

SCIENCE QUALIFICATIONS

Summary brochure

We've created teacher-friendly specifications based on extensive research and engagement with the teaching community. They're designed to be straightforward and accessible so that you can tailor the delivery of the course to suit your needs.

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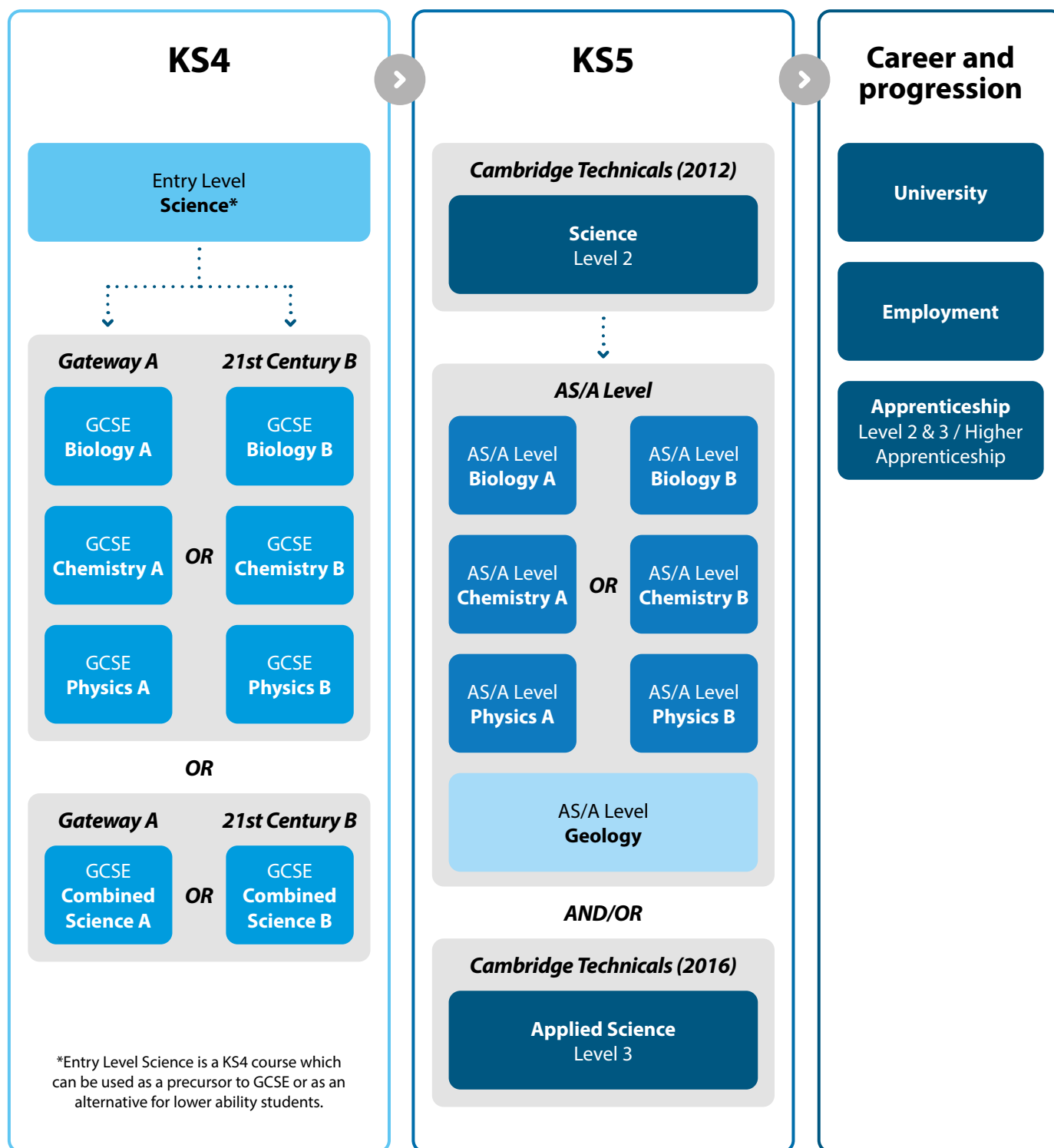
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19–20 | Cambridge Technicals in Applied Science**21 | Supporting you in qualification delivery*****A full suite of qualifications for 14 to 19 year olds***

We're passionate about education. We believe in its power to transform and, as a forward-thinking provider of science qualifications, we aim to play our part by making the learning process more accessible, inspiring and enriching for teachers and students. Whether you prefer a content-led or context-led approach, we provide everything you need to teach our qualifications including professional development training, teacher network events, free teaching and learning resources and dedicated science subject advisor support. With all this support, you can focus on delivering exciting and engaging science lessons to your students.

PATHWAYS FOR SCIENCE



ENTRY LEVEL SCIENCE

KEY INFORMATION

SPECIFICATION CODE:

R483

IDEAL FOR:

A variety of students, including those who may find it difficult to access GCSE (9–1) qualifications, students on taster courses, students with learning difficulties and adult returners

PROGRESS TO:

Progress to GCSE or other Level 2 qualifications post-16

FINAL AWARD:

Entry Level 3 (highest), Entry Level 2 or Entry Level 1

PERFORMANCE POINTS:

No

THE QUALIFICATION

Scientific understanding is changing our lives and is vital to world's future prosperity. This qualification introduces students to essential aspects of the knowledge, methods, processes and uses of science and helps them to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked, and are of universal application.

There are many different ways that you can choose to teach this qualification and you can tailor this to your students. It is a course designed to provide students with realistic targets, encouraging them to develop scientific skills. It can be co-taught with new GCSE (9–1) qualifications.

ASSESSMENT

This qualification is assessed with a combination of end-of-item tests, can-do tasks and a practical task. These are internally standardised by your centre and then externally moderated by us at OCR. The flexibility allowed through this approach to assessment will allow you to take any issues into account in your planning that may affect your students' performance.

The course has been designed for teaching over 1, 2, 3 or 4 years. It can be started before year 10. It can also be used to help your centre to assess the suitability of students for GCSE (9–1) studies, and will equip them with many of the skills they'll require.

READ MORE:

ocr.org.uk/qualifications/entry-level/entry-level-science-r483-from-2016



GCSE (9–1) GATEWAY SCIENCE SUITE

KEY INFORMATION

SPECIFICATION CODE:

J247 to J250

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Offers clear progression through to one of our A Level Science courses, Cambridge Technical in Science (Level 2) or or Cambridge Technical in Applied Science (Level 3)

FINAL AWARD:

Biology, Chemistry and Physics: 9 (highest) to 1 (lowest)
Combined Science: 9–9 (highest) to 1–1 (lowest)

PERFORMANCE POINTS:

Yes

THE GATEWAY SCIENCE SUITE

Our GCSE (9–1) Gateway Science Suite provides specifications with content that's up to date, scientifically accurate and developed by subject experts. There are clear progression pathways from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment. The courses provide a rewarding experience across the ability range, being fair and accessible to the weaker students while genuinely challenging the most able students.

Our subject advisors have consulted extensively with teachers, subject specialists, educational consultants, assessors, learned societies, universities, industry, DfE and Ofqual on these new qualifications. The resulting specifications, specimen papers and mark schemes have been greatly enhanced because of this vital collaboration.

The qualifications in the Gateway Science Suite are:

- GCSE Combined Science A*
- GCSE Biology A
- GCSE Chemistry A
- GCSE Physics A

For each specification, the content is divided into a number of teaching topics, which are further divided into key sub-topics. Students must carry out a minimum of eight practical activities for each single science and sixteen practical activities for combined science. These are embedded throughout the teaching topics.

You can also look forward to:

- Carefully designed assessments – straightforward to use for all centre types, large to small
- Well-laid-out specifications, question papers and mark schemes
- Friendly and prompt support from our customer support centre and team of subject advisors
- Quality resource materials that help support a variety of good teaching approaches, drawing on expertise from across the subject community.

ASSESSMENT

For biology, chemistry and physics, the scheme of assessment consists of two tiers: the Foundation Tier, which assesses grades 5 to 1 and the Higher Tier, which assesses grades 9 to 4. An allowed grade 3 may be awarded on the higher tier option for students who are a small number of marks below the grade 3/4 boundary. You enter students for either the Foundation Tier or the Higher Tier.

We appreciate that one size doesn't fit all so we also offer an alternative suite, **Twenty First Century Science Suite B**. For details, please see pages 9–11.

*GCSE Combined Science replaced GCSE Science and GCSE Additional Science and is the equivalent of two GCSEs (a double award). There will no longer be a 'mixed' single science qualification.



GCSE (9–1) COMBINED SCIENCE A

KEY INFORMATION

SPECIFICATION CODE:

J250

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9–9 (highest) to 1–1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

This qualification provides the foundation for understanding the material world. It introduces students to various key concepts in biology, chemistry and physics and develops their understanding of how these ideas can help describe diverse and complex natural phenomena.

The specification is divided into topics, each covering different key concepts of biology, chemistry and physics. It's laid out clearly in a series of teaching topics with guidance included where required to provide further advice on delivery. You can co-teach it with the GCSE (9–1) in: Biology A (Gateway Science), Chemistry A (Gateway Science) and Physics A (Gateway Science).

It will encourage students to develop:

- Scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics

- Understanding of the nature, processes and methods of science, through different types of scientific enquiries that help them to answer scientific questions about the world around them
- Observational, practical, modelling, enquiry and problem-solving skills in the laboratory, in the field and in other learning environments, and the ability to apply them
- Their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

ASSESSMENT

You enter students for either the Foundation Tier (Papers 1, 2, 3, 4, 5 and 6) or the Higher Tier (Papers 7, 8, 9, 10, 11 and 12). This qualification is worth two GCSEs.

READ MORE:

ocr.org.uk/qualifications/gcse/gateway-science-suite-combined-science-a-j250-from-2016

GCSE (9–1) BIOLOGY A

KEY INFORMATION

SPECIFICATION CODE:

J247

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9 (highest) to 1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

A concept-led approach drives this engaging qualification. It's laid out clearly in a series of teaching topics with guidance included where required to provide you with further advice on delivery. Practical requirements are embedded within the teaching topics. You can co-teach the qualification with the GCSE (9–1) in Combined Science A (Gateway Science).

