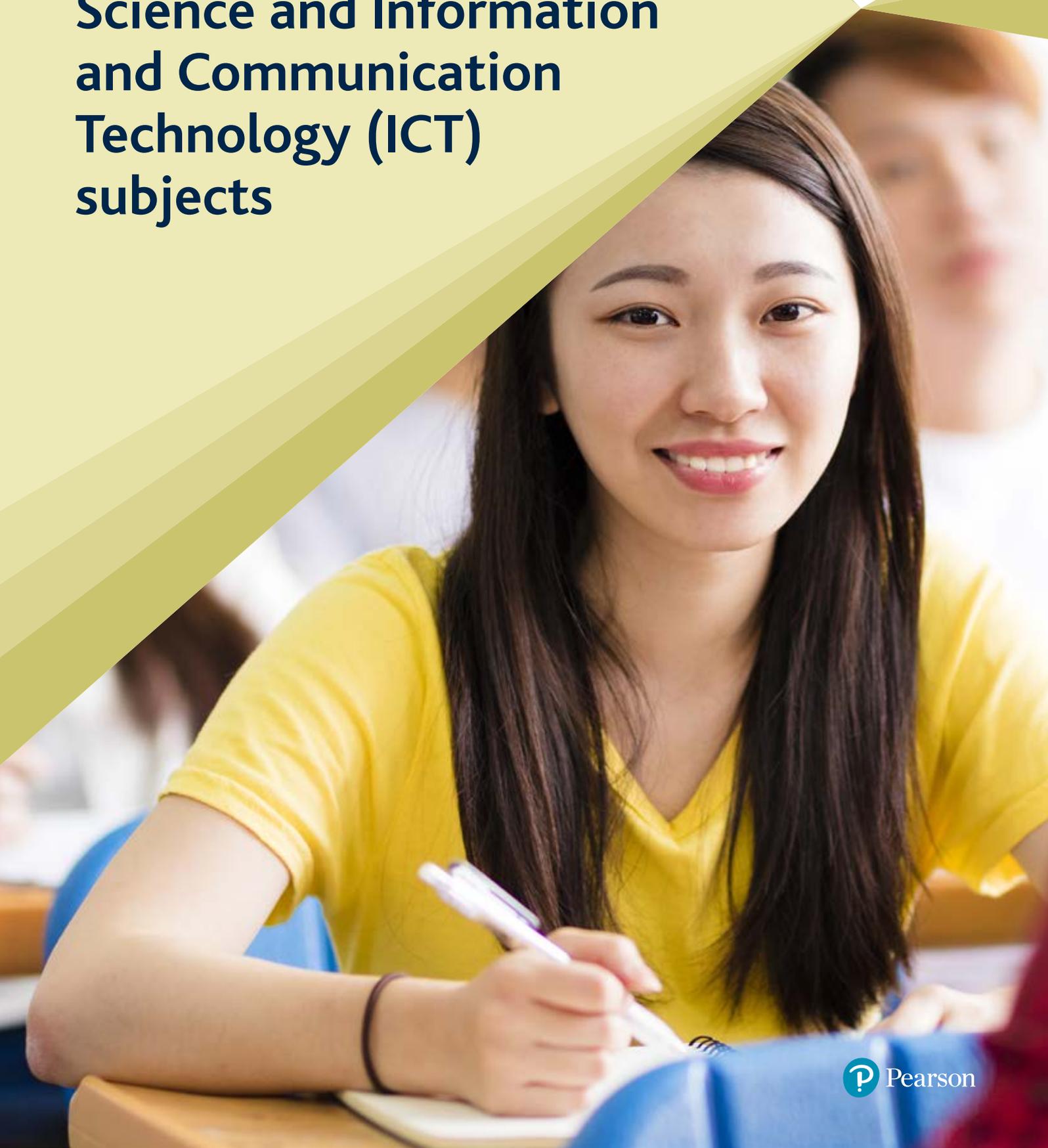


**Your guide to
Edexcel International
GCSE (9–1) Computer
Science and Information
and Communication
Technology (ICT)
subjects**



Welcome

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

This guide has been designed to provide you with in-depth information about the key features of the new Edexcel International GCSE (9–1) Computer Science and ICT specifications, available for first teaching in September 2017.

Before we go into detail about Computer Science and ICT, we wanted to give you an overview of what the 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 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. We are also able to provide comprehensive support for Edexcel International GCSE students, so they are able to acquire the knowledge and skills needed for seamless progression to A level study, university and employment.

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.

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.

