

Your guide to Pearson Edexcel International GCSE (9–1)

Science

**Biology, Chemistry, Physics, Human Biology,
Science (Double Award) and Science (Single Award)**

First teaching
September 2017



Welcome

Our new suite of Pearson Edexcel International GCSE (9–1) qualifications has been refreshed to meet the needs of you and your students, to keep the content up-to-date and relevant. Designed to understand today’s global learner, respect local contexts and ensure a global standard, they the suite has developed to align with UK government intentions to raise standards.

This guide has been designed provide you with in-depth information about the key features of the new Pearson 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 Pearson Edexcel International GCSE (9–1) suite of qualifications are.



Why choose Pearson Edexcel International GCSE (9–1)?

With over 3.4 million students, in 97 countries, 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.

Our new suite of International GCSE (9–1) qualifications is designed to:



Be more relevant for international students

With more international content, including the addition of further international content topics and the use of local contexts where possible.



Reward outstanding academic achievement

By introducing a new 9–1 grading scale, with the new grade 9 representing a new level of attainment, you can differentiate your top performing students. There's also greater differentiation in the middle of the scale, with three grades (6, 5, and 4) rather than two grades (B and C).



Contain embedded transferable skills

Developing skills such as problem-solving and verbal reasoning, skills that are valued by universities and employers, supporting students to seamlessly progress to higher-level study.



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.



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

This support includes schemes of work, Getting Started guides, exemplar materials, ExamWizard, comprehensive textbooks and interactive resources, digital services and tailored teacher training.



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.

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

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

Separate:
Biology, Chemistry, Physics
3 grades; 1 for each science subject taken

Human Biology
1 grade

Double Award
2 grades; 2/3rds of each separate science

Single Award (new)
1 grade; half of the double award





Clear and straightforward question papers

Our question papers are clear and provide sufficient challenge and support for students of all ability ranges. Our mark schemes are straightforward so that the assessment requirements are clear.



Reward outstanding academic achievement

To ensure that we fully align with UK government intentions to raise standards, and that international students have the same opportunity to be rewarded for outstanding academic achievement, our new qualifications use a new 9–1 grading scale, instead of the A*–G grading scale that you are used to.

- The new grade 9 represents a new level of attainment and has been introduced to differentiate your top performing students.
- The bottom of the grade 7 broadly aligns with the bottom of the grade A.
- There is also greater differentiation in the middle of the scale with three new grades (6, 5 and 4) rather than two grades (B and C).
- The bottom of the grade 4 broadly aligns with the bottom of the grade C.
- The bottom of the grade 1 broadly aligns with the bottom of the grade G.



Comparable to GCSE

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



Broaden and deepen students' skills

We have designed the Pearson 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.



Support 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 Edexcel, we provide a variety of 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 Pearson Edexcel International GCSE (9–1) Biology?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4BI0).
- **100% written examination:** No practical coursework.

At a glance: New Pearson Edexcel International GCSE (9–1) in Biology

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.
<p>Content summary</p> <p>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.</p> <ol style="list-style-type: none"> 1. The nature and variety of living organisms 2. Structures and functions in living organisms 3. Reproduction and inheritance 4. Ecology and the environment 5. Use of biological resources 	<p>Content summary</p> <p>Assesses all the content including content that is in bold and has a 'B' prefix.</p> <p>Questions may come from any topic area across the specification. Bold statements cover some sub-topics in greater depth.</p>

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 Pearson Edexcel International GCSE (9–1) Chemistry?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4CH0).
- **100% written examination:** No practical coursework.

At a glance: New Pearson Edexcel International GCSE (9–1) in Chemistry

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.
Content summary 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">1. Principles of chemistry2. Inorganic chemistry3. Physical chemistry4. Organic chemistry	Content summary Assesses all the content including content that is in bold and has a 'C' prefix . 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 Pearson 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 Pearson Edexcel International GCSE (9–1) in Physics

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.
<p>Content summary</p> <p>Assesses core content that is NOT in bold and does not have a 'P' prefix. Questions may come from any topic area across the specification.</p> <ol style="list-style-type: none"> 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 	<p>Content summary</p> <p>Assesses all the content including content that is in bold and has a 'P' prefix.</p> <p>Questions may come from any topic area across the specification. Bold statements cover some sub-topics in greater depth.</p>

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 Pearson Edexcel International GCSE (9–1) Human Biology?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4CH0).
- **100% written examination:** No practical coursework.