It will encourage students to develop:

- Scientific knowledge and conceptual understanding of biology
- Understanding of the nature, processes and methods of science, through different types of scientific enquiries that help them to answer scientific questions about the world around them
- Observational, practical, modelling, enquiry and problem-solving skills in the laboratory, in the field and in other learning environments, and the ability to apply them
- Their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

The specification content is divided into six teaching topics B1–B6 and a practical activity skills topic B7:

- B1: Cell level systems
- B2: Scaling up
- B3: Organism level systems
- B4: Community level systems
- B5: Genes, inheritance and selection
- B6: Global challenges
- B7: Practical skills

ASSESSMENT

Students are entered for either the Foundation Tier (Paper 1 and Paper 2) or the Higher Tier (Paper 3 and Paper 4) to be awarded the OCR GCSE (9–1) in Biology A (Gateway Science).

READ MORE:

ocr.org.uk/qualifications/gcse/gateway-science-suite-biology-a-j247-from-2016

GCSE (9–1) CHEMISTRY A

KEY INFORMATION

SPECIFICATION CODE:

J248

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9 (highest) to 1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

This qualification develops students' broad scientific knowledge as well as their conceptual understanding of a range of topics within chemistry itself. They develop practical and problem-solving skills and an ability to evaluate claims based on science through critical analysis.

It will encourage students to develop:

- Scientific knowledge and conceptual understanding of chemistry
- Understanding of the nature, processes and methods of science, through different types of scientific enquiries that help them to answer scientific questions about the world around them
- Observational, practical, modelling, enquiry and problem-solving skills in the laboratory, in the field and in other learning environments, and the ability to apply them
- Their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

The specification content is divided into six teaching topics and a practical activity skills topic:

- C1: Particles
- C2: Elements, compounds and mixtures
- C3: Chemical reactions
- C4: Predicting and identifying reactions and products
- C5: Monitoring and controlling chemical reactions
- C6: Global challenges
- C7: Practical skills

ASSESSMENT

Students are entered for either the Foundation Tier (Paper 1 and Paper 2) or the Higher Tier (Paper 3 and Paper 4) to be awarded the OCR GCSE (9–1) in Chemistry A (Gateway Science).

READ MORE:

ocr.org.uk/qualifications/gcse/gateway-science-suite-chemistry-a-j248-from-2016

GCSE (9–1) PHYSICS A

KEY INFORMATION

SPECIFICATION CODE:

J249

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9 (highest) to 1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Our GCSE in Physics A (Gateway Science) introduces students to the key concepts of physics, integrating theory with practical skills. It helps them to develop their knowledge of scientific methodology and their conceptual understanding of physics and how this can be applied to the world around them. The specification is designed with a concept-led approach and provides a flexible way of teaching.

It will encourage students to develop:

- Scientific knowledge and conceptual understanding of physics
- Understanding of the nature, processes and methods of science, through different types of scientific enquiries that help them to answer scientific questions about the world around them
- Observational, practical, modelling, enquiry and problem-solving skills in the laboratory, in the field and in other learning environments, and the ability to apply them
- Their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

The specification content is divided into eight teaching topics P1–P8 and a practical activity skills topic P9:

- P1: Matter
- P2: Forces
- P3: Electricity
- P4: Magnetism and magnetic fields
- P5: Waves in matter
- P6: Radioactivity
- P7: Energy
- P8: Global challenges
- P9: Practical skills

ASSESSMENT

Students are entered for either the Foundation Tier (Paper 1 and Paper 2) or the Higher Tier (Paper 3 and Paper 4) to be awarded the OCR GCSE (9–1) in Physics A (Gateway Science).

READ MORE:

ocr.org.uk/qualifications/gcse/gateway-science-suite-physics-a-j249-from-2016

GCSE (9–1) TWENTY FIRST CENTURY SCIENCE SUITE

KEY INFORMATION

SPECIFICATION CODE:

J257 to J260

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Offers clear progression through to one of our A Level Science courses, Cambridge Technical in Science (Level 2) or or Cambridge Technical in Applied Science (Level 3)

FINAL AWARD:

Biology, Chemistry and Physics: 9 (highest) to 1 (lowest)
Combined Science: 9–9 (highest) to 1–1 (lowest)

PERFORMANCE POINTS:

Yes

THE TWENTY FIRST CENTURY SCIENCE SUITE

Our GCSE (9–1) Twenty First Century Science Suite builds on the research and principles of Beyond 2000. We've developed it in conjunction with the University of York Science Education Group.

The specifications prepare students to progress to further study of science, while at the same time offering an engaging and satisfying course for those who choose not to study academic science further.

Our subject advisors have consulted extensively with teachers, subject specialists, educational consultants, assessors, learned societies, universities, industry, DfE and Ofqual on these new qualifications. The resulting specifications, specimen papers and mark schemes have been greatly enhanced because of this vital collaboration.

The qualifications in the Twenty First Century Science Suite are:

- GCSE Combined Science B*
- GCSE Biology B
- GCSE Chemistry B
- GCSE Physics B

Students must carry out a minimum of eight practical activities for each single science and sixteen practical activities for combined science. These are embedded throughout the teaching topics.

The qualifications also:

- Take opportunities to link science to issues relevant to students as citizens, and to the cultural aspects of science that are of value and interest to all
- Develop students' abilities to evaluate knowledge claims critically, by looking at the nature, quality and extent of the evidence, and at the arguments that link evidence to conclusions
- Develop students' understanding of the concepts and models that scientists use to explain natural phenomena
- Develop students' ability to plan and carry out practical investigations and their understanding of the role of experimental work in developing scientific explanations.

ASSESSMENT

For biology, chemistry and physics the scheme of assessment consists of two tiers: the Foundation Tier, which assesses grades 5 to 1 and the Higher Tier, which assesses grades 9 to 4. An allowed grade 3 may be awarded on the higher tier option for students who are a small number of marks below the grade 3/4 boundary. Students must be entered for either the Foundation Tier or the Higher Tier.