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

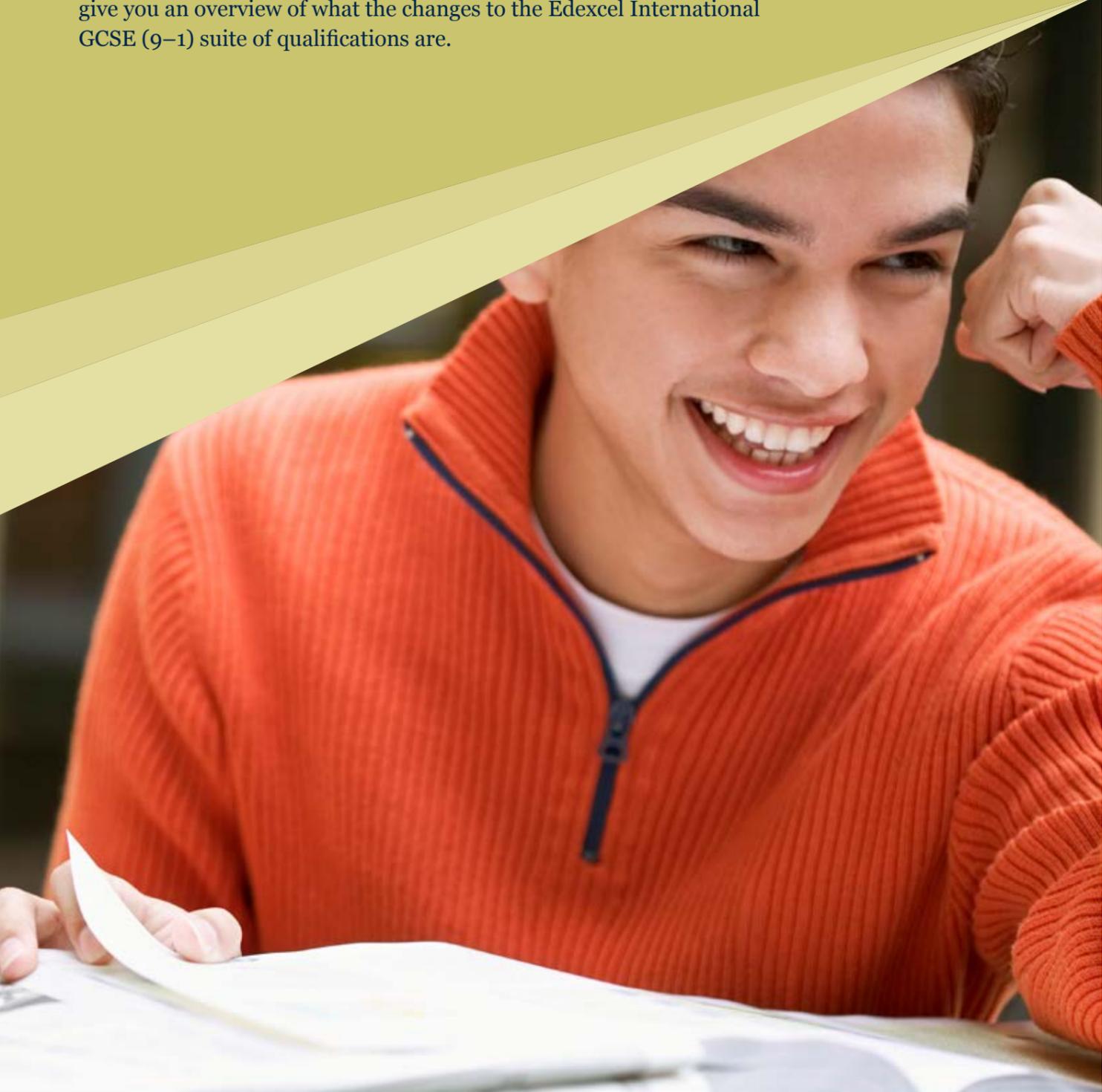
ResultsPlus is a service unique to Pearson that provides free online in-depth mock and actual exam performance analysis, supporting teachers to plan improvements in teaching and learning, driving attainment.

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) Computer Science and ICT qualifications?

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

A CBI Report stated that

“Teaching programming and computer science in much greater depth will expand understanding of the digital world ... encouraging the development of the active, creative interactions with technology that will be fundamental to economic success in the 21st century. Employers need people who are not only effective users of technology, but also able to innovate with it. Part of this goes beyond technical skills to the behaviours and competencies that are in part developed by engaging with the digital creative process”

Source: CBI response: UK Digital Skills Taskforce – Call for Evidence, May 2014



Clear and straightforward question papers

Our Computer Science and ICT question papers are accessible for students of all ability ranges. Our mark schemes for all specifications are straightforward, so that the assessment requirements are clear.