At a glance: New Pearson Edexcel International GCSE (9–1) in Human Biology

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.
Content summary <ol style="list-style-type: none">1. Cells and tissues2. Biological molecules3. Movement of substances in and out of cells4. Bones, muscles and joints5. Coordination6. Nutrition and energy7. Respiration8. Gas exchange9. Internal transport10. Homeostatic mechanisms11. Reproduction and heredity12. Disease Assessment	Content summary <p>Assessment may be on any area of content in the opposite box.</p>

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 Pearson Edexcel International GCSE (9–1) Science (Double Award)?

- **Continuity from current specification to the new specification:** Similar to the popular current specification (4SC0).
- **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 Pearson Edexcel International GCSE (9–1) in Science (Double Award)

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.
Content summary Topics covering core content areas: <ol style="list-style-type: none"> 1. The nature and variety of living organisms 2. Structures and functions in living organisms 3. Reproduction and inheritance 4. Ecology and the environment 5. Use of biological resources 	Content summary Topics covering core content areas: <ol style="list-style-type: none"> 1. Principles of chemistry 2. Inorganic chemistry 3. Physical chemistry 4. Organic chemistry 	Content summary Topics covering core content areas: <ol style="list-style-type: none"> 1. Forces and motion 2. Electricity 3. Waves 4. Energy resources and energy transfers 5. Solids, liquids and gases 6. Magnetism and electromagnetism 7. Radioactivity and particles 8. Astrophysics

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 Pearson 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 Pearson Edexcel International GCSE (9–1) in Science (Single Award)

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.
Content summary Topics covering core content areas: <ol style="list-style-type: none"> 1. The nature and variety of living organisms 2. Structures and functions in living organisms 3. Reproduction and inheritance 4. Ecology and the environment 5. Use of biological resources 	Content summary Topics covering core content areas: <ol style="list-style-type: none"> 1. Principles of chemistry 2. Inorganic chemistry 3. Physical chemistry 4. Organic chemistry 	Content summary Topics covering core content areas: <ol style="list-style-type: none"> 1. Forces and motion 2. Electricity 3. Waves 4. Energy resources and energy transfers 5. Solids, liquids and gases 6. Magnetism and electromagnetism 7. Radioactivity and particles 8. Astrophysics

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 Pearson Edexcel International GCSE (9–1) Science specifications*.

Biology, Chemistry, Physics, Human Biology, Science (Double Award)				
	May/June 2018	Jan 2019	May/June 2019	Jan 2020
Legacy specification: 4BIO 4CHO 4PH0 4HB0 4SCO	Final May/June series assessment window	Final ever assessment opportunity	Not available	Not available
New specification: 4BI1 4CH1 4PH1 4HB1 4SD0	Not available	Not available	May/June series available (Compulsory assessment window for all centres)	January series available from 2020 onwards

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

*Timelines may vary for UK centres.



“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.



Developing transferable skills valued by universities and employers

In recent years, universities and employers have highlighted the need for students and graduates to develop a range of transferable skills, often referred to as 'soft skills', to enable them to better meet the demands of undergraduate study and the world of work.

In fact, universities and employers consider transferable skills to be the largest skills gap overall.



1 in 6

employers have difficulty finding candidates with the skills they require¹



54%

of companies say that skills shortages impact their ability to serve their customers²



1 in 3

skills in a job posting is a "soft skill"¹



87%

of university professors do not think students have the research skills needed for degree-level study³

Redeveloping our International GCSEs has ensured we meet the needs of today's learners to support their progression to universities and employment worldwide. We've embedded transferable skills in the qualifications and resources. This means teachers help students develop these skills while they teach, rather than having to add something additional to their lessons, and students are aware of the skills they're developing. These skills are highly valued by universities and employers.

¹ *Employability - Personal & Social Capability Framework report from Pearson, 2016.*

² *Employability report from PSB for Pearson, 2016.*

³ *Bridging the Gap: Understanding the Differing Research Expectations of First-Year Students and Professors, Meg Raven, Mount Saint Vincent University, 2016.*

*Available for selected subjects.

Supporting you at every stage

We provide an unparalleled level of support services, tools, resources and training alongside our qualifications, making teachers and students lives easier at every stage.