We appreciate that one size doesn't fit all so we also offer an alternative suite, **Gateway Science Suite A**. For details, please see pages 6–8.

*GCSE Combined Science replaced GCSE Science and GCSE Additional Science and is the equivalent of two GCSEs (a double award). There will no longer be a 'mixed' single science qualification.



GCSE (9–1) COMBINED SCIENCE B

KEY INFORMATION

SPECIFICATION CODE:

J260

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9–9 (highest) to 1–1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Our GCSE Combined Science B introduces students to key concepts in biology, chemistry and physics in interesting settings to help anchor their knowledge and understanding.

They develop practical skills and theoretical understanding of how scientific ideas can describe complex natural phenomena. Practical skills are embedded within the specification and students carry out practical work in preparation for a written examination that will specifically test these skills.

There are six teaching topics for each of the sciences (this is a reduced proportion of the content for Biology B, Chemistry B and Physics B), plus one general chapter in ideas about science, and one practical skills chapter.

ASSESSMENT

You enter students for either the Foundation Tier (components 01–04) or the Higher Tier (components 05–08). This qualification is worth two GCSEs.

READ MORE:

ocr.org.uk/qualifications/gcse/twenty-first-century-science-suite-combined-science-b-j260-from-2016

GCSE (9–1) BIOLOGY B

KEY INFORMATION

SPECIFICATION CODE:

J257

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9 (highest) to 1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

You can introduce ideas within relevant and interesting settings throughout this qualification. Students develop their understanding of how the ideas of biology can describe the complex and diverse phenomena of the natural world in terms of a small number of key ideas that are of universal application. These help them to anchor their conceptual knowledge of the range of biological topics required at GCSE level. Through both practical activity and theoretical study, students develop their scientific understanding and critical thinking skills.

Practical skills are embedded within the specification and students carry out practical work in preparation for a written examination that will specifically test these skills.

There are six teaching chapters of biology content plus one chapter of ideas about science and one practical skills chapter:

- B1: You and your genes
- B2: Keeping healthy
- B3: Living together – food and ecosystems
- B4: Using food and controlling growth
- B5: The human body – staying alive
- B6: Life on Earth – past, present, and future
- B7: Ideas about Science
- B8: Practical skills

ASSESSMENT

Students must complete either the Foundation Tier (components 01 and 02) or the Higher Tier (components 03 and 04) to be awarded the OCR GCSE (9–1) in Biology B (Twenty First Century Science).

READ MORE:

ocr.org.uk/qualifications/gcse/twenty-first-century-science-suite-biology-b-j257-from-2016

GCSE (9–1) CHEMISTRY B

KEY INFORMATION

SPECIFICATION CODE:

J258

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9 (highest) to 1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

This qualification uses a narrative-based approach to introduce and anchor conceptual knowledge in interesting settings. Students develop an appreciation of the achievements of chemistry in using a small number of key ideas to describe complex and varied phenomena. They also develop their understanding of chemical concepts and scientific methodology alongside practical and analytical skills.

Practical skills are embedded within the specification and students carry out practical work in preparation for a written examination that will specifically test these skills.

There are six teaching chapters of chemistry content plus one chapter of ideas about science and one practical skills chapter:

- C1: Air and water
- C2: Chemical patterns
- C3: Chemicals of the natural environment
- C4: Material choices
- C5: Chemical analysis
- C6: Making useful chemicals
- C7: Ideas about science
- C8: Practical skills

ASSESSMENT

Students must complete either the Foundation Tier (components 01 and 02) or the Higher Tier (components 03 and 04) to be awarded the OCR GCSE (9–1) in Chemistry B (Twenty First Century Science).

READ MORE:

ocr.org.uk/qualifications/gcse/twenty-first-century-science-suite-chemistry-b-j258-from-2016

GCSE (9–1) PHYSICS B

KEY INFORMATION

SPECIFICATION CODE:

J259

IDEAL FOR:

Students aged 14+

PROGRESS TO:

Clear progression from KS3 to GCSE and A Level through to higher education, or other post-16 courses and employment

FINAL AWARD:

9 (highest) to 1 (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Helping students to anchor their conceptual knowledge onto something concrete, this qualification introduces physical topics in relevant and thought-provoking settings, using a narrative-based approach. Students develop their understanding of how the ideas of physics can describe the complex and diverse phenomena of the natural world in terms of a small number of key ideas which are of universal application.

They also develop their understanding of scientific theory and methodology alongside appropriate practical skills. Practical skills are embedded within the specification and students are expected to carry out practical work in preparation for a written examination that will specifically test these skills.

There are six teaching chapters of physics content plus one chapter of ideas about science and one practical skills chapter:

- P1: Radiation and waves
- P2: Sustainable energy
- P3: Electric circuits
- P4: Explaining motion
- P5: Radioactive materials
- P6: Matter – models and explanations
- P7: Ideas about science
- P8: Practical skills

ASSESSMENT

Students must complete either the Foundation Tier (components 01 and 02) or the Higher Tier (components 03 and 04) to be awarded the OCR GCSE (9–1) in Physics B (Twenty First Century Science).

