COMPUTER SCIENCE

Computer Science develops valuable programming and computational thinking skills, which are increasingly relevant to a wide variety of jobs. Employers want workers with an understanding of rigorous principles that can be applied to changing technologies.

The WJEC GCSE in Computer Science provides an opportunity for candidates to apply and consolidate their knowledge of computer programming by carrying out practical tasks that will develop their capacity for innovative thinking, creativity and independence. They will develop the skills of design and evaluation, and they will test and problem-solve when errors occur in both their own systems and those of others.

The GCSE encourages learners to:

- understand and apply the fundamental principles and concepts of computer science, including; abstraction, decomposition, logic, algorithms, and data representation
- analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs to do so
- think creatively, innovatively, analytically, logically and critically
- understand the components that make up digital systems, and how they communicate with one another and with other systems
- understand the impacts of digital technology to the individual and to wider society
- apply mathematical skills relevant to computer science.

Summary of Assessment

Unit 1: Understanding Computer Science **Written examination: 1 hour 45 minutes (50% of the qualification)**
This unit investigates hardware, logical operations, communication, data representation and data types, operating systems, principles of programming, software engineering, program construction, security and data management and the impacts of digital technology on wider society.
Unit 2: Computational Thinking and Programming **On-screen examination: 2 hours (30% of the qualification)**
This unit investigates problem solving, algorithms and programming constructs, programming languages, data structures and data types and security and authentication.
Unit 3: Software Development **Non-exam assessment: 20 hours (20% of qualification)**
This unit requires learners to produce a programmed solution to a problem. They must analyse the problem, design a solution to the problem, develop a final programmed solution, test the solution and give suggestions for further development of the solution.

DIGITAL TECHNOLOGY

September 2021 sees the launch of the exciting, new qualification, the GCSE in Digital Technology. As well as exploring the Digital world in an exam unit, learners will undertake a practical multimedia project based around designing a website, including a gaming and/or animation element. A second project will be based around a social media campaign and include elements of video, image and text.

The qualification will allow learners to develop their understanding of the range of digital technology systems at use in our connected and globalised society. It will also allow learners to explore the ever-evolving nature of digital technology systems and how these systems can be used productively, creatively and safely.

What will I study?	Overview of unit	How will I be assessed?
Unit 1 - The digital world	• Digital technology systems • The value of digital technology • Perspectives on digital technology.	• On-screen examination: 1 hour 30 minutes • 40% of qualification
Unit 2 - Digital practices	• Interrogating spreadsheet data • Data-informed digital products	• Non-Exam assessment: 30 hours • 40% of qualification
Unit 3 - Communicating in the digital world	• Social media and online marketing communications • Creating digital assets and planning digital communications	• Non-exam assessment: 15 hours • 20% of qualