

Edexcel International AS/A Level Chemistry

Welcome to Pearson
Module 1

Event code: YCH11-20IO2
Getting ready to teach

First teaching in 2018, first assessment 2019



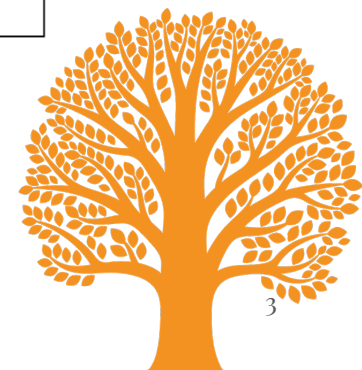
Aims and objectives

- To understand how the qualification is devised.
- To review the content of the qualification.
- To understand the assessment of the qualification.
- To explore how to plan the course.
- To identify the support available from Pearson.



Agenda

| Item |
|--|
| Introductions |
| Welcome to Pearson Edexcel |
| How the qualification is devised |
| Content of the qualification |
| Assessment of the qualification |
| Planning the course |
| BREAK |
| Support to help you deliver the content & to prepare your students |
| Other support available |



Welcome to Pearson Edexcel



Welcome to Pearson Edexcel

Welcome to Pearson Edexcel, the world's leading learning company and the UK's largest awarding body.

We set the standard for worldwide recognised qualifications, built on the UK educational system and accepted by universities worldwide.

We have a simple mission:
to help make a measurable impact on improving people's lives through learning.

'We judge ourselves – and invite others to judge us – not by the products that we make but by the impact on learners.'

John Fallon,
Chief Executive Officer,
Pearson



About Pearson Edexcel

As the UK's largest awarding organisation, we are best placed to provide qualifications that are most closely aligned to the British educational system.



About Pearson Edexcel

We are the most reliable awarding organisation in the UK, recognised and trusted by educators, learners and employers to provide high quality qualifications.



About Pearson Edexcel

By helping you to realise student potential, you can prepare and empower all your students to progress to further education, university and employment.



About Pearson Edexcel

Our technology capability allows us to provide you with more advanced support services, tools and resources to make life easier for school leaders, teachers and students.



About Pearson Edexcel

Pearson Edexcel are leading the way, challenging thinking and creating new ideas so you can be confident our qualifications will always be world-class.



How the qualification is devised



Structure of the qualification

- There are two separate qualifications available:
 - International AS (IAS).
 - International A Level (IAL).
- Both the IAS and the IAL are modular qualifications.
- There are three units at IAS.
- And a further three units at IA2.



IAS Chemistry

- The qualification consists of three externally assessed units.
- This can be awarded as a separate IAS qualification, or can contribute 50% towards the IAL qualification.



IAL Chemistry

- This qualification has six externally assessed units.
- It consists of the three IAS units (Units 1, 2 and 3) plus three IA2 units (Units 4, 5 and 6).
- Students wishing to achieve the IAL must therefore complete all six units.



Content of the qualification



IAS Chemistry

Unit 1

Formulae, Equations and Amount of Substance
Atomic Structure and the Periodic Table
Bonding and Structure
Introductory Organic Chemistry and Alkanes
Alkenes

Unit 2

Energetics
Intermolecular Forces
Redox Chemistry and Groups 1, 2 and 7
Introduction to Kinetics and Equilibria
Organic Chemistry: Alcohols, Halogenoalkanes, Spectra

Unit 3

Students develop experimental skills by carrying out a range of practical experiments and investigations in Units 1 and 2.
This unit will assess students' knowledge and understanding of experimental procedures and techniques that were developed in Units 1 and 2.



IAL Chemistry

Unit 4

Kinetics
Entropy and Energetics
Chemical Equilibria
Acid-base Equilibria
Organic Chemistry:
Carbonyls, Carboxylic
Acids, Chirality

Unit 5

Redox Equilibria
Transition Metals and their
Chemistry
Organic Chemistry: Arenes
Organic Nitrogen
Compounds
Organic Synthesis

Unit 6

Students develop further their experimental skills by carrying out a range of practical experiments and investigations in Units 4 and 5.

This unit will assess students' knowledge and understanding of the experimental procedures and techniques that were developed in Units 4 and 5.



