • test-tube or reduced scale reactions involving the elements of Group 2 and their compounds • qualitative analysis of inorganic ions (Practical Endorsement) • making salts • flame tests for cations
	Developing fuels	Supporting practical work: • experiments involving reacting masses, moles and volumes of gases (Practical Endorsement) • determination of enthalpy changes (Practical Endorsement) • cracking a hydrocarbon vapour and testing the product
Year 1, Term 2	Elements of the sea	Supporting practical work: • electrolysis of aqueous solutions • test-tube or reduced scale redox reactions • iodine–thiosulfate titrations • test-tube reactions to investigate relative reactivities of halogens • qualitative analysis of halide ions (Practical Endorsement) • qualitative experiments involving equilibrium reactions

Timeline	Content	Notes
	The ozone story	Supporting practical work: • experiments to illustrate the formation of intermolecular bonds • qualitative experiments on reaction kinetics (more extensive work on reaction rates in the second year of A Level will count towards the Practical Endorsement) • experiments to illustrate the relative reactivity of the haloalkanes • experiments involving an alkane and bromine
Year 1, Term 3	What's in a medicine?	Supporting practical work: • qualitative analysis of organic functional groups (Practical Endorsement; more work to count towards the Practical Endorsement may be done in the second year of A Level) • synthesis and purification of an organic liquid (Practical Endorsement) • synthesis and purification of an organic solid (Practical Endorsement)
	Revision and preparation for AS exams	A Level candidates not taking AS exams might use this period to consolidate A Level study at the midpoint of the course, or to complete trial exams as an indicator of progress. Additionally, A Level candidates might be given more extensive practical work – eg a more extended organic synthesis including risk assessment and analysis – to complete while AS candidates are revising; this will benefit skills development for the Practical Endorsement.
	Post AS exams	A level candidates (and AS candidates who are considering continuing with A level) might start 'The chemical industry' unit. Also they might carry out an activity including research skills towards the Practical Endorsement .
Year 2, Term 1	The chemical industry (might have been started at end of year 1)	Supporting practical work: • investigation of reaction rates using continuous monitoring methods (Practical Endorsement) • experiments where the results can be used to calculate rate, orders of reaction, the rate constant and the activation enthalpy • experiments to measure K_c • test tube or reduced scale reactions of nitrogen compounds
	Polymers and life	Supporting practical work: • experiments involving the hydrolysis of peptides • paper chromatography (Practical Endorsement) • kinetics experiments involving enzymes • test tube experiments involving carboxylic acids, amino acids, amines and amides (Practical Endorsement) • hydrolysis of an ester or amide
	Start Oceans	

Timeline	Content	Notes
Year 2, Term 2	Complete Oceans	Supporting practical work: • determination of enthalpy changes of solution (Practical Endorsement) • experiments to determine what drives reactions • experiments involving solubility products • experiments involving K_a and the pH of acids and alkalis (Practical Endorsement) • experiments involving buffer solutions
	Developing metals	Supporting practical work: • manganate titration • measurement of cell potentials (Practical Endorsement) • experiments on rusting • test-tube or reduced scale reactions involving iron, copper and other transition metals and their compounds, including the formation of complex ions • experiments to determine formulae of complexes of transition metals • experiments involving catalysts • using a colorimeter to measure the concentration of a coloured solution
	Start Colour by design	Supporting practical work: • test tube reactions to identify or distinguish between unknown organic compounds with functional groups mentioned in the specification (Practical Endorsement) • reactions involving aromatic compounds • test tube reactions involving dye-making and dyeing • completion of Practical Endorsement
Year 2, Term 3	Finish Colour by design	
	Thorough revision and consolidation of all A Level content	Exam preparation

The small print

We'd like to know your view on the resources we produce. By clicking on the 'Like' or 'Dislike' button you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click 'Send'. Thank you.

If you do not currently offer this OCR qualification but would like to do so, please complete the Expression of Interest Form which can be found here: www.ocr.org.uk/expression-of-interest

OCR Resources: *the small print*
OCR's resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources. We update our resources on a regular basis, so please check the OCR website to ensure you have the most up to date version.

OCR acknowledges the use of the following content:
Square down andSquare up: alexwhite/Shutterstock.com

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

We will inform centres about any changes to the specification. We will also publish changes on our website. The latest version of our specification will always be the one on our website (www.ocr.org.uk) and this may differ from printed versions.

ocr.org.uk/alevelreform
OCR customer contact centre

General qualifications
Telephone 01223 553998
Facsimile 01223 552627
Email general.qualifications@ocr.org.uk