Pearson Edexcel International GCSEs

Computer Science and Information and Communication Technology (ICT)

SCAN ME

Choosing Pearson Edexcel as your school's International GCSE partner

Helping your students select their International GCSE options is a key moment in their schooling; it's an important time in learners' lives and we want to reassure you that with Pearson as your qualifications partner, you can be sure both you and your students are setting yourselves up for future success.

In this guide, you'll learn more about who we are, the recognition and progression that our Pearson Edexcel international qualifications enjoy, and we'll take a closer look at International GCSE Computer Science and Information and Communication Technology (ICT).

We wish you the best of success for your International GCSE journey!

Inside this guide

Contents

"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

Welcome to Pearson

We're pleased to meet you!

Pearson is the world's leading learning company. We provide world class qualifications, assessments, digital content and learning experiences to international schools all over the world to enable more effective teaching and learning and to help learners increase their skills and global employability prospects.

We partner with more than 6,500 schools, universities, and employers worldwide:

- **at school level**, to offer Pearson Edexcel International and UK qualifications to over 3.5 million students annually;

- **at university level**, to ensure Pearson Edexcel qualifications are recognised and accepted by universities all over the world;

- **and with employers**, by building 21st century skills into our qualifications at the outset, to ensure learners have transferable skills alongside the knowledge they need to progress into the careers of their choice.

Our qualifications heritage stretches back over 150 years

Pearson's qualifications heritage stretches back over 150 years, our qualifications are offered in 100 countries worldwide and we mark over 10 million exam scripts per year on behalf of the UK Department for Education.

Pearson Edexcel is regulated by Ofqual, ensuring our curricula meet the highest standards and our exams follow carefully controlled procedures at every stage of their development, delivery, marking and reporting.

As the largest awarding organisation in the UK, Pearson Edexcel regularly achieves the highest marking accuracy of all UK boards.

What this means for you

You can trust Pearson Edexcel International GCSE qualifications; thousands of students around the world take these same qualifications every year, progressing onto our popular modular International A Levels (IAL®), International BTECs or the IB Diploma, and to the world's most respected universities.

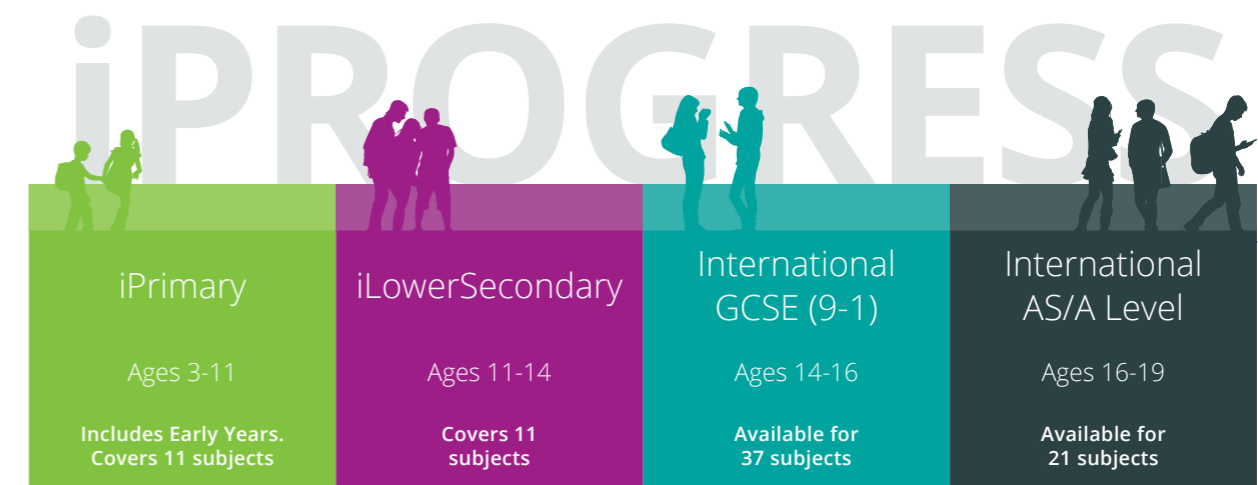®IAL is a registered trademark of Pearson Education Ltd in the UK and other countries.

Modern, progressive International GCSE qualifications

For globally minded learners aged 14-16

Renowned across the world for academic excellence, Pearson Edexcel International GCSEs provide learners with the skills and knowledge they need to progress to International A Levels (IAL®) and onto the most prestigious universities across the world.

Pearson Edexcel International GCSEs are part of iProgress, our complete series of academic qualifications for 3 to 19 year-olds at international schools following a UK curriculum.

At every stage, our iProgress continuum delivers a consistent learning journey with world class support, assessments, and teaching and learning resources for students and teachers, everywhere in the world.

iPROGRESS

iPrimary	iLowerSecondary	International GCSE (9-1)	International AS/A Level
Ages 3-11	Ages 11-14	Ages 14-16	Ages 16-19
Includes Early Years. Covers 11 subjects	Covers 11 subjects	Available for 37 subjects	Available for 21 subjects

About the 9–1 grading scale

In 2014, the UK Government introduced a nine-point grading scale (9–1) to raise standards and recognise top-performing students. This replaced the traditional A*–G grading. After consultation with international schools, Pearson Edexcel chose to follow the 9–1 grading scale to ensure comparability for our international students.

Since then millions of GCSEs and International GCSEs are awarded each year using the 9–1 grading scale, making it the most used and recognised grading scale for this qualification worldwide.

What this means for you

Because our Pearson Edexcel International GCSE qualifications are equivalent to and benchmarked, grade for grade, against UK GCSEs, you can be confident that they are recognised and respected across the world. They offer increased differentiation for your top learners (a grade 9 represents a higher level of attainment than A*) and will deliver the progression for your learners that you want to see.

"I not only recommend the International GCSE system because of their 9-1 grading scale due to having an extra grade to differentiate the top tier students, but also because this system is recognized globally therefore it opens up more opportunities for students to study at university abroad."

John Andrew Tampubolon, International GCSE (9-1) student at Al Yasmina School, Abu Dhabi.

GCSE (9-1) grading structure	Old GCSE grading structure
9	A*
8	
7	A
6	B
5	
4	C
3	D
	E
2	F
1	
	G
U	U

Recognised worldwide for academic excellence

Designed for global learners

Pearson Edexcel International GCSEs are globally recognised qualifications for learners aged 14 to 16 with academic content and assessment designed specifically for international learners. We continually review the content of our specifications – adding international topics and examples using local contexts where possible – to ensure the content of our qualifications is ever more relevant and engaging for students around the world and to enable learning in a local context to a global standard.

Equipping learners with transferable skills and knowledge

Opportunities to develop transferable skills such as problem solving, critical thinking, leadership and collaboration, are integrated throughout each of our Pearson Edexcel International GCSE qualifications to ensure learners have the skills and knowledge they need to progress onto International A Level, the next level of study.

Suitable and accessible for ESL learners

Our International GCSE qualifications have been designed in collaboration with subject experts, teachers and university professors, to ensure that the content and assessment methods are appropriate and will enable successful progression for learners, including those for whom English is not their first language.

From International GCSE to flexible, modular A Levels, BTECs or the IB Diploma

Pearson Edexcel International GCSE qualifications are excellent preparation for Pearson Edexcel International A Levels (IAL®), International BTECs, our popular, career-focused qualifications developed in partnership with employers, or the IB Diploma.

As the next step up from International GCSEs, International A Levels are designed for students aged 16–18 who want to progress to the best universities around the world. They use the popular and flexible modular approach, which means exams are taken at the end of each unit of study or throughout the programme of study when students feel prepared and ready.

We work closely with higher education institutions around the world to secure recognition for our qualifications and are proud to confirm that International A Levels are recognised and accepted for entry to more than 650 leading universities worldwide.

What this means for you

Pearson Edexcel International GCSEs are excellent preparation for Pearson Edexcel International A Levels, International BTECs or the IB Diploma, and progression onto the world's top universities. Over 650 higher education institutions worldwide recognise and accept Pearson Edexcel International A Level qualifications for entry onto undergraduate degree courses and with the twenty first century skills your learners will develop as part of their International GCSE curriculum, you can be confident they will have qualifications, skills and knowledge that admissions teams and employers are looking for.