At a glance: support for you at every stage			
FREE resources and support	Planning, teaching & learning	Exam preparation and assessment	Results support
Getting started guide	✓		
Training events (face-to-face and online)	✓		
Subject advisor support	✓	✓	✓
Community forums	✓	✓	✓
Schemes of work	✓		
Skills mapping	✓		
Sample assessment materials	✓	✓	
Examiner reports	✓	✓	✓
Exemplar marked responses*	✓	✓	
Past papers		✓	
examWizard		✓	
Mark schemes		✓	
ResultsPlus mock exam analysis		✓	
ResultsPlus		✓	✓
Access to Scripts service (ATS)			✓
Additional online teacher materials	✓	✓	
Additional paid for resources available for Biology, Chemistry, Physics, Human Biology and Double Science			
Curriculum-matched Student Books with ActiveBooks	✓	✓	
Online Teacher Resource Pack	✓	✓	

*Available for selected subjects

Your free subject support

- **Our subject advisors** provide fast, reliable, expert help and aim to answer all emailed questions within 48 hours and resolve 90% of issues phoned in on the first call. Email TeachingScience@pearson.com or call + 44 (0)20 7010 2190
- **Connect with other educators around the world**, share ideas and resources and stay up to date with the latest subject developments by joining our international schools community at community.pearsoninternationalschools.com

Offering more advanced support services and tools

Our technology capability also allows us to provide the following unique services and tools to teachers and students:



ResultsPlus provides detailed information on exam performance and a platform to view and compare student results – as individuals or as groups – across the world. It helps with planning improvements in teaching and learning. ResultsPlus Direct is a free online service that gives students a detailed breakdown and comparison of their performance in Pearson Edexcel exams, globally, to help them identify areas of improvement.



examWizard is our free exam preparation tool containing a bank of past Pearson Edexcel exam questions, mark schemes and examiners' reports for a range of subjects. It saves you time by enabling you to create your own mock exams, topic tests, homework or revision activities in minutes and links directly to associated examiner reports and mark schemes!



Access to Scripts Service (ATS) is an online service which allows access to view electronically marked exam papers, free of charge, providing enhanced transparency and support for teachers to evaluate a student's performance on particular questions in relation to what they have been taught.



Awarding reliability. We use ePEN, our unique, image-based marking system ensuring real time monitoring, quality control and reporting to ensure the highest quality marking and provision of data for tools such as ResultsPlus. Pearson Edexcel exam marking processes have been proven to produce the most reliable results. This demonstrates that our qualifications maintain the highest standards and can be relied upon to deliver to expectation.

Stay Informed

Sign up for regular eNews updates for the latest news and information on your subject quals.pearson.com/edexcel-internationalgcseenquiry

Feedback from teachers on our qualifications support

“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.

“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.



“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

Published resources

Developed for the new Pearson 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.

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.

Online Teacher Resource Packs contain lesson plans, worksheets, presentations and videos of practicals, to support your planning and teaching, saving you valuable time.

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.

You do not have to purchase our published resources, or endorsed resources from any other publisher, to deliver our qualifications. For details of all available published resources, please visit [qualifications.pearson.com](https://www.pearson.com/qualifications)

Pearson Edexcel International GCSE (9–1) Science resources

Title	ISBN
Biology	
Biology Student Book and ActiveBook	978 0 435185 08 4
Online Teacher Resource Pack Biology	978 0 435185 05 3
Chemistry	
Chemistry Student Book and ActiveBook	978 0 435185 16 9
Online Teacher Resource Pack Chemistry	978 0 435185 12 1
Physics	
Physics Student Book and ActiveBook	978 0 435185 27 5
Online Teacher Resource Pack Physics	978 0 435185 24 4
Human Biology	
Human Biology Student Book and ActiveBook	978 0 435184 98 8
Biology Student Book: print and ebook	978 0 435185 08 4
Science (Double Award)	
Science Double Award Student Book and ActiveBook	978 0 435185 28 2
Online Teacher Resource Pack Science Double Award	978 0 435185 31 2

Learn more at www.pearsonglobalschools.com

“I decided to take Edexcel International GCSEs as they are accepted by institutions around the world for higher studies. The course is modern, well structured & examinations based. Thanks to my ever supporting parents, school, teachers and Edexcel for helping me to gain a world-class qualification.”

Ashfaq Faiz, Riyadh, Saudi Arabia

About Pearson Edexcel

At the core of everything we do at Pearson is the desire to make a measurable impact on improving people's lives through learning. From primary school to secondary school, through to professional certification; our qualifications help educate millions of people worldwide.

Foundations for success

Pearson Edexcel International GCSE (9–1) is part of the iProgress family for ages 5 to 19, which also includes iPrimary, iLowerSecondary and International A Level (IAL). We offer more than just a qualification. With professional development training that keeps teachers up-to-date with the latest educational practices, supporting materials that make planning and teaching lessons easier, and student textbooks and online resources, you'll have more time to focus on the individual development of your students' progress.

Progress to further study and beyond

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



Find out more

To find out more about our Pearson Edexcel International GCSE (9–1) qualifications, visit our website,

quals.pearson.com/edexcel-internationalgcse

Or complete our online form to request a local consultant to contact you,

quals.pearson.com/edexcel-internationalgcseenquiry