READ MORE:

ocr.org.uk/qualifications/gcse/twenty-first-century-science-suite-physics-b-j259-from-2016

AS AND A LEVEL BIOLOGY A

KEY INFORMATION

SPECIFICATION CODE:

AS Level Biology A – H020

A Level Biology A – H420

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Our Biology A specifications enable students to develop essential knowledge and understanding of different areas of the subject and how they relate to one another. They also gain an appreciation of scientific methods, as well as practical, mathematical, and problem-solving skills.

Biology A provides you with a flexible approach to teaching. The specification is divided into topics, each covering different key concepts of biology. Teaching of practical skills is integrated with the theoretical topics and they're assessed through the written papers. For A Level only, the Practical Endorsement will also support the development of practical skills.

Key features of both specifications:

- Clear layout of the specification to help you see what's required
- Co-teachable AS
- Teaching of practical skills integrated with the theoretical topics and assessed both through written papers and, for A Level only, the Practical Endorsement

The content is in six modules:

Module 1: Development of practical skills in biology

Module 2: Foundations in biology

Module 3: Exchange and transport

Module 4: Biodiversity, evolution and disease

Module 5: Communication, homeostasis and energy

Module 6: Genetics, evolution and ecosystems

Modules 1 to 4 constitute the stand-alone AS Level qualification; Modules 1 to 6, combined with the Practical Endorsement, constitute the full A Level.

ASSESSMENT

AS Level

Students must complete both papers: Breadth in biology and depth in biology. Both are 1 hour 30 minutes long.

A Level

There are four components that students must complete:

- Biological processes (01) – 2 hour 15 minute paper
- Biological diversity (02) – 2 hour 15 minute paper
- Unified biology (03) – 1 hour 30 minute paper
- Practical endorsement in biology (04) – a non-exam assessment

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-biology-a-h020-h420-from-2015



AS AND A LEVEL BIOLOGY B (ADVANCING BIOLOGY)

KEY INFORMATION

SPECIFICATION CODE:

AS Level Biology B (Advancing Biology) – H022

A Level Biology B (Advancing Biology) – H422

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Our AS and A Level qualifications in Biology B (Advancing Biology) enable students to develop their practical skills and conceptual knowledge of essential biological topics and how they relate to one another using a context-based approach. They also help build competence in related mathematical and problem-solving skills.

Advancing Biology, like our other 'B' specifications, is designed to give students relevant and interesting contexts in which to set their study of complex biological ideas. For example, they consider cell structure and function in the context of the blood and the cells found in it, and photosynthesis in the context of food production and management of the environment.

Advancing Biology has an emphasis on practical skills. There are many opportunities for practical work signposted throughout the specification, encouraging the development of hands-on practical skills and problem solving in a practical context.

The content is in five modules:

Module 1: Development of practical skills in biology

Module 2: Cells, chemicals for life, transport and gas exchange

Module 3: Cell division, development and disease control

Module 4: Energy, reproduction, and populations

Module 5: Genetics, control, and homeostasis

Modules 1 to 3 constitute the stand-alone AS Level qualification; Modules 1 to 5, combined with the Practical Endorsement, constitute the full A Level.

ASSESSMENT

AS Level

Students must take the two 1 hour 30 minute papers: Foundations of biology (01) and biology in depth (02).

A Level

There are four components that students must complete:

- Fundamentals of biology (01) – 2 hour 15 minute paper
- Scientific literacy in biology (02) – 2 hour 15 minute paper
- Practical skills in biology (03) – 1 hour 30 minute paper
- Practical endorsement in biology (04) – a non-exam assessment

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-biology-b-advancing-biology-h022-h422-from-2015



AS AND A LEVEL CHEMISTRY A

KEY INFORMATION

SPECIFICATION CODE:

AS Level Chemistry A – H032

A Level Chemistry A – H432

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

These inspiring specifications allow you to adopt a flexible approach. You can deliver the content modules (Modules 2–6) using the framework provided or to design a customised course.

The specification is divided into chemical topics, each containing different key concepts of chemistry. Certain topics are split over modules, to facilitate co-teaching of the AS Level qualification in Chemistry A with the first year of A Level. If your centre isn't co-teaching the A Level with the AS Level, you can teach these topics sequentially.

The practical work to support teaching of the content will cover the requirements of the practical skills module (Module 1), which is assessed in written examinations and (for the A Level) through the Practical Endorsement.

The content is in six modules:

Module 1 – Development of practical skills in chemistry

Module 2 – Foundations in chemistry

Module 3 – Periodic table and energy

Module 4 – Core organic chemistry

Module 5 – Physical chemistry and transition elements

Module 6 – Organic chemistry and analysis

Modules 1 to 4 constitute the stand-alone AS Level qualification; Modules 1 to 6, combined with the Practical Endorsement, constitute the full A Level.

ASSESSMENT

AS Level

Students must complete both papers: Breadth in chemistry and depth in chemistry. Both are 1 hour 30 minutes long.

A Level

There are four components that students must complete:

- Periodic table, elements and physical chemistry (01) – 2 hour 15 minute paper
- Synthesis and analytical techniques (02) – 2 hour 15 minute paper
- Unified chemistry (03) – 1 hour 30 minute paper
- Practical endorsement in chemistry (04) – a non-exam assessment

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-chemistry-a-h032-h432-from-2015



AS AND A LEVEL CHEMISTRY B (SALTERS)

KEY INFORMATION

SPECIFICATION CODE:

AS Level Chemistry B (Salters) – H033

A Level Chemistry B (Salters) – H433

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Our AS and A Level Chemistry B (Salters) engage students by presenting chemical ideas and practical skills in a variety of contexts, relating modern-day applications of chemistry and current research to the concepts needed for the study of chemistry at this level.

