

# Your guide to Edexcel International GCSE (9–1) Science



# Welcome

We have recently launched a new suite of Edexcel International GCSE (9–1) qualifications, available for first teaching in September 2017.

This guide has been designed provide you with in-depth information about the key features of the new Edexcel International GCSE (9–1) Sciences: Biology, Chemistry, Physics, Human Biology, Science (Double Award) and Science (Single Award).

Before we go into detail about the Sciences, we wanted to give you an overview of what the overall changes to the Edexcel International GCSE (9–1) suite of qualifications are.

# Why choose Edexcel International GCSEs (9–1)?

With over 3.4 million students studying Pearson qualifications worldwide, we offer internationally recognised qualifications to schools, colleges and employers globally. We are also the UK's largest academic and vocational Awarding Organisation.

As a result of our scale and reach, we are able to drive innovation in Edexcel International GCSE (9–1) design, through our world-class qualifications principles framework and panel of education experts from across the world. The framework ensures that through the development process, the qualifications are globally relevant, represent world-class best practice and maintain a consistent standard.

## Reward outstanding academic achievement

Grade 9 represents a new level of attainment for the very top performers and is higher than an A\* grade. This means there is greater differentiation of the most able at the top end of the grading scale.

## Designed for international students

Edexcel International GCSE (9–1) qualifications have been specifically designed for international students. As a result, they include more international content.

## Contain fully integrated Progression Map tools

Embedded in the textbooks and online learning materials, so teachers can conduct a quick and easy formative assessment of student progress.

## Offer a wider range of teaching and learning materials, resources and training

Support includes schemes of work, exemplar materials, ExamWizard, comprehensive textbooks, interactive resources and tailored teacher training.

## Provide detailed exam analysis with ResultsPlus

ResultsPlus is a service unique to Pearson that provides free online in-depth mock and actual exam performance analysis, supporting teachers to plan improvements in teaching and learning, driving attainment.

## Support progression to further study

Developed with the help of teachers and higher education representatives, they provide seamless progression to further study, including A levels and beyond.

## Contains embedded transferable skills

Developing students' core competencies, such as problem-solving and verbal reasoning, skills needed to progress to higher-level study and that are valued by employers.

# Why choose Edexcel International GCSE (9–1) Science qualifications?

We’ve listened to feedback from all parts of the international school community, including a large number of teachers. We’ve made updates to all Science specifications that will engage students and give them skills that will support progression to further study of Science and a wide range of other subjects.

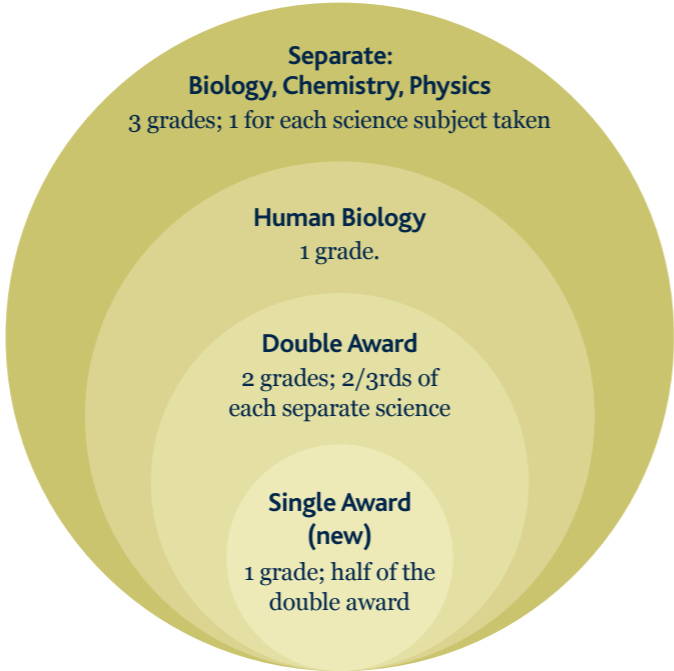
**Clear and straightforward question papers**

Our question papers are accessible for students of different ability ranges. Our mark schemes are straightforward, so that the assessment requirements are clear.

**Broaden and deepen students’ skills**

We have designed the Edexcel International GCSEs (9–1) Science specifications to extend students’ knowledge by broadening and deepening key skills, for example:

- Improving students’ analytical and logic skills by applying understanding of scientific concepts and principles to a range of situations. This will include some examination questions that are more problem-solving in style.
- Addressing the need for mathematical skills to complement students’ science skills by covering a range of mathematical areas.
- Developing students’ practical skills by including a number of practicals in the specification content. These can be supplemented with other suggested practicals. The skills developed will be assessed through questions in written examinations.



**Rewards outstanding academic achievement**

As mentioned earlier, with 9 levels of performance rather than 8, high achievers have the opportunity to achieve a top grade 9.

There is also greater differentiation of middle performers, with three grades (4, 5 and 6) aligned to the current C and B grades. This means that the 9–1 grading scale rewards top grade C students with a new grade 5, and top B grade students with a new grade 6.

**Comparable to GCSE**

We have designed our Edexcel International GCSE (9–1) Science qualifications to be a broad equivalent standard to Pearson’s regulated Edexcel GCSE Science (9–1) qualifications. This ensures that they are recognised globally and provide learners with the same progression routes.

**Supports progression to A Level**

Our qualifications enable successful progression to International Advanced Level (IAL) or GCE A Level and beyond. Through our world class qualification development process, we have consulted with IAL and GCE A Level teachers, as well as university professors to validate the appropriateness of this qualification including the content, skills and assessment structure.

At Pearson, we offer a variety of Edexcel International GCSE (9–1) Science qualifications, including: Biology, Chemistry, Physics, Human Biology, Science (Double Award) and Science (Single Award) Each specification has been designed to meet different learner and school needs.



# Why choose Edexcel International GCSE (9–1) Biology?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4BIO).
- **100% written examination:** No practical coursework.

At a glance: New Edexcel International GCSE (9–1) Biology specification	
Paper 1: Biology	Paper 2: Biology
2-hour written examination	1-hour and 15-minute written examination
The total number of marks is 110, 61.1% of the total International GCSE.	The total number of marks is 70, 38.9% of the total International GCSE.
<b>Content summary</b> Assesses core content that is NOT in bold and does not have a ‘B’ prefix. Questions may come from any topic area across the specification. <ol style="list-style-type: none"> <li>1. The nature and variety of living organisms</li> <li>2. Structures and functions in living organisms</li> <li>3. Reproduction and inheritance</li> <li>4. Ecology and the environment</li> <li>5. Use of biological resources</li> </ol>	<b>Content summary</b> Assesses all the content <b>including content that is in bold and has a ‘B’ prefix</b> . Questions may come from any topic area across the specification. Bold statements cover some sub-topics in greater depth.

Both papers have a mixture of different question styles, including multiple-choice questions, short-answer questions, calculations and extended open-response questions. A calculator may be used in the examinations.



# Why choose Edexcel International GCSE (9–1) Chemistry?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4CHO).
- **100% written examination:** No practical coursework.

At a glance: New Edexcel International GCSE (9–1) Chemistry specification	
Paper 1: Chemistry	Paper 2: Chemistry
2-hour written examination	1-hour and 15-minute written examination
The total number of marks is 110, 61.1% of the total International GCSE.	The total number of marks is 70, 38.9% of the total International GCSE.
<b>Content summary</b> Assesses core content that is NOT in bold and does not have a ‘C’ prefix. Questions may come from any topic area across the specification. <ol style="list-style-type: none"> <li>1. Principles of chemistry</li> <li>2. Inorganic chemistry</li> <li>3. Physical chemistry</li> <li>4. Organic chemistry</li> </ol>	<b>Content summary</b> Assesses all the content <b>including content that is in bold and has a ‘C’ prefix</b> . Questions may come from any topic area across the specification. Bold statements cover some sub-topics in greater depth.