Comparable to GCSE

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

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

Supports progression to A Level

Our Edexcel International GCSE (9–1) Computer Science and ICT qualifications enable successful progression to A Level and beyond. Through our world-class qualification development process, we have consulted with International Advanced Level 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 Edexcel, we offer Computer Science and ICT International GCSE (9–1) qualifications to offer teachers the choice and flexibility to select a specification that best meets the needs of their learners.

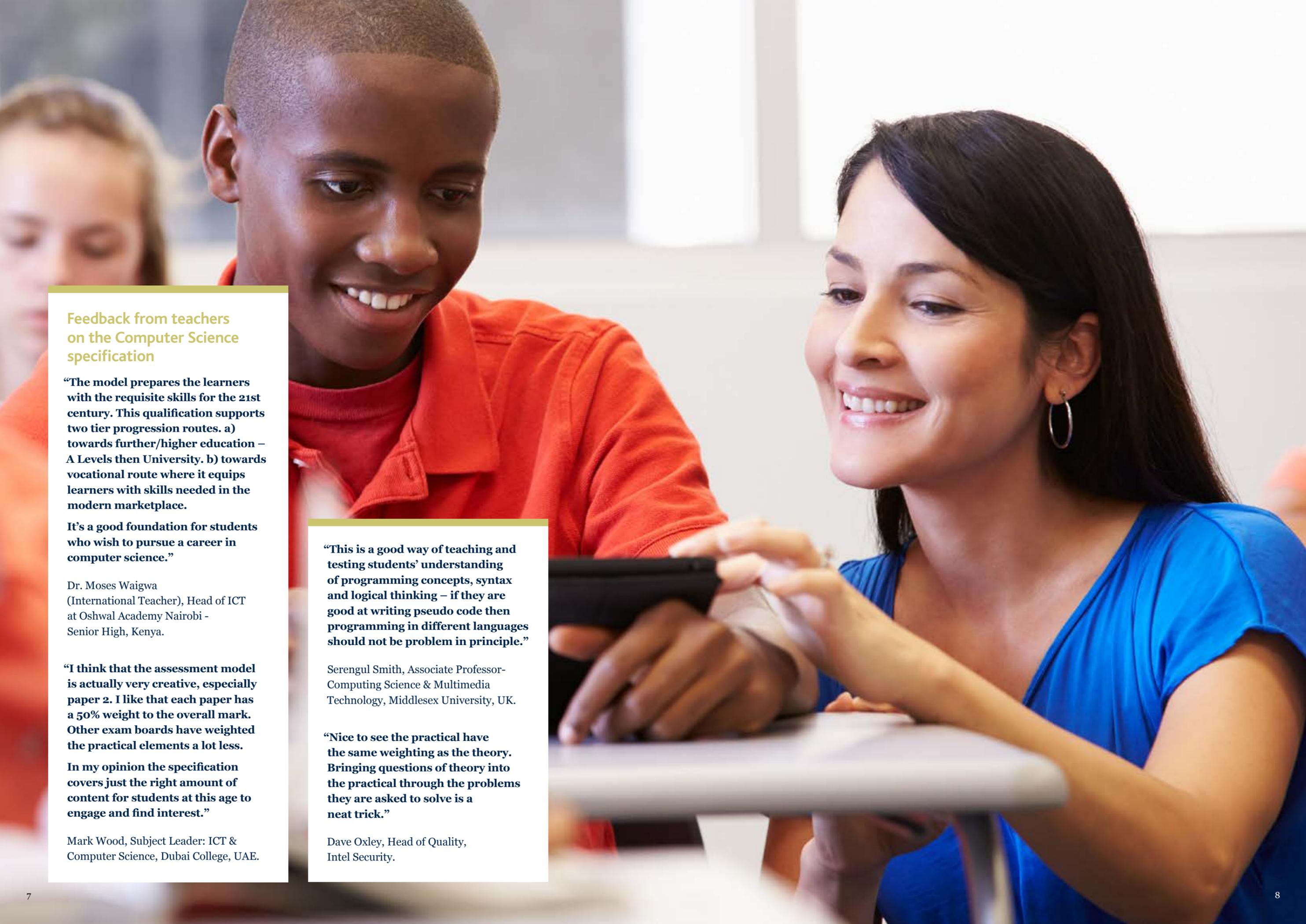
Why choose Edexcel International GCSE (9–1) Computer Science?