Assessment of the qualification



IAS Chemistry

Unit 1

1 hour 30 minutes

80 marks

120 UMS

Worth 40% of IAS (or
20% of the full IAL)

Available June,
October and January

Unit 2

1 hour 30 minutes

80 marks

120 UMS

Worth 40% of IAS (or 20%
of the full IAL)

Available June, October
and January

Unit 3

1 hour 20 minutes

50 marks

60 UMS

Worth 20% of IAS (or
10% of the full IAL)

Available June, October
and January



IAL Chemistry

Unit 4

1 hour 45 minutes

90 marks

120 UMS

Worth 20% of the full IAL

Available June, October and January

Unit 5

1 hour 45 minutes

90 marks

120 UMS

Worth 20% of the full IAL

Available June, October and January

Unit 6

1 hour 20 minutes

50 marks

60 UMS

Worth 10% of the full IAL

Available June, October and January



Unit results

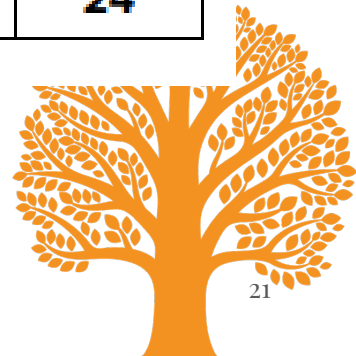
- No change to the UMS scale.
- Units 1, 2, 4 and 5 have a maximum of 120 UMS.
- Units 3 and 6 have a maximum of 60 UMS.

Units 1, 2, 4 and 5

| Unit grade | Maximum uniform mark | A | B | C | D | E |
|------------|----------------------|----|----|----|----|----|
| | 120 | 96 | 84 | 72 | 60 | 48 |

Units 3 and 6

| Unit grade | Maximum uniform mark | A | B | C | D | E |
|------------|----------------------|----|----|----|----|----|
| | 60 | 48 | 42 | 36 | 30 | 24 |



Qualification results

- IAS – total of 300 UMS.
- IAL – total of 600 UMS.
- The A* for IAL is calculated in the same way as now.

International Advanced Subsidiary (cash-in code: XCH11)

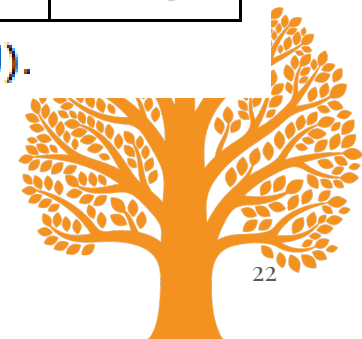
| Qualification grade | Maximum uniform mark | A | B | C | D | E |
|---------------------|----------------------|------------|------------|------------|------------|------------|
| | 300 | 240 | 210 | 180 | 150 | 120 |

Students with a uniform mark in the range 0–119 will be Unclassified (U).

International Advanced Level (cash-in code: YCH11)

| Qualification grade | Maximum uniform mark | A | B | C | D | E |
|---------------------|----------------------|------------|------------|------------|------------|------------|
| | 600 | 480 | 420 | 360 | 300 | 240 |

Students with a uniform mark in the range 0–239 will be Unclassified (U).



Features of our question papers

- Our question papers are clear and accessible for students of all ability ranges, with straightforward mark schemes.
- We use a series of well-defined command words.
- Papers assess relevant mathematical skills – 20% of marks cover maths skills.
- Question papers contain a mixture of question types, with an initial MCQ section.



Activity 1

Which specification point is the following question assessing?

(ii) Explain how the electrical conductivity, high melting temperature and malleability of metals depend on their structure and bonding.

(3)

Electrical conductivity

.....

.....

High melting temperature

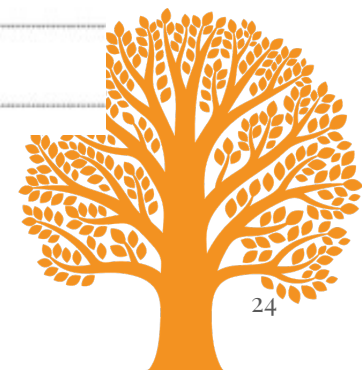
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Malleability

.....

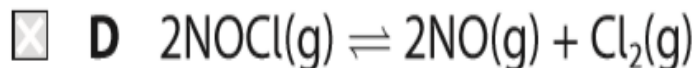
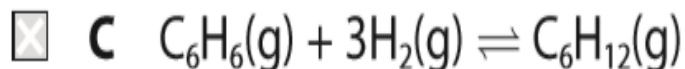
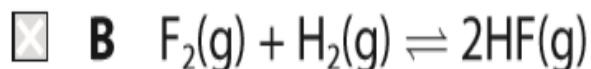
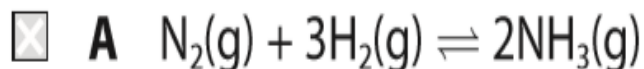
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Activity 2

Which specification point is the following question assessing?

Which equilibrium shifts to the right-hand side when the pressure in the system **decreases** at constant temperature?



Assessment objectives

A01 Demonstrate knowledge and understanding of science.

A02 (a) Application of knowledge and understanding of science in familiar and unfamiliar contexts.
(b) Analysis and evaluation of scientific information to make judgements and reach conclusions.

A03 Experimental skills in science, including analysis and evaluation of data and methods.



Planning the course



Key documents

There are two key documents needed to deliver the course:

- The specification.
- The SAMs.



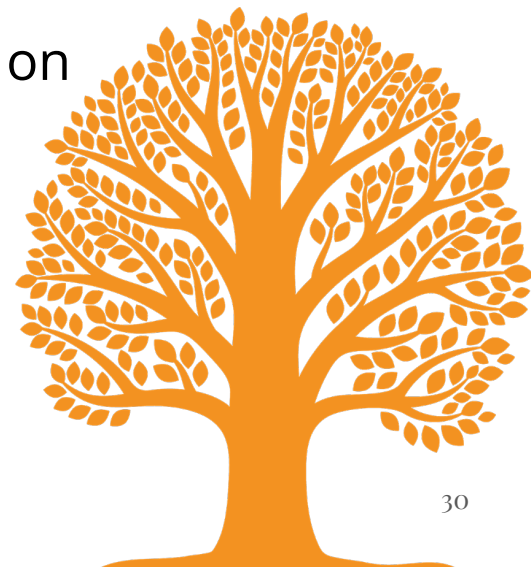
What is the specification?

- The specification is the main document you need to teach the course (**see handout**).
- It outlines the aims of the course, the content you **must** cover and all the information you need about assessing your students.
- This document can be found on our website.



What are the SAMs?

- SAMs is short for Sample Assessment Materials. This document is just as important as the specification (**see handout**).
- The SAMs are examples of the question papers and mark schemes. They show the question types and how they will be marked by the examiners.
- We base all of our future papers and assessments on these Sample Assessment Materials.



How do I make sure I cover the content?

- Specification.
- Schemes of work.
- Lesson plans.



Example Scheme of Work

| Weeks | Topic Area Aims and Learning Outcomes | Exemplar classroom activities, teaching points and suggested teaching resources | Integrated Transferable Skills |
|-------|---|---|---|
| 1 | <p>Amount of substance</p> <p>Know the terms atom, element, ion, molecule, compound, empirical formula and molecular formula</p> <p>Know that the mole (mol) is the unit for amount of a substance and be able to perform calculations using the Avogadro constant</p> <p>Be able to write balanced full and ionic equations, including state symbols, for chemical reactions</p> <p>Understand the terms: relative atomic mass, relative molecular mass, relative formula mass, molar mass, parts per million</p> <p>Be able to use experimental data to calculate empirical and molecular formulae</p> | <p>View video on Mole and Avogadro as part of 'Flip Learning' preparation, then use scaffolded worksheets to check understanding. e.g. http://www.youtube.com/watch?v=AsqEkF7hcII</p> <p>Students work in groups to carry out an experiment to confirm the empirical formula of a compound (e.g. copper oxide by reduction).</p> <p>Students work in groups to carry out an experiment to determine the number of water molecules in a hydrated salt (e.g. hydrated magnesium(II) sulfate).</p> <p>Play a 'spot the difference' game with cards showing all the key definitions.</p> <p>Design a spreadsheet to calculate relative molecular mass / relative formula mass from relative atomic masses.</p> | <p>Problem solving in calculations</p> <p>Analysis of results of experiments</p> <p>Interpretation of results of experiments</p> <p>Responsibility for carrying out practical work in a safe manner, following all safety requirements</p> <p>Teamwork and cooperation when working with others carrying out practical experiments</p> <p>Communication between members of a group carrying out experiments</p> |



Possible components of a lesson plan

While there are many formats for a lesson plan, most lesson plans contain some or all of these elements, typically in this order:

- Title of the lesson.
- Time required to complete the lesson.
- List of required materials.
- List of objectives (what the student is expected to know by the end of the lesson).