A mixture of different question styles, including multiple-choice questions, short-answer questions, calculations and extended open-response questions. A calculator may be used in the examinations.

# Why choose Edexcel International GCSE (9–1) Physics?

- **Continuity from current specification to the new specification and an innovative new Astrophysics topic:** Similar to the popular current specification (4PH0); plus includes a new Astrophysics section.
- **100% written examination:** No practical coursework.

At a glance: New Edexcel International GCSE (9–1) Physics specification	
Paper 1: Physics	Paper 2: Physics
2-hour written examination	1-hour and 15-minute written examination
The total number of marks is 110, 61.1% of the total International GCSE.	The total number of marks is 70, 38.9% of the total International GCSE.
<b>Content summary</b> Assesses core content that is <b>NOT</b> in bold and does not have a 'P' prefix. Questions may come from any topic area across the specification.  1. Forces and motion 2. Electricity 3. Waves 4. Energy resources and energy transfer 5. Solids, liquids and gases 6. Magnetism and electromagnetism 7. Radioactivity and particles 8. Astrophysics	<b>Content summary</b> Assesses all the content <b>including content that is in bold and has a 'P' prefix</b> .  Questions may come from any topic area across the specification. Bold statements cover some sub-topics in greater depth.

A mixture of different question styles, including multiple-choice questions, short-answer questions, calculations and extended open-response questions. A calculator may be used in the examinations.

“The changes to Physics puts many things on a surer theoretical basis and prepares students better for material they will come across at A level... astronomy is a nice new addition and the new section on astrophysics is very exciting and I am sure will go down well with pupils. It makes the specification really up to date with an area so often in the news. It should also increase pupils’ interest in Physics and I hope encourage more to continue it to A level.”

Dan Quinton, Science Teacher, Caterham School.

# Why choose Edexcel International GCSE (9–1) Human Biology?

- **Focuses on Human Biology in-depth:** This qualification is particularly relevant to students wishing to pursue a career in health-related profession such as medicine, dentistry etc. It specifically focuses on Human Biology; while there is some overlap with Biology, it is limited.
- **100% written examination:** No practical coursework.

At a glance: New Edexcel International GCSE (9–1) Human Biology specification	
Paper 1: Human Biology	Paper 2: Human Biology
1-hour 45-minute written examination	1-hour 45-minute written examination
The total number of marks is 90, 50% of the total International GCSE.	The total number of marks is 90, 50% of the total International GCSE.
<b>Content summary</b>  1. Cells and tissues 2. Biological molecules 3. Movement of substances in and out of cells 4. Bones, muscles and joints 5. Coordination 6. Nutrition and energy 7. Respiration 8. Gas exchange 9. Internal transport 10. Homeostatic mechanisms 11. Reproduction and heredity 12. Disease Assessment	<b>Content summary</b> Assessment may be on any area of content in the opposite box.

A mixture of different question styles, including multiple-choice questions, short-answer questions, calculations and extended open-response questions. A calculator may be used in the examinations.

# Why choose Edexcel International GCSE (9–1) Science (Double Award)?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4SCo).
- **100% written examination:** No practical coursework.
- **Exposure to Biology, Chemistry and Physics:** Allows students a broad exposure to all three sciences to gain two 9–1 grades. There is a reduced amount of content, but the qualification is assessed to the same standard as Biology, Chemistry and Physics. It is designed for students and centres with a more restrictive timetable or who are not required to study individual sciences.
- **Suitable for co-teaching with Biology, Chemistry and Physics:** Teachers can co-teach with the Biology, Chemistry and Physics as they will cover identical material examined in Paper 1.
- **100% written examination:** No practical coursework.

At a glance: New Edexcel International GCSE (9–1) Science (Double Award) specification		
Paper 1: Biology	Paper 2: Chemistry	Paper 3: Physics
2-hour written examination	2-hour written examination	2-hour written examination
The total number of marks is 110, 33.3% of the total International GCSE.	The total number of marks is 110, 33.3% of the total International GCSE.	The total number of marks is 110, 33.3% of the total International GCSE.
<b>Content summary</b> Topics covering core content areas: <ol style="list-style-type: none"><li>1. The nature and variety of living organisms</li><li>2. Structures and functions in living organisms</li><li>3. Reproduction and inheritance</li><li>4. Ecology and the environment</li><li>5. Use of biological resources</li></ol>	<b>Content summary</b> Topics covering core content areas: <ol style="list-style-type: none"><li>1. Principles of chemistry</li><li>2. Inorganic chemistry</li><li>3. Physical chemistry</li><li>4. Organic chemistry</li></ol>	<b>Content summary</b> Topics covering core content areas: <ol style="list-style-type: none"><li>1. Forces and motion</li><li>2. Electricity</li><li>3. Waves</li><li>4. Energy resources and energy transfers</li><li>5. Solids, liquids and gases</li><li>6. Magnetism and electromagnetism</li><li>7. Radioactivity and particles</li><li>8. Astrophysics</li></ol>

A mixture of different question styles, including multiple-choice questions, short-answer questions, calculations and extended open-response questions. A calculator may be used in the examinations.

# Why choose Edexcel International GCSE (9–1) Science (Single Award)?

- **Exposure to Biology, Chemistry and Physics:** This new specification allows students a broad exposure to three sciences to gain one 9–1 grade.
- **Reduced content volume but assessed to the same standard as Biology, Chemistry, Physics and Science (Double Award):** The Single Award offers a reduced volume of content compared to the Double Award, but is assessed to the same standard as other Edexcel International GCSE (9–1) Science qualifications.
- **Provides schools with a restrictive timetable with more flexibility:** It is designed for students and centres with a very restrictive timetable or who are not required to study individual sciences. Students are unlikely to progress into further scientific study but gain a solid overview of Biology, Chemistry and Physics at International GCSE level.
- **100% written examination:** No practical coursework.

At a glance: New Edexcel International GCSE (9–1) Science (Single Award) specification		
Paper 1: Biology	Paper 2: Chemistry	Paper 3: Physics
1-hour and 10 minutes written examination	1-hour and 10 minutes written examination	1-hour and 10 minutes written examination
The total number of marks is 60, 33.3% of the total International GCSE.	The total number of marks is 60, 33.3% of the total International GCSE.	The total number of marks is 60, 33.3% of the total International GCSE.
<b>Content summary</b> Topics covering core content areas: <ol style="list-style-type: none"><li>1. The nature and variety of living organisms</li><li>2. Structures and functions in living organisms</li><li>3. Reproduction and inheritance</li><li>4. Ecology and the environment</li><li>5. Use of biological resources</li></ol>	<b>Content summary</b> Topics covering core content areas: <ol style="list-style-type: none"><li>1. Principles of chemistry</li><li>2. Inorganic chemistry</li><li>3. Physical chemistry</li><li>4. Organic chemistry</li></ol>	<b>Content summary</b> Topics covering core content areas: <ol style="list-style-type: none"><li>1. Forces and motion</li><li>2. Electricity</li><li>3. Waves</li><li>4. Energy resources and energy transfers</li><li>5. Solids, liquids and gases</li><li>6. Magnetism and electromagnetism</li><li>7. Radioactivity and particles</li><li>8. Astrophysics</li></ol>