- Develop computational thinking skills:** This qualification provides students with the opportunity to operate confidently in today’s digital world, enabling students to apply computational thinking in context, across both written and practical examinations.
- Provide practical opportunities:** Students will be encouraged repeatedly to design, implement and test programs that provide solutions to problems. They will apply their skills to produce robust programs and this will help them to progress to further/higher education where practical knowledge and experience will be required.
- Develop a range of programming languages:** We will provide a choice of three programming languages, allowing flexibility for centres and students to make choices that are the most valuable and appropriate for them.
- Broad and deep development of students’ skills:** The International GCSE is designed to extend students’ knowledge and understanding by broadening and deepening skills. For example, students will develop the ability to:
 - Apply the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms and data representation.
 - Analyse problems in computational terms through practical problem-solving experience. This will include designing, writing and debugging programs.
 - Think creatively, innovatively, analytically, logically and critically.
 - Apply mathematical skills relevant to computer science.

At a glance: New Edexcel International GCSE (9–1) Computer Science specification

Paper 1: Principles of Computer Science	Paper 2: Application of Computational Thinking
<ul style="list-style-type: none"> External assessment (2 hours). 50% of total marks. This paper will assess all topics: <ul style="list-style-type: none"> Understanding of what algorithms are, what they are used for and how they work; ability to interpret, amend and create algorithms. Understanding the requirements for writing program code. Understanding how to develop program code and constructs, data types, structures, input/output, operators and subprograms. Understanding of binary representation, data representation, data storage and compression, and encryption. Understanding of components of computer systems; ability to construct truth tables, produce logic statements and read and interpret pseudocode. Understanding of computer networks, the internet and the world wide web. Awareness of emerging trends in computing technologies, the impact of computing on individuals, society and the environment, including ethical, legal and ownership issues. The paper consists of multiple-choice, short open-response, open-response and extended open-response answer questions. 	<ul style="list-style-type: none"> External Assessment (3 hours). 50% of total marks. This paper is practical and will also test students’ knowledge and understanding of the topics. This paper will draw on: <ul style="list-style-type: none"> Understanding of what algorithms are, what they are used for and how they work; ability to interpret, amend and create algorithms. Developing and testing program code and constructs, data types, structures, input/output, operators and subprograms. Connecting and using data sources when developing program code. Understanding of binary representation, data representation, data storage and compression, and encryption. Ability to construct truth tables, produce logic statements and read and interpret pseudocode.





Feedback from teachers on the Computer Science specification

“The model prepares the learners with the requisite skills for the 21st century. This qualification supports two tier progression routes. a) towards further/higher education – A Levels then University. b) towards vocational route where it equips learners with skills needed in the modern marketplace.

It’s a good foundation for students who wish to pursue a career in computer science.”

Dr. Moses Waigwa
(International Teacher), Head of ICT
at Oshwal Academy Nairobi -
Senior High, Kenya.

“I think that the assessment model is actually very creative, especially paper 2. I like that each paper has a 50% weight to the overall mark. Other exam boards have weighted the practical elements a lot less.

In my opinion the specification covers just the right amount of content for students at this age to engage and find interest.”

Mark Wood, Subject Leader: ICT &
Computer Science, Dubai College, UAE.

“This is a good way of teaching and testing students’ understanding of programming concepts, syntax and logical thinking – if they are good at writing pseudo code then programming in different languages should not be problem in principle.”

Serengul Smith, Associate Professor-
Computing Science & Multimedia
Technology, Middlesex University, UK.

“Nice to see the practical have the same weighting as the theory. Bringing questions of theory into the practical through the problems they are asked to solve is a neat trick.”

Dave Oxley, Head of Quality,
Intel Security.

Why choose Edexcel International GCSE (9–1) Information and Communication Technology (ICT)?

- **Developing confident and competent ICT users:** This qualification provides students with the opportunity of operating confidently in today’s digital world. It is a useful, practical qualification which will provide skills needed in further education and work.
- **Providing students with relevant and transferable skills:** Students will learn about topics ranging from digital devices and connectivity, safe and responsible practice, and understand the impact of internet on the way that organisations do business. They will be also be encouraged to practice using software applications effectively.
- **Broad and deep development of students’ skills:** The design of the revised International GCSE aims to extend students’ knowledge and understanding by broadening and deepening skills. For example, students develop the ability to:
 - Apply knowledge and understanding to produce Information and Communication Technology-based solutions.
 - Develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions.
 - Reflect critically on their own and others’ use of Information and Communication Technology and to adopt safe, secure and responsible practice.