Pearson Edexcel International GCSE Computer Science and ICT qualifications

Straightforward, practical qualifications that support progression
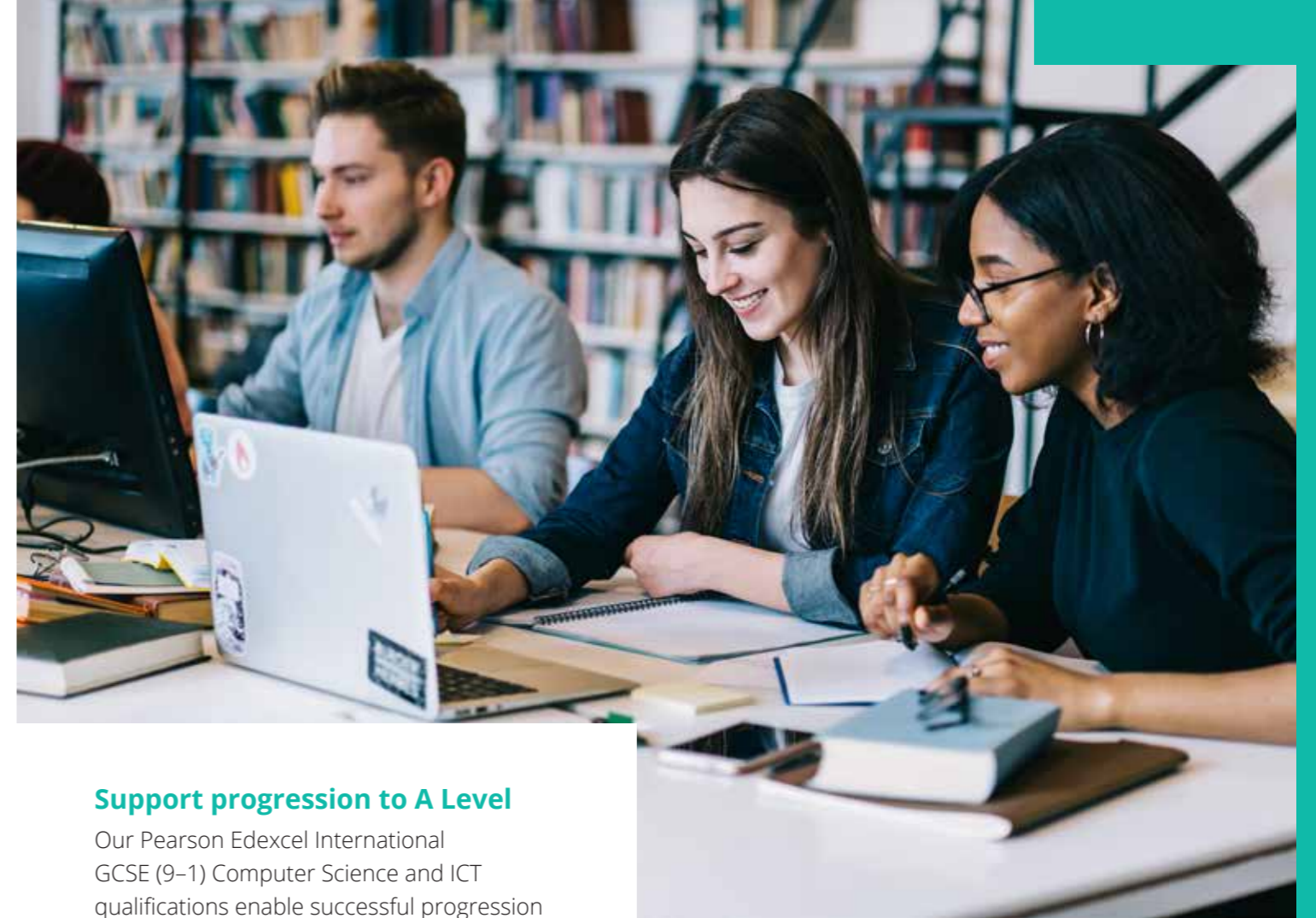
Clear and straightforward question papers

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.