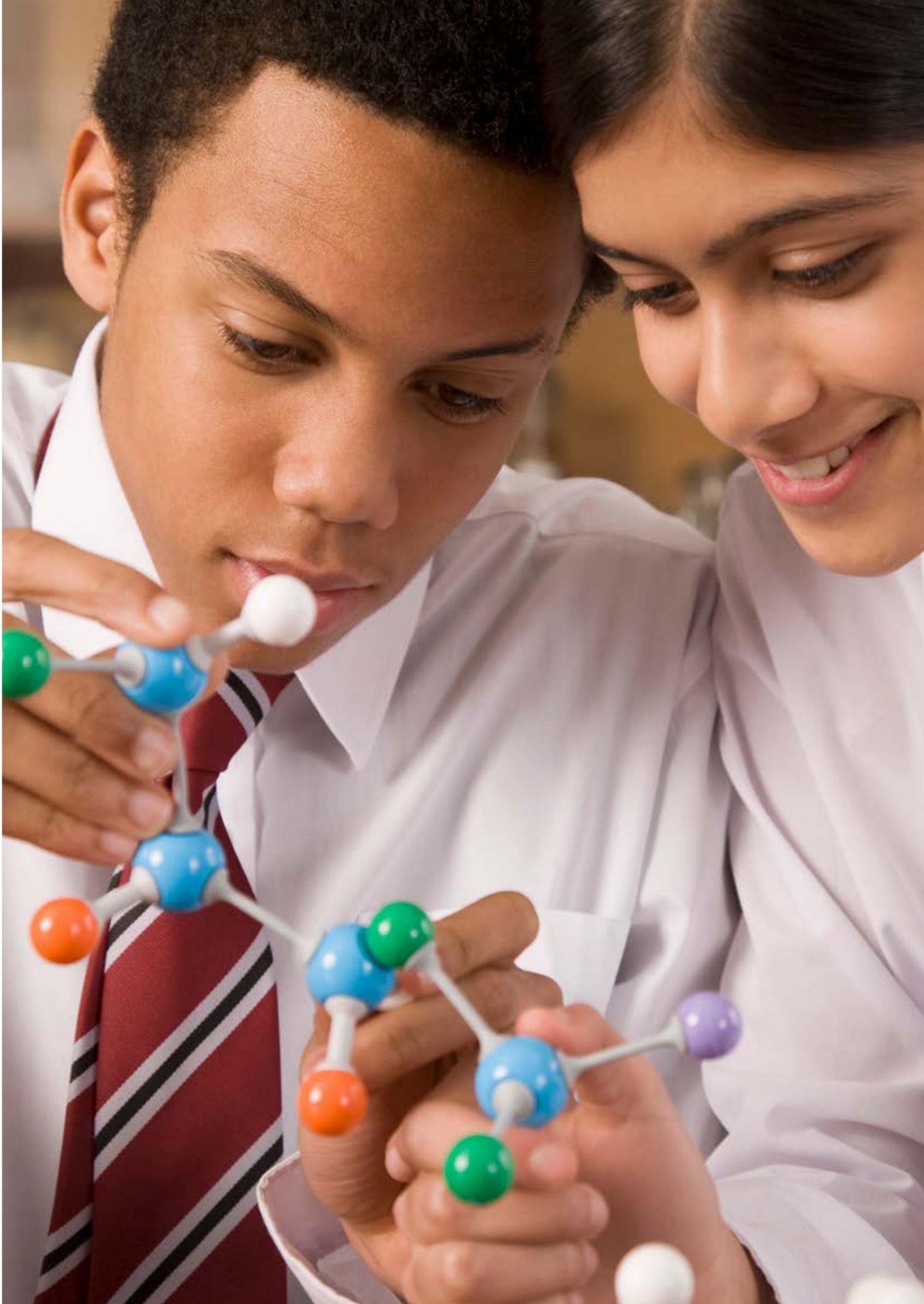
A mixture of different question styles, including multiple-choice questions, short-answer questions, calculations and extended open-response questions. A calculator may be used in the examinations.

# Your guide to assessment timelines

The table below shows each assessment opportunity for Edexcel International GCSE (9–1) Science specifications.

Biology, Chemistry, Physics, Human Biology, Science (Double Award)					
	May/June 2017	Jan 2018	May/June 2018	Jan 2019	May/June 2019
Current specifications: 4BIO 4CHO 4PH0 4HBO 4SCO	Assessment window	Assessment window	Final May/June series assessment window	Final ever assessment opportunity	Not available
New specifications: 4BI1 4CH1 4PH1 4HB1 4SD0	Not available	Not available	Not available	Not available	May/June series available (and January 2020 onwards) (Compulsory assessment window for all centres)

Science (Single Award) (new)	
	May/June 2019
New specification: 4SS0	May/June series available (Compulsory assessment window for all centres)



# Offer a wider range of teaching and learning materials, resources and training

We understand that delivering first-class qualifications takes time and careful planning, which is why we strive to provide you with an unparalleled level of support alongside our high-quality Edexcel International GCSE (9–1) Science qualifications.