Chemistry B (Salters) takes students on a journey through ten storylines, while introducing chemical concepts in a spiral approach. These storylines engage students through learning in a contemporary context and range from concerns about the ozone layer to the development of new medicines.

Development of the practical skills (the first section) underpins the whole of the specification, and covers the practical skills that students should gradually develop with the hands-on work throughout the course. The practical skills in this module can be assessed within written examinations and (for A Level only) within the Practical Endorsement.

The course is split into ten teaching modules: Modules 1 to 5 constitute the stand-alone AS Level qualification; Modules 1 to 10, combined with chemical literacy and the Practical Endorsement, constitute the full A Level. Each module is based on one of the storylines and contains a variety of chemical ideas, which form the basis of the specification.

ASSESSMENT

AS Level

Students must take the two 1 hour 30 minute papers: Foundations of chemistry (01) and chemistry in depth (02).

A Level

There are four components that students must complete:

- Fundamentals of chemistry (01) – 2 hour 15 minute paper
- Scientific literacy in chemistry (02) – 2 hour 15 minute paper
- Practical skills in chemistry (03) – 1 hour 30 minute paper
- Practical endorsement in chemistry (04) – a non-exam assessment

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-chemistry-b-salters-h033-h433-from-2015



AS AND A LEVEL PHYSICS A

KEY INFORMATION

SPECIFICATION CODE:

AS Level Physics A – H156

A Level Physics A – H556

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Built around a flexible approach, our AS and A Level Physics A specifications are divided into topics, each covering different key concepts of physics. As your students' progress through the course, they'll build on their knowledge of the laws of Physics, applying their understanding to solve problems on topics ranging from sub-atomic particles to the entire universe.

Key features of both specifications:

- Clear layout of the specification to help you see what's required
- Co-teachable AS
- Teaching of practical skills integrated with the theoretical topics and assessed both through written papers and, for A Level only, the Practical Endorsement

The content is in six modules:

Module 1: Development of practical skills

Module 2: Foundations of physics

Module 3: Forces and motion

Module 4: Electrons, waves, and photons

Module 5: Newtonian world and astrophysics

Module 6: Particles and medical physics

Modules 1 to 4 constitute the stand-alone AS Level qualification; Modules 1 to 6, combined with the Practical Endorsement, constitute the full A Level.

ASSESSMENT

AS Level

Students must complete both of the papers: Breadth in physics and depth in physics. Both are 1 hour 30 minutes long.

A Level

There are four components that students must complete:

- Modelling physics (01) – 2 hour 15 minute paper
- Exploring physics (02) – 2 hour 15 minute paper
- Unified physics (03) – 1 hour 30 minute paper
- Practical endorsement in physics (04) – a non-exam assessment

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-physics-a-h156-h556-from-2015



AS AND A LEVEL PHYSICS B (ADVANCING PHYSICS)

KEY INFORMATION

SPECIFICATION CODE:

AS Level Physics B (Advancing Physics) – H157

A Level Physics B (Advancing Physics) – H557

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

Students study this subject in a range of different contexts, conveying the excitement of contemporary physics. The course provides a distinctive structure within which they learn about fundamental physical concepts and about physics in everyday and technological settings, as well as developing their practical and investigative skills. The course demonstrates the usefulness of the subject and illustrates the impact that discoveries in physics have had on the way people live.

Key features of both specifications:

- Clear layout of the specification to help you see what's required
- Co-teachable AS
- Teaching of practical skills integrated with the theoretical topics and assessed both through written papers and, for A Level only, the Practical Endorsement

The content is in six modules:

Module 1: Development of practical skills

Module 2: Fundamental data analysis

Module 3: Physics in action

Module 4: Understanding processes

Module 5: Rise and fall of the clockwork universe

Module 6: Field and particle physics.

Modules 1 to 4 constitute the stand-alone AS Level qualification; Modules 1 to 6, combined with the Practical Endorsement, constitute the full A Level.

ASSESSMENT

AS Level

Students must take the two 1 hour 30 minute papers: Foundations of physics (01) and physics in depth (02).

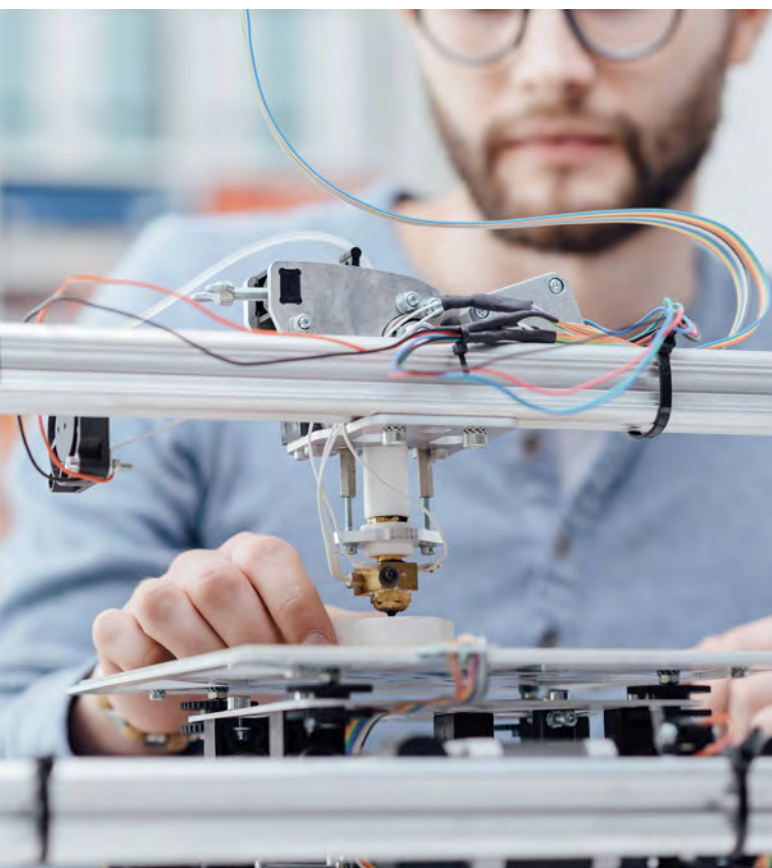
A Level

There are four components that students must complete:

- Fundamentals of physics (01) – 2 hour 15 minute paper
- Scientific literacy in physics (02) – 2 hour 15 minute paper
- Practical skills in physics (03) – 1 hour 30 minute paper
- Practical endorsement in physics (04) – a non-exam assessment

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-physics-b-advancing-physics-h157-h557-from-2015



AS AND A LEVEL GEOLOGY

KEY INFORMATION

SPECIFICATION CODE:

AS Level Geology – H014

A Level Geology – H414

IDEAL FOR:

Students aged 16+

PROGRESS TO:

University, employment, L4 higher apprenticeships

FINAL AWARD:

AS Level: A (highest) to E (lowest)

A Level: A* (highest) to E (lowest)

PERFORMANCE POINTS:

Yes

THE QUALIFICATION

With an engaging, flexible approach, our AS and A Level in Geology have been designed to inspire your students and develop their interest in, and enthusiasm for, this subject.

The qualifications allow students to first assimilate a toolkit of geological skills and concepts, before developing their understanding through study of geological principles and application to relevant real-life contexts.

Practical fieldwork reinforces their classroom learning and helps them develop their understanding of scientific methods and principles in the context of geology. Teaching of practical skills is integrated with the theoretical topics, and these skills are assessed through written papers and, for A Level only, the Practical Endorsement.

The modules are:

Module 1 – Development of practical skills in geology

Module 2 – Foundations in geology

Module 3 – Global tectonics

Module 4 – Interpreting the past

Module 5 – Petrology and economic geology

Module 6 – Geohazards

Module 7 – Basin analysis

The AS specification has been designed to be co-teachable with the A Level in Geology qualification. Students studying the A Level in Geology study modules 1 to 4 and then continue with the A Level only modules 5 to 7. The internally assessed Practical Endorsement skills also form part of the full A Level.

ASSESSMENT

AS Level

This consists of one externally assessed, 2 hour 30 minute written paper. This component contains some synoptic assessment and some extended response questions.

A Level

This consists of three externally assessed written components and one non-exam assessment, Practical Endorsement component. The three externally assessed components contain some synoptic assessment, some extended response questions and some stretch and challenge questions.

Please note: Assessment in Welsh isn't available for these qualifications.

READ MORE:

ocr.org.uk/qualifications/as-a-level-gce/as-a-level-gce-geology-h014-h414-from-2017



CAMBRIDGE TECHNICALS IN APPLIED SCIENCE

CAMBRIDGE
TECHNICALS

ABOUT CAMBRIDGE TECHNICALS

Cambridge Technicals are vocational qualifications at Level 2 and Level 3 for students **aged 16+**. They're designed with the workplace and progression to higher education in mind and provide a high-quality alternative to A Levels at level 3. Qualifications at levels 2 and 3 have a mixture of internal and external assessments and centres are allocated a visiting moderator.

KEY INFORMATION

SPECIFICATION CODES:

Applied Science Level 3 (2016) Certificate/Extended Certificate/Foundation Diploma/Diploma/Extended Diploma – 05847–05849, 05879, 05874

PERFORMANCE POINTS:

All Applied Science Level 3 (2016) qualifications are eligible for Key Stage 5 performance points

IDEAL FOR:

Students aged 16+

PROGRESS TO:

Higher education, apprenticeships, employment

UCAS POINTS:

Level 3 qualifications receive UCAS tariff points

LEVEL 3

Our Level 3 Cambridge Technicals in Applied Science qualifications help your students to achieve their potential and progress to the next stage of their lives, whether that's higher education, an apprenticeship or employment.

We have designed refreshing and exciting content that's up to date, engaging, fit for purpose and suitable for the needs of your students. To do this, we've consulted with universities, employers and industry specialists to make sure your students will gain the right combination of knowledge, understanding and skills required for the laboratory or further study.

It includes an extensive range of centre-assessed units with practical and wider project-based assessment opportunities, as well as examined units on Science Fundamentals, Laboratory Techniques and Scientific Analysis and Reporting, has resulted in focused qualifications. Depending on the size chosen, these qualifications can either complement a Key Stage 5 study programme alongside other vocational qualifications or A Levels, or may make up the bulk of a two-year study programme.

Our foundation diploma and diploma size qualifications have specialist pathways within them that students follow. These are in environmental science, food science and human science. (Students follow one of these pathways).