Broad and deep development of students' skills

The Pearson Edexcel International GCSE (9–1) is designed to extend students' knowledge and understanding by broadening and deepening skills. For example, students will develop the ability to apply knowledge, analyse situations and solve problems.

Comparable to GCSE

We have designed our Pearson 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 Pearson Edexcel International GCSEs (9–1) are recognised globally and provide learners with the same progression routes.

Support progression to A Level

Our Pearson 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 Pearson Edexcel, we provide 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.

Seamless progression from International Lower Secondary

Pearson Edexcel International GCSE is the next step in the iProgress learning journey after International Lower Secondary, continuing a consistent path for students and teachers, everywhere in the world.

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

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

- Schools wishing to teach students how to use computer systems safely and effectively should opt for the International GCSE in ICT.

- Schools 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.

Computer Science: a closer look

Why choose Pearson 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 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 Pearson Edexcel International GCSE (9–1) extends 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.

Exam structure and content summary

Paper 1: Principles of Computer Science	Paper 2: Application of Computational Thinking
- External assessment (2 hours). 50% of total marks. - This paper will assess all topics: - 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.	- 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: - 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.

"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."
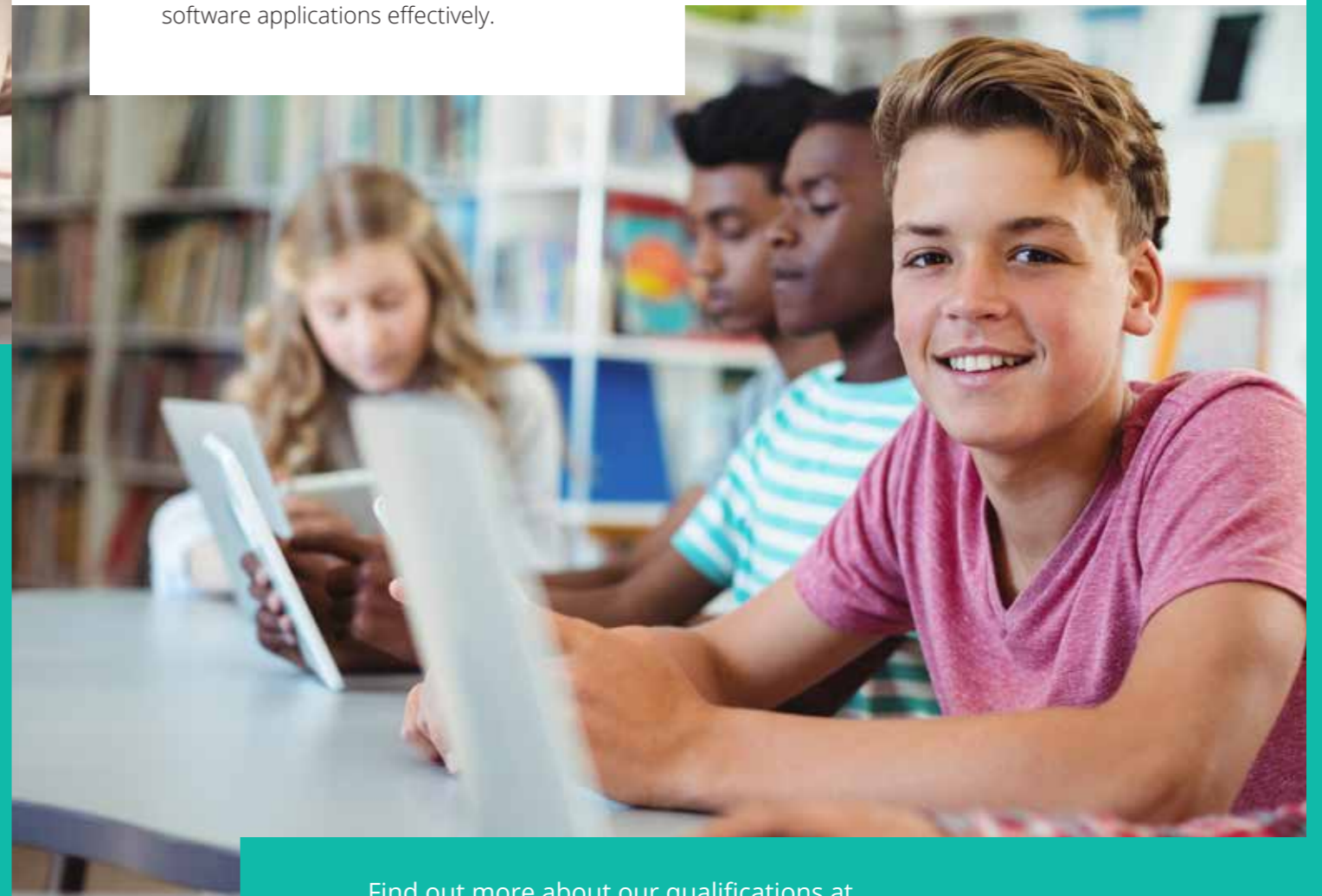
Dave Oxley, Head of Quality, Intel Security.