At a glance: support for you at every stage		
Planning	Free support	<ul style="list-style-type: none"><li>✓ Support from your Subject Advisor</li><li>✓ Face-to-face and online training events</li><li>✓ Getting started guides</li></ul>
	Published resources	<ul style="list-style-type: none"><li>✓ Curriculum matched, endorsed resources*</li><li>✓ ActiveLearn Digital (online subscription service) brings together planning, teaching and assessment resources all in one place*</li></ul>
Teaching & Learning	Free support	<ul style="list-style-type: none"><li>✓ Getting started guide</li><li>✓ Schemes of work</li><li>✓ Lesson plans*</li><li>✓ Exemplar marked responses*</li><li>✓ Sample assessment materials</li><li>✓ Examiner reports</li><li>✓ Ask the expert</li></ul>
	Published resources	<ul style="list-style-type: none"><li>✓ Student Books with free, accompanying ActiveBooks*</li><li>✓ ActiveLearn Digital (online subscription service)*</li></ul>
Assessment & Progression	Free support	<ul style="list-style-type: none"><li>✓ Exam preparation resources</li><li>✓ Past exam papers</li><li>✓ Community support</li><li>✓ Results analysis tool, ResultsPlus</li><li>✓ Past paper questions with ExamWizard*</li></ul>
	Published resources	<ul style="list-style-type: none"><li>✓ Student Books contain chapter summaries and exam practice questions.*</li><li>✓ ActiveLearn Digital (online subscription service) contains a range of resources to support assessment and progression*</li></ul>

\*Available for selected subjects.

## Your subject support

### Subject Advisors

Offer fast, reliable, expert help on a specific subject area of your choice. We aim to answer all emailed questions within 48 hours and resolve 90% of issues phoned in on the first call.

### Ask the Expert

Find answers to questions about teaching and delivering our Edexcel qualifications quickly using our database.

### Communities

Connect with other tutors around the world, share ideas and resources and stay up to date with the latest subject developments.

### Free teaching resources with instant access to:

- A library of past exam papers that will be collated once live assessments start, which you can use to prepare mock exams and to gain a better understanding of the assessment standard.
- Getting started guides and schemes of work, to support with lesson planning and delivery.
- Examiners reports and additional sample assessment materials, available to both teachers and students completely free of charge, to provide a better understanding of the standard.

“

I used the website with its course outlines, past papers, summaries of key points, revision notes and mark schemes... they provide great tips about possible exam questions and how you could answer them.”

Alexia Kattavenos, student,  
The Nicosia Grammar School, Cyprus

## Your training support

Our up-to-date and relevant training events are designed to deepen your teachers' understanding and share best practice, and can be tailored to your specific needs.

### Face-to-face

Engaging and informative training to help you develop exciting and inclusive learning programmes.

### Online

Simple to set-up, live and fully interactive training options for staff no matter where they're located.

## Your exam preparation and assessment support

### ResultsPlus

A free online results analysis tool that provides information to help raise student attainment. By providing detailed, digestible information on exam performance, teachers can help their students improve their performance by highlighting potential focus areas.

ResultsPlus also enables teachers to compare the results of their cohort with schools across the world.

### Exam preparation resources

We offer a range of resources to help students better understand what is required of them so they can plan their revision effectively and be well prepared for their exams, including: past papers, textbooks and other resources plus exam revision tips.



Because of ResultsPlus, students can learn about their mistakes and rectify.”

Kanagambigai, Chief Counsellor, Chemistry Lecturer, A levels Department, HELP Academy, Malaysia commenting on the ResultsPlus mocks service.

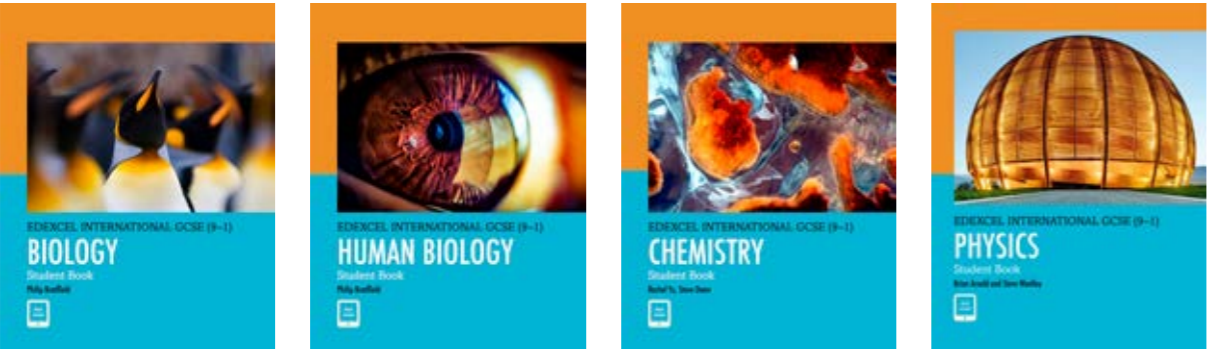


One of the good features of ResultsPlus is that it provides the top ten questions that students scored poorly in, so we as the lecturers can actually identify the topics that students found difficult and can incorporate a different approach when teaching our current students.”

Dr Khong Yoke Kum, Chemistry Lecturer, A levels Department, HELP Academy, Malaysia.



# Published resources



## International GCSE (9–1) Published Resources

Developed for the new Edexcel International GCSE (9–1) science specifications, these completely new resources have progression, international relevance and support at their core. They provide comprehensive coverage of the new specifications and are designed to support students with the best preparation possible for the examination.

- **Specifically developed for international learners**, with appropriate international content.
- The **new 9–1 grading scale** ensures a consistent international standard of qualification, allowing learners to progress further and achieve their full potential.
- The new **ActiveLearn Digital Service** (for Biology, Chemistry and Physics and Science Double Award) brings together your planning, teaching and assessment across one service, saving you valuable time.
- Each Student Book will provide access to an **ActiveBook**, a digital version of the Student Book, which can be accessed online, anytime, anywhere, ideal for learning beyond the classroom, revision and exam practice.
- **Transferable skills**, needed for **progression** into higher education and employment, are embedded throughout and explicitly signposted, allowing students to understand, and engage with, the skills they’re gaining.
- **English language** focused content, checked by an EAL (English as an Additional Language) specialist, addresses the needs of EAL students with carefully graded writing to B2/C1 level (CEFR) and a glossary provided of specialist vocabulary.
- **Exam Practice tests and exam-style questions** cover the whole chapter and provide quick, effective feedback on students’ progress and gets them accustomed to what they’ll see in the exam.
- **Chapter summaries** state the most important points in each chapter and aid revision.

Title	ISBN
Biology (Available May-August 2017)	
Biology Student Book: print and ebook	978 0 435185 08 4
Chemistry (Available May-June 2017)	
Chemistry Student Book: print and ebook	978 0 435185 16 9
Physics (Available April-May 2017)	
Physics Book: print and ebook	978 0 435185 27 5
Human Biology (Available May-August 2017)	
Human Biology Student Book: print and ebook	978 0 435184 98 8
Science (Double Award) (Available July-August 2017)	
Science Double Award Student Book: print and ebook	978 0 435185 28 2

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It is like a global passport,  
it offers me worldwide  
recognition and I can go  
anywhere with my  
Edexcel qualifications...  
I would definitely  
recommend Edexcel.”

Nikita Jha, Edexcel International GCSE  
student at Sayfol International  
School, Malaysia.

## Find out more

To find out more about our new Edexcel International GCSE (9–1)  
Science qualifications, visit our **website** or **complete our online form**  
to request a local consultant to contact you.