READ MORE:

ocr.org.uk/qualifications/cambridge-technicals/applied-science



CAMBRIDGE TECHNICALS IN SCIENCE

CAMBRIDGE
TECHNICALS

KEY INFORMATION

SPECIFICATION CODES:

Science Level 2 (2012) Certificate/Extended Certificate/
Diploma – 05783, 05785, 05788

PERFORMANCE POINTS:

Science Level 2 (2012) Certificate/Extended Certificate/
Diploma – 05783, 05785, 05788 are not eligible for
Key Stage 5 performance points

IDEAL FOR:

Students aged 16+ who need an alternative route to a
Level 2 science qualification

PROGRESS TO:

Level 3, apprenticeships, employment

LEVEL 2

If your students prefer to learn in a way that's practical and work-related, then Cambridge Technicals are ideal. The great thing about them is that if you're not fully convinced that a vocational way of learning is the right choice, they keep the door open for students to move to higher education further down the line.

Cambridge Technicals in Science (2012) include a wide range of units at Level 2, which cover the traditional disciplines of biology, chemistry and physics, while also considering new innovations in these areas.

The qualifications provide a scientifically strong foundation for students entering the workplace, with both a robust theoretical background and the development of secure practical skills (at technician level) that transfer into the modern workplace.

- There are minimal mandatory units
- Units may be selected to reflect learners' interests and future ambitions
- All units are internally assessed and moderated through visiting moderation.

READ MORE:

ocr.org.uk/qualifications/cambridge-technicals/science-2012



SUPPORTING YOU IN QUALIFICATION DELIVERY

Our aim is to support you on your journey with us from initial enquiry right through to results. To help you get going, support you through delivery and allow you to develop professionally, we provide a massive range of support to help secure your students' futures.



SUPPORT AND RESOURCES

SUBJECT EXPERT ADVICE

Our subject advisors provide information and support to schools, including specification and non-exam assessment advice, updates on resource developments and a range of training opportunities. You can reach them through our customer support centre on **01223 553998** or by email at **science@ocr.org.uk**. You can also find teacher support at **ocr.org.uk/science**.

TEACHING AND LEARNING RESOURCES

- **Teach Cambridge**
Teach Cambridge is our new personalised and secure website that provides teachers with a single point of access to all the support and resources you need to teach our qualifications.
- **Teacher and delivery guides**
A range of lesson ideas with associated activities that you can use with students to deliver the contents of the qualifications.
- **Lesson elements**
Task sheets and accompanying instructions for some of the activities in the delivery guide.
- **Skills guides**
A range of generic skills guides providing knowledge and tips covering topics such as communication, research skills and exam techniques.
- **Topic exploration packs**
- **Transition guides**
- **Scheme of work**

SAMPLE LEARNER WORK

We've created sample learner work across the majority of our qualifications that will support you in understanding the expectations of the mark schemes.

PARTNER RESOURCES AND TEXTBOOKS

Our science qualifications are supported by endorsed textbooks and resources published by leading publishers. You can find more details about our publisher partners and the resources they're providing at **ocr.org.uk/publishing-partners**.

BLOGS

Read our science blogs and gain interesting insights from our subject advisors and other leading figures from the world of science education.

KEEP UP TO DATE

Sign up today at **ocr.org.uk/signup** for OCR updates including subject news, upcoming events and useful resources.



ASSESSMENT

ACTIVE RESULTS

This is a **free** online A Level, GCSE and Cambridge Nationals results analysis service to help you review the performance of individual students or your whole school. Active Results provides access to detailed results data, enabling more comprehensive analysis of results to give you a more accurate measure of the achievements of your centre and students. Find out more at **ocr.org.uk/activeresults**

ASSESSMENT MATERIALS

Sample question papers and sample candidate work.

PRACTICE PAPERS

Create mock exams and help students get a clearer picture of the qualification requirements. We put all our practice papers through exactly the same long and detailed processes as the live papers to ensure that they match the style and rigour of the live assessments.

PAST PAPERS

Previous examination papers for each subject with which you and your students can practise.

EXAMBUILDER

A **free** online mock assessment service for GCSE and A Level Science. It draws on historical past papers to simulate a real examination and gives students the opportunity to practise and build up confidence. **ocr.org.uk/exambuilder**

MATHEMATICAL SKILLS HANDBOOK

Designed to accompany our GCSE and A Level qualifications. This guide shows all the required mathematical skills that can be covered alongside the subject content.

PRACTICAL SKILLS HANDBOOK

For AS and A Level, our handbooks offer guidance on skills required for assessment, clarifies the arrangement for the Practical Endorsement and gives suggestions towards planning a practical scheme of work.

CANDIDATE EXEMPLARS

A selection of candidate style answers and work with associated examiner commentary.

TRAINING AND PROFESSIONAL DEVELOPMENT

PROFESSIONAL DEVELOPMENT TRAINING AND EVENTS

All our qualifications are supported with comprehensive training. Check out **ocr.org.uk/professionaldevelopment** to find out what's available for face-to-face or online training courses.

TEACHER NETWORKS

These free informal twilight meetings are designed to encourage and develop local networking and support for Science in your area. They're an opportunity to speak with like-minded colleagues and one of our subject advisors. Visit **teach.ocr.org.uk/teacher-network-events** to find a meeting near you.



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teachcambridge.org

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ocr.org.uk

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01223 553998

Alternatively, you can email us on
science@ocr.org.uk

Visit our online support centre at
support.ocr.org.uk



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