Information and Communication Technology (ICT): a closer look

Why choose Pearson Edexcel International GCSE (9–1) 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 qualification extends 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.

Find out more about our qualifications at
pearsoninternational-schools.com/internationalgcse

Exam structure and content summary

Paper 1: Written paper	Paper 2: Practical paper
• External assessment (1 hour 30 mins).	• External Assessment (3 hours).
• 50% of total marks.	• 50% of total marks.
• Students must study all of the following topics:	• Students must study both of the following topics:
- **Topic 1:** Digital Devices.	- **Topic 5:** Applying Information and Communication Technology.
- **Topic 2:** Connectivity.	- **Topic 6:** Software Skills.
- **Topic 3:** Operating Online.	Students will:
- **Topic 4:** Online Goods and Services.	- Gain knowledge and understanding of Information and Communication Technology.
Students will:	- Develop skills to apply the knowledge and understanding they acquire in all topics (1–6) to produce ICT-based solutions.
- Gain knowledge and understanding of Information and Communication Technology.	- Develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions.
- Develop skills to apply knowledge and understanding to produce ICT-based solutions.	• The examination comprises one practical assignment.
- Develop skills of analysis and evaluation, making reasoned judgements and presenting conclusions.	
• The examination comprises a mixture of multiple-choice, short- and long-answer questions.	

Now with additional November exam series

"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 Gaitho, Head of Department, Oshawal Academy Nairobi, Kenya.

"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.

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

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	✓	✓	✓
Schemes of work	✓		
Lesson Plans	✓		
Skills mapping	✓		
Sample assessment materials	✓	✓	
Examiner reports	✓	✓	✓
Exemplar marked responses	✓	✓	
Past papers		✓	
ResultsPlus mock exam analysis		✓	
ResultsPlus		✓	✓
Access to Scripts service (ATS)			✓

Additional paid for resources			
Curriculum-matched Student Books with ActiveBooks	✓	✓	
Online Teacher Resource Pack	✓	✓	

Pre and post exam support for your educators

Supporting you every step of the way

As a Pearson Edexcel centre, you will have access to a full range of integrated support services, tools and resources to support the delivery of your International Computer Science and ICT GCSEs, including:

- Easy, all year-round access to our specifications, sample assessment materials and teaching resources.
- **Teacher training** in-person and online including free 'getting ready to teach' sessions to help your educators make the most of our qualifications.
- **Expert subject advisors** on hand to help with any subject-specific queries you may have and available to support your educators throughout the year.
- **examWizard:** a huge bank of past papers and mark schemes to create topic tests and revision activities in minutes.

- **ResultsPlus:** our popular online results analysis tool, which also includes an insightful group analysis service.
- **Access to Scripts:** our service allows you to view your candidates' marked exam papers for free online or as downloaded PDFs, providing a rich source of information to inform future teaching plans and approaches.
- Plus, local, experienced Pearson **Regional Development Managers** who are there to support you every step of the way.

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 **TeachingComputerScience@pearson.com** or **TeachingICT@pearson.com** or call **+44 (0) 344 463 2535**

A valued support partner

"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, A Levels Department, HELP Academy, Malaysia

"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

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

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

What this means for you

We will support your educators to deliver an outstanding teaching and learning experience for every student taking Pearson Edexcel International GCSEs.

With examWizard, they will be able to prepare topic tests and revision activities based on past exam questions to help prepare students for their final assessments, and using ResultsPlus, they will be able to analyse their mock results to pinpoint where they may need further support and can then tailor their teaching to support them.

Post exams, our Access to Scripts service will allow your educators to review students' exam papers for free, providing greater visibility and a deeper understanding of individual students' exam performance and helping them identify skills gaps to tailor teaching plans for future cohorts.

Find out more about our qualifications at
pearsoninternational-schools.com/internationalgcse

Teaching and Learning Resources

Written specifically to support our qualifications

Developed for Computer Science and ICT, these additional resources have progression, international relevance and support at their core. They provide comprehensive coverage of the specifications and are designed to support students with the best preparation possible for the examination.

The Online Teacher Resource Pack provides further **planning, teaching and assessment support.**

Students and teachers can expect similar, high-quality resources for Computing at International Lower Secondary level, and Information Technology at International A Level.

The Student Book provides 3 year access to an **ActiveBook**, a digital version of the Student Book, which can be accessed online, anytime, anywhere supporting learning beyond the classroom.

Title	ISBN
Computer Science Student Book	978 1 292310 22 0
Computer Science Online Teacher Resource Pack	978 1 292306 16 2
ICT Student Book	978 0 435188 93 1
ICT Online Teacher Resource Pack	978 0 435191 36 8

Specifically developed for international learners, with appropriate **international content**.

Reviewed by a language specialist to ensure the book is written in a **clear and accessible style**, including a glossary of specialist vocabulary.

SINGLE-BOARD COMPUTERS

SUBJECT VOCABULARY

embedded computing computing hardware that is fixed into position and carries out a specialist task
physical computing interactive systems that can sense and respond to the world around them

Single-board computers (SBCs) are affordable computers used in education, **embedded computing** projects and **physical computing** projects. The Raspberry Pi Zero (see Figure 1.6) is an example of an SBC. The unit itself costs very little and uses a cheap microSD card as its storage.

▲ **Figure 1.6** The Raspberry Pi Zero (top) and its microSD card (top left)

MOBILE PHONES

Mobile phones use a SIM card to connect to a mobile phone network. SIM stands for subscriber identity module, and a SIM card is used to identify the subscriber to a mobile phone network.

DID YOU KNOW?
Sri Lanka has more mobile phones than people. In 2015, for every 100 Sri Lankan citizens there were 113 mobile phones.

▲ **Figure 1.7** The SIM card from a mobile phone

SPECIALIST PHONES

SUBJECT VOCABULARY

user the person who uses a computer system

Some mobile phones have specialist features to provide **users** with functions that meet particular user needs. For example, some phones have an emergency button that is linked to a list of emergency contacts. When this button is pressed, the phone will call each person on the list until someone answers.

SKILLS   CRITICAL THINKING
PERSONAL AND SOCIAL RESPONSIBILITY
COMMUNICATION
INTERPERSONAL SKILLS

ACTIVITY

▼ **EMERGENCY BUTTON**

Discuss which groups of people could need a phone with an emergency button. How would this phone meet their needs?

GENERAL VOCABULARY

Other phones meet users' **accessibility** needs. Examples include the Alto 2 'talking phone', shown in Figure 1.8, which is a specialist mobile phone for blind

The **embedded transferable skills**, needed for progression to higher education and employment, are signposted so students understand, and can engage with, the skills they're gaining.

Activities provide exercises to help deepen your understanding of a topic.

Find out more about our resources at
pearsoninternational-schools.com/internationalgcse

Thank you for choosing Pearson

Find out more about our qualifications at
pearsoninternational-schools.com/internationalgcse

Sign up to our newsletters

e pearsoninternational-schools.com/emailsign-up

Follow us on our social channels

f @PearsonUKandInternationalSchools

in Pearson UK and International Schools

w blog.pearsoninternationalschools.com

SCAN ME

P Pearson
Edexcel