

A GUIDE FOR PARENTS AND STUDENTS

Check out our computing qualifications for Key Stage 4

New doors are opening in the world of computing, creating fresh opportunities. We've got it covered with a choice of qualifications including:

- **GCSE (9-1) Computer Science**
- **Cambridge National in Information Technologies**
- **Cambridge National in Creative iMedia**

Introduction

We offer a range of computing qualifications at Key Stage 4 each with different focusses. This allows your child to get involved in computing whatever their interest.

QUALIFICATION	FOCUS
GCSE (9-1) Computer Science	Computer systems, computational thinking, algorithms and programming
Cambridge National Certificate in Information Technologies	IT, data management and project management
Cambridge National Certificate in Creative iMedia	Websites, animation, gaming concepts, sound

Why take GCSE (9-1) **COMPUTER SCIENCE?**

Computer Science is a very practical subject – students will be able to use the knowledge and skills they learn in the classroom on real-world problems. It’s also a highly creative subject that calls on learners to be inventive. To help us develop this engaging, modern qualification, we talked to companies like Microsoft, Google and Cisco; organisations like Computing At School (CAS) and also teachers and academics.

The course at a glance

COMPUTER SYSTEMS **COMPONENT 1**

- Study how processors work.
- Investigate computer memory and storage.
- Explore modern network layouts and how they function.
- Build skills in the ever important realm of cyber security.
- Investigate how types of software are used within computer systems.
- Stretch wider comprehension of how computers and computing affect ethical, legal, cultural and environmental issues.

COMPUTATIONAL THINKING, ALGORITHMS AND PROGRAMMING **COMPONENT 2**

- Study fundamental algorithms in computer science.
- Build a firm foundation in programming techniques.
- Produce programs through diagrams.
- Thoroughly test programs and make them resistant to misuse.
- Explore Boolean algebra (AND, OR, NOT).
- Understand how we store data within computers in binary form.

A PROGRAMMING PROJECT

- Use new-found programming skills on an independent coding project by solving a real-world problem.
- Students will spend 20 classroom hours engaging with the Programming Project.

What will a student gain from this course?

- Valuable thinking and programming skills that are extremely attractive in the modern workplace.
- A deep understanding of problem solving and experience in creating logical and efficient solutions.
- Ability to write down solutions to problems for other people to understand.
- A good grounding in mainstream computing theory and understanding.

How many exams are there?

There are two exam papers at the end of the syllabus, one focusing on computer systems and one with a focus on computational thinking, algorithms and programming. Each paper lasts 1.5 hours and is worth 50% of the total GCSE.

Students will also undertake a Programming Project in the final year of the course. This allows them to gain practical experience of using the skills developed throughout the specification. Students will engage in an authentic programming experience which supports their learning and exam preparation.

What grades could they achieve?

There's now a new grading scale for GCSEs that uses the numbers 1–9 for levels of performance (with 9 being the top level).

New grading structure	Current grading structure
9	
8	A*
7	A
6	B
5	C
4	D
3	E
2	F
1	G
U	U

GOOD PASS (DfE)
5 and above = top of C and above

AWARDING
4 and above = bottom of C and above

Source: Ofqual

What could your child do next?

Our GCSE (9-1) Computer Science is effective preparation for a range of qualifications including:

- AS Level Computer Science.
- A Level Computer Science.
- Cambridge Technicals – IT Level 3 or Digital Media Level 3 (these are OCR vocational qualifications that offer an alternative to A levels for students aged 16+).

It also provides a good grounding for other subject areas that require problem solving and analytical skills.



CAMBRIDGE NATIONALS

What are Cambridge Nationals?

While GCSEs and are well known qualifications taken in schools and colleges, many students choose to take vocational qualifications or a mix of both academic and vocational ones.

Cambridge Nationals are vocational technical qualifications for 14-16 year olds. They have been created to support students who want to develop practical skills and knowledge relating to a broad employment area. They usually involve doing practical activities, learning skills and developing transferable skills like problem solving which are important in employment. We offer Cambridge Nationals in a range of subjects.