Possible components of a lesson plan

- The 'lead-in' to the lesson that focuses students on the lesson's skills or concepts – this could include showing pictures or models, asking leading questions, or reviewing previous lessons.
- An instructional component that describes the sequence of events that make up the lesson, including the teacher's instructional input and, where appropriate, guided practice by students to consolidate new skills and ideas.
- Independent practice that allows students to extend skills or knowledge on their own.



Possible components of a lesson plan

- A summary, where the teacher wraps up the discussion and answers questions.
- A risk assessment where the lesson's risks and the steps taken to minimise them are documented.
- An analysis component the teacher uses to reflect on the lesson itself, such as what worked and what needs improving.



Practicals in the specification

- The specification contains 16 Core Practicals (8 at AS and 8 at A2). (**See handout.**)
- It is strongly recommended that students complete these Core Practicals in order to develop skills.
- Other suggested practicals appear in the specification.
- The suggested practicals are optional.
- You may add – or substitute – your own practicals too!



Practical skills

- Students will be assessed on practical skills in Units 3 and 6.
- This will include testing the skills of students in familiar and unfamiliar applications.
- Students may be asked about planning, including risk management and the selection of apparatus, with reasons.
- Other questions may cover data handling, including the use of significant figures, processing data and plotting graphs.



Assessing practical skills – Unit 3

- Unit 3 is a written practical examination, covering the skills and techniques developed during practical work in Units 1 and 2.
- The unit content contains eight core practical activities.
- The examination may include questions where students apply their knowledge to new practical situations.
- Students should develop their practical skills by completing a range of different practicals that require a variety of different techniques.
- Suggested practicals are included at the end of each topic.



Assessing practical skills – Unit 6

The points covered in Unit 3 also apply to Unit 6 except:

- Students are expected to develop experimental skills and knowledge and understanding of the necessary techniques by carrying out a range of practicals while they study Units 4 and 5.



Questions may ask students to:

- recall and/or interpret observations relating to tests for ions and gases in Units 1 and 2
- recall and/or interpret observations relating to tests for organic functional groups in Units 1 and 2
- manipulate data and comment on experimental methods and techniques for a range of experiments involving measurements in Units 1 and 2, including molar mass calculations, titrations, thermochemical investigations and simple kinetics experiments
- comment on experimental methods and techniques in the preparation of inorganic or organic compounds in Units 1 and 2.



Break, be back in five minutes.



**Support to help you deliver the
content and to prepare your students**



Types of support available

Online support:

- Teaching and Learning Materials.
- Past Papers, Mark Schemes & Examiners' Reports.
- Teacher Resource Packs.

Published resources:

- Student Books.
- Lab Books.



Teaching and learning materials

Chemistry (2018)

 Pearson | Edexcel

Specification

Course materials

Published resources

News

Find course materials

Specification and
sample
assessments (2)

Exam materials (14)

Teaching and
learning materials
(20)

1 - 20 of 20

Find your Document



Sort By

Content type



Filters

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Booklet



Data Booklet - IAL Chemistry 2018

Data Booklet for use for assessment of units WCH12, WCH14 and WCH15

| PDF 2.4 MB | 28 Mar 2019



Teaching and learning materials

Exemplar material

Getting Started Guide

*Teacher Mathematics
Support*

Teacher Practical Guide

Transition Guide

Past training content

Scheme of Work

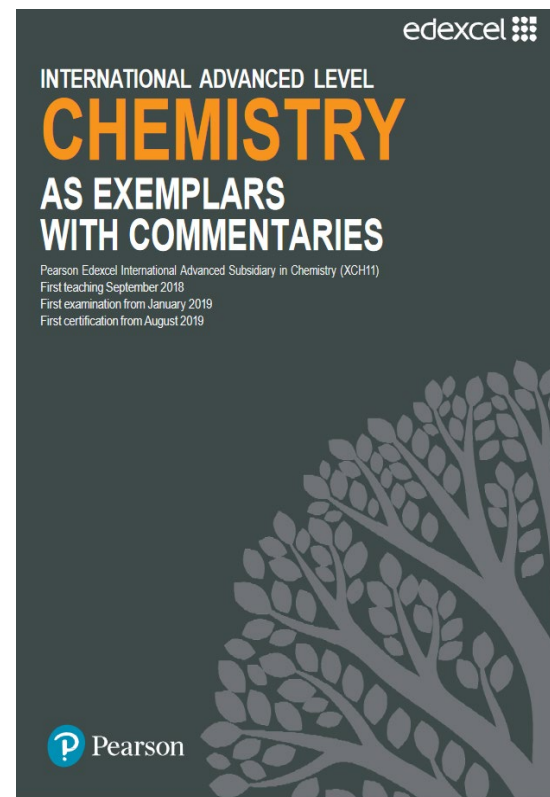
*Topic Guide – Energetics:
Energy & Entropy*