At a glance: New Edexcel International GCSE (9–1) ICT specification

Paper 1: Written paper	Paper 2: Practical paper
<ul style="list-style-type: none"> ■ External assessment (1 hour 30 mins). ■ 50% of total marks. ■ Students must study all of the following topics: <ul style="list-style-type: none"> ■ Topic 1: Digital Devices. ■ Topic 2: Connectivity. ■ Topic 3: Operating Online. ■ Topic 4: Online Goods and Services. <p>Students will:</p> <ul style="list-style-type: none"> ■ Gain knowledge and understanding of Information and Communication Technology. ■ Develop skills to apply knowledge and understanding to produce ICT-based solutions. ■ Develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions. <ul style="list-style-type: none"> ■ The examination comprises a mixture of multiple-choice, short- and long-answer questions. 	<ul style="list-style-type: none"> ■ External Assessment (3 hours). ■ 50% of total marks. ■ Students must study both of the following topics: <ul style="list-style-type: none"> ■ Topic 5: Applying Information and Communication Technology. ■ Topic 6: Software Skills. <p>Students will:</p> <ul style="list-style-type: none"> ■ Gain knowledge and understanding of Information and Communication Technology. ■ Develop skills to apply the knowledge and understanding they acquire in all topics (1–6) to produce ICT-based solutions. ■ Develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions. <ul style="list-style-type: none"> ■ The examination comprises one practical assignment.



Feedback from teachers on the ICT specification

“The fast changing nature of ICT has been recognised and learning outcomes have been selected with the aim that they will remain relevant for several years.

It provides opportunities for contextualised learning and the content has been created to suit a wide variety of schools, avoid cultural bias and develop essential lifelong skills, including creative thinking and problem-solving.

The specification is more specific than before which is a great improvement. The Sample Assessment Materials are more convenient than before as questions and answers are given together.”

Shammi Choudhary, L3 teacher ICT Bangladesh International Tutorial, Bangladesh.

This assessment model covers the most current technological developments in the computing field especially the digital devices. The questions are well- balanced covering most, if not all aspects in knowledge, understanding and skills in both papers 1 and 2.

Thaddeus Kinene Gaito, Head of Department, Oshawal Academy Nairobi, Kenya.

At a glance

The differences between Edexcel International GCSE (9–1) Computer Science and ICT

Computer Science and ICT are unique yet complementary subjects serving distinct purposes. Pearson offers Edexcel International GCSEs (9–1) in both because:

- Schools wishing to teach students how to use computer systems safely and effectively should opt for the International GCSE in ICT.
- Whereas those who want their students to study computation and learn how it can be applied to solving problems should choose the International GCSE in Computer Science.
- Should a student wish to do so, they can study both qualifications.

Your guide to assessment timelines

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

	May/June 2017	May/June 2018	May/June 2019
Current specification:	Assessment window	Assessment window	Not available
New specification:	Not available	Not available	May/June series available (first 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) Computer Science and ICT qualifications.

At a glance: support for you at every stage		
Planning	Free support	<ul style="list-style-type: none"> ✓ Support from your Subject Advisor ✓ Face-to-face and online training events
	Published resources	<ul style="list-style-type: none"> ✓ Curriculum matched, endorsed resources (for ICT) ✓ Online Teacher support materials (for ICT)
Teaching & Learning	Free support	<ul style="list-style-type: none"> ✓ Getting started guides ✓ Schemes of work ✓ Exemplar marked responses ✓ Sample assessment materials ✓ Examiner reports ✓ Ask the expert
	Published resources	<ul style="list-style-type: none"> ✓ Student Books with free, accompanying ActiveBooks (for ICT) ✓ Online teacher support materials online (for ICT)
Assessment & Progression	Free support	<ul style="list-style-type: none"> ✓ Exam preparation resources ✓ Past exam papers ✓ Community support ✓ Results analysis tool, ResultsPlus ✓ Past paper questions with ExamWizard for ICT
	Published resources	<ul style="list-style-type: none"> ✓ Student Books contain chapter summaries and exam practice (for ICT) ✓ Online teacher support materials (for ICT)

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 large library of past exam papers, 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

Developed for the new Edexcel International GCSE (9–1) ICT specification, this completely new Student Book has progression, international relevance and support at its core.

- **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 Student Book will provides 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 and terminology.
- Chapters are mapped closely to the specification to provide comprehensive coverage and **Chapter summaries** state the most important points in each chapter and aid revision.
- **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.
- Accompanying **teacher support materials** are available online.

Edexcel International GCSE (9–1) ICT

Title	ISBN
ICT Student Book and ActiveBook	978 0 435188 93 1

Learn more at www.pearsonglobalschools.com





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) Computer Science and ICT qualifications visit our **website** or **complete our online form** to request a local consultant to contact you.