Why take CAMBRIDGE NATIONAL IN INFORMATION TECHNOLOGIES?

Data Manipulation and Project Management are vital skills for success in employment and higher education and are among the key transferable skills required by employers. Our Cambridge National in Information Technologies develops students understanding of these skills through the development of creative products to solve real world data problems. Taking this qualification will prepare your child for a career in a data driven future.

What's included – at a glance

The qualification is made up of two units that everyone takes.

R012 – Understanding tools, techniques, methods and processes for technological solutions

- Knowledge of hardware and software applications.
- Data Manipulation tools and techniques.
- Project Life Cycle – phases, interaction, inputs and outputs.
- Risks, legal moral, ethical and security issues.

R013 – Developing technological solutions

- Focus on the use of skills to develop a creative technological solution to a real world problem.
- Follow a project life cycle and demonstrate skills such as SWOT analysis, GANTT charts, data collection and presenting data.
- Use hardware and software to create an integrated technological solution for data processing and communication of information.

How is it tested?

This qualification is tested through a mixture of set coursework and examination.

There is one written exam (R012) which lasts for 1 hour 45 minutes. The exam assesses a student's understanding of tools, techniques, methods and processes for technological solutions. Your child will have two opportunities to take the test.

The coursework unit (R013) will be a set assignment that assesses a student's ability to develop a technological solution to a real world problem.

Why take CAMBRIDGE NATIONAL IN CREATIVE iMEDIA?

It lets students gain knowledge in a number of key areas in the media field, from pre-production skills to digital animation, and offers a hands-on approach to learning. The options available offer the chance for your son or daughter to explore areas of creative media that interest them. The Cambridge National in Creative iMedia will

also provide opportunities to develop useful transferable skills such as research, planning, and review, working with others and communicating creative concepts effectively.

The modules offered include 2 compulsory and 2 optional units:

Compulsory:	Optional 2 from:	
Pre-production Skills	2D & 3D digital characters	Interactive Multimedia Products
Creating Digital Graphics	Websites	Digital Sound
	Story Telling	Digital Video
	Digital Animation	Digital Photography
	Game Concepts	Digital Games
Your school will be able to advise on which units they will offer.		



How is it tested?

Most of the qualification is tested by coursework that's set and marked by your child's teacher. This will be done throughout the two-year course. So if your child likes project work, enjoys research and doing practical things they may find a Cambridge National a better option than a GCSE.

One of the units that students must take – on pre-production skills – involves a written exam that lasts one hour and 15 minutes and is set and marked by our team at OCR.

What could your child do next?

Cambridge National in Creative iMedia is effective preparation for a range of qualifications including:

- **Cambridge Technicals** – IT Level 3 or Digital Media Level 3 (these are OCR vocational qualifications that offer an alternative to A levels for students aged 16+).

Students could also consider moving into AS or A Level Computer Science.

There are many different careers that this qualification could help you move towards.



WHAT CAREERS COULD OCR QUALIFICATIONS LEAD TO?

There are many different careers that our qualifications could help students move towards. Here are some examples of sample career paths:



DATA ANALYST

STEP 01 Cambridge National in Information Technologies

STEP 02 A Level Computer Science

STEP 03 Data Analyst



GAMES DESIGNER

STEP 01 Cambridge National in Creative iMedia

STEP 02 L3 Technicals in Digital Media

STEP 03 Games Designer



NETWORK MANAGER

STEP 01 GCSE (9-1) Computer Science

STEP 02 Cambridge Technicals in IT

STEP 03 Network Manager



SOFTWARE ARCHITECT

STEP 01 GCSE (9-1) Computer Science

STEP 02 A Level Computer Science

STEP 03 University

STEP 04 Software Architect

ANY QUESTIONS?

Please talk to your school or college to find out more about any of these qualifications.



**Cambridge
Assessment**

OCR
Oxford Cambridge and RSA

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