*Topic Guide – Instrumental
Analysis*



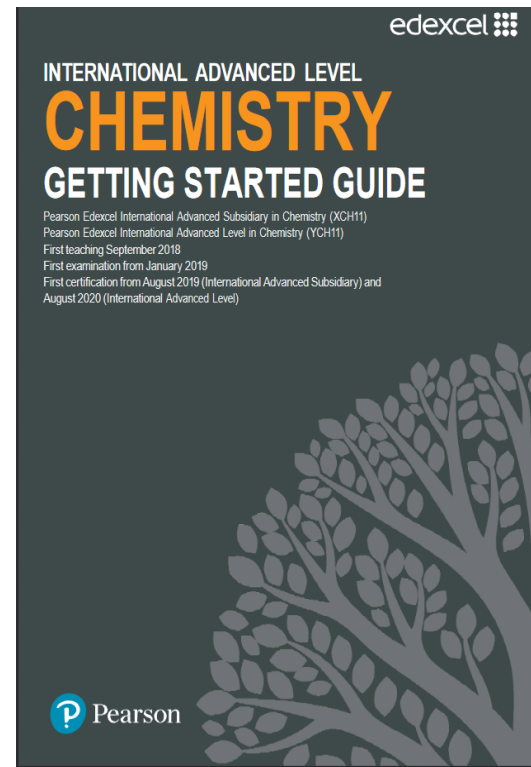
Exemplar material

- Marked exemplars with examiner commentaries.
- Only available at the moment for IAS.



Getting Started Guide

The *Getting Started Guide* provides an overview of the new Edexcel IAL in Chemistry (2018), provides information about the content and assessment, and gives you a better understanding of what these mean for you and your students.

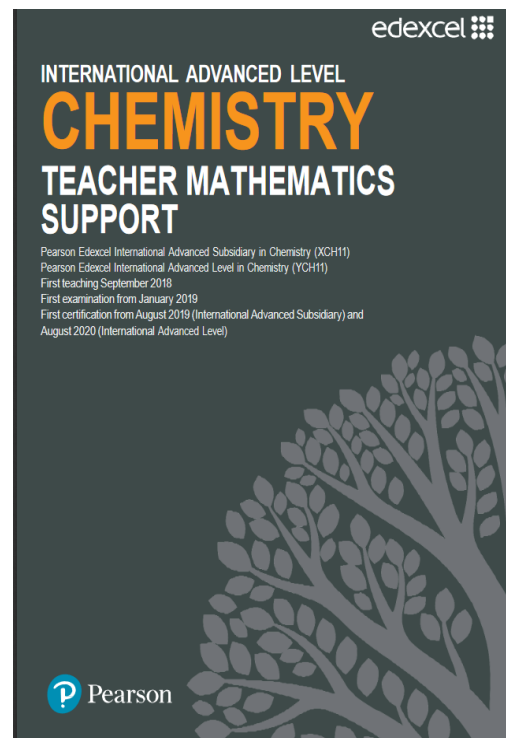


Teacher Mathematics Support

This covers selected topics that students find difficult.

These are:

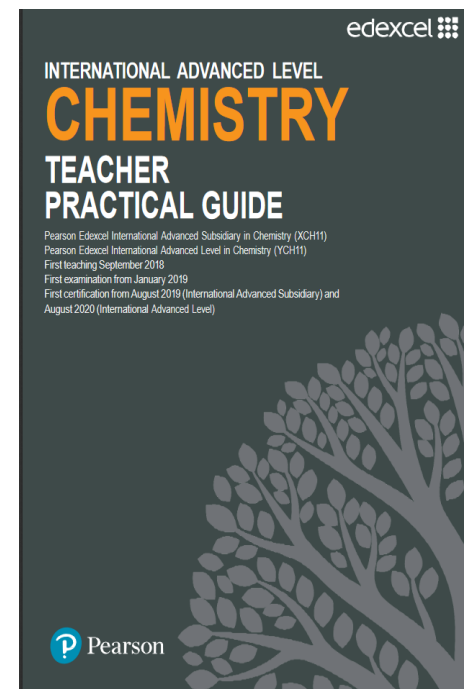
- Mole calculations.
- Enthalpy changes.
- Reaction rates.
- Equilibrium calculations.
- Acid base equilibria and pH calculations.
- Electrode potentials.



Teacher Practical Guide

This guide is designed to:

- support you and your students through all elements of practical work in the new International AS and A Level specification
- explain how the new requirements for practical skills can be developed throughout the course using both core practicals and other specification content.

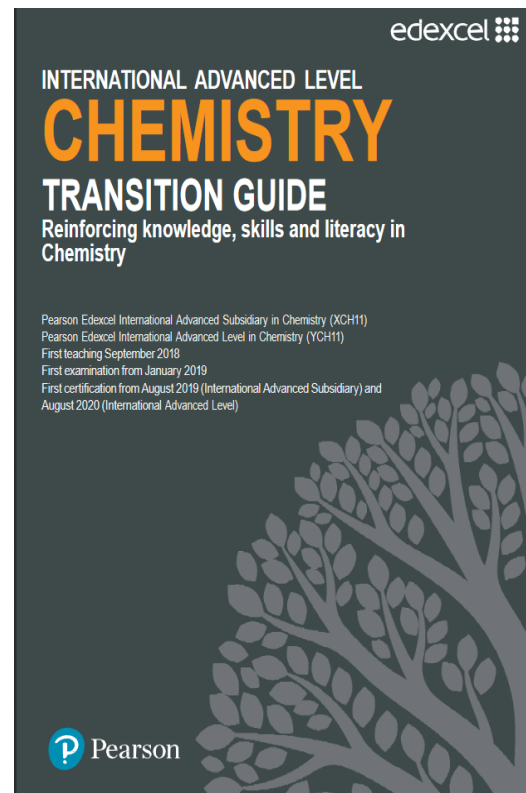


Transition Guide

The transition guide includes:

- mapping of Edexcel International GCSE to the new Edexcel IAL Chemistry specifications
- baseline assessments
- summary sheets
- student worksheets
- practice questions.

The teacher version also includes answers for assessments, worksheets and exam practice questions.



Past training content

There are four past training events that you can download and read at your leisure.

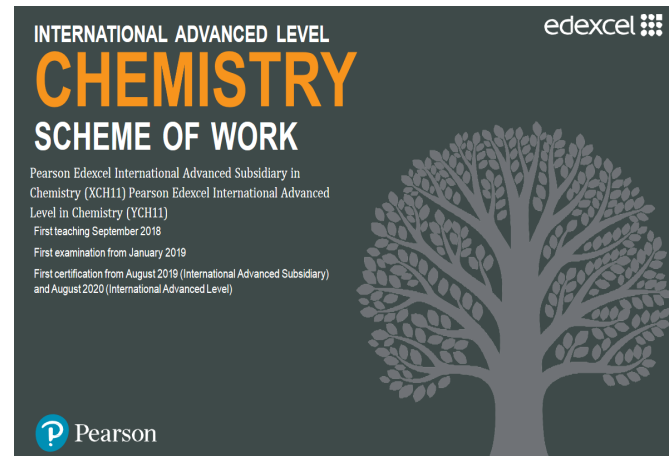


Scheme of Work

The scheme of work is broken up into units and topics, so that there is greater flexibility for moving topics around to meet planning needs.

It includes:

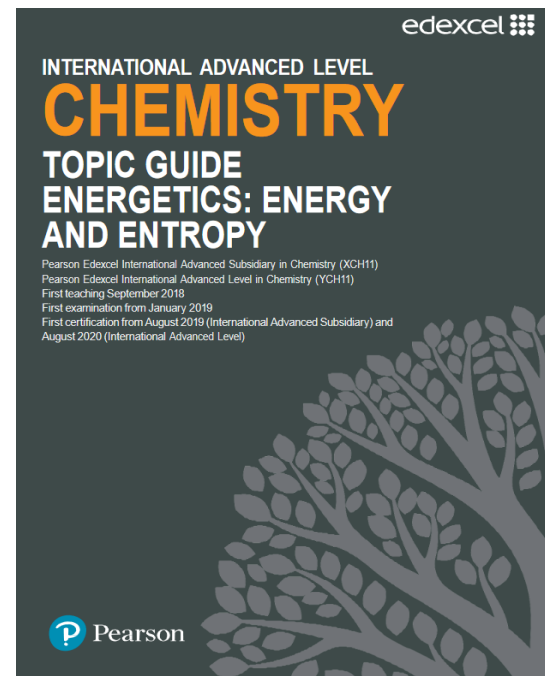
- Recommended teaching time for topics, though of course this is adaptable according to individual teaching needs.
- Classroom activities, teaching points and suggested teaching resources.
- Objectives for students at the end of the topic area and examples of integrated transferable skills.



Topic Guide – Energetics: Energy & Entropy

Included in this guide are:

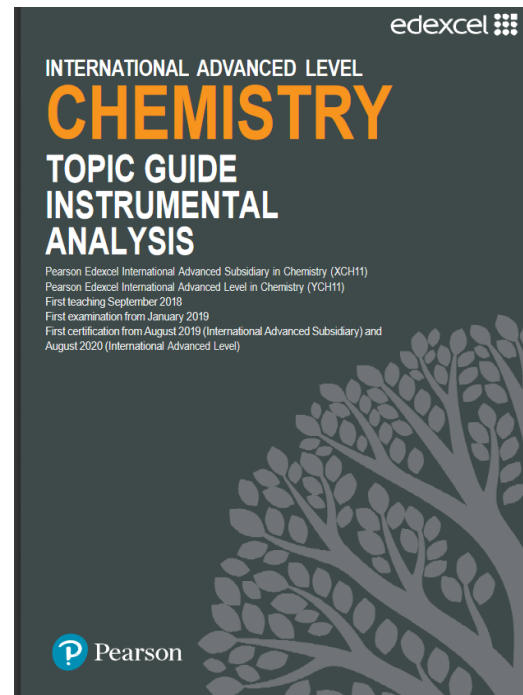
- some ideas on how to address common misconceptions in both new and previously included content
- possible teaching sequences for key specification points where there is new or challenging content
- worked examples that teachers could use to support students in developing their understanding.



Topic Guide – Instrumental Analysis

Included in this guide are:

- some ideas on how to address common misconceptions in both new and previously included content
- possible teaching sequences for key specification points where there is new or challenging content
- worked examples that teachers could use to support students in developing their problem solving skills
- links to external websites that can be used to further students' understanding.



Past papers, mark schemes & examiners' reports

Available at the moment, for the current qualification, are:

- January 2019 Session – Unit 1.
- June 2019 Session – Units 1,2 & 3.
- October 2019 Session – Units 1, 2 & 3.

Further sessions will become available after each session.

Past paper questions are also available via examWizard – see later slide for more details.



Teacher Resource Packs

Pearson have produced two Teacher Resource Packs to cover both the IAS and the IAL content:



Edexcel International Advanced Level
Chemistry Teacher Resource Pack 1

Publisher: Pearson

Author:

Licence

ISBN:

£150.00

[VIEW SAMPLE PAGES AND ORDER](#)



Edexcel International Advanced Level Chemistry
Teacher Resource Pack 2

Publisher: Pearson

Author:

Licence

ISBN:

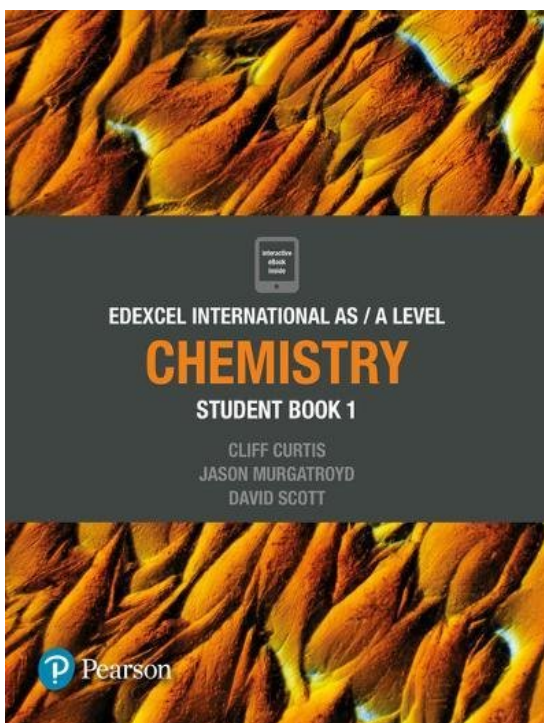
£150.00

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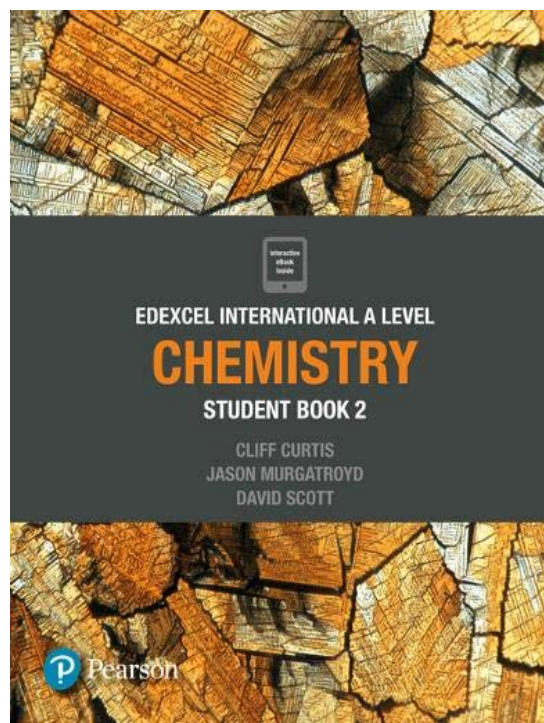


Published resources

Pearson have published two student books to cover the IAS and IAL courses.



SB1 covers IAS content

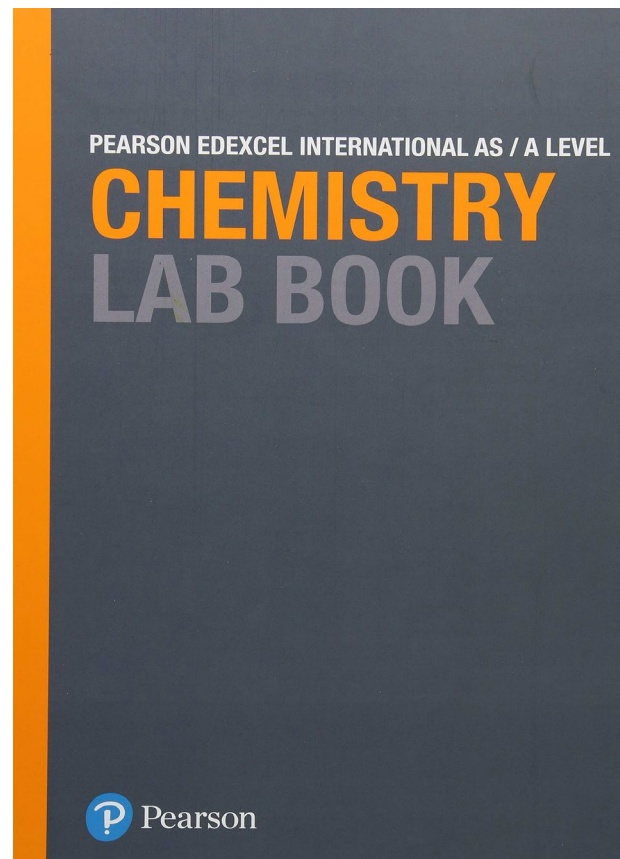


SB2 covers IA2 content



Published resources

Pearson have also published a lab book that covers all of the Core Practicals.



Other support available from Pearson

ResultsPlus

examWizard

Post results service

Access to Scripts

Published resources

Subject Advisor

**Pearson International
Schools Community**



Subject Advisor

<https://qualifications.pearson.com/en/contact-us/teachers.html>

Keep up to date

Irine Muhiuddin

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Intl: +44 (0)344 463 2934



Useful link : Please have a look at your new community

Twitter : @PearsonSciences



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us**



Thank you for your time

Find out more about us at:

<http://qualifications.pearson.com>



ALWAYS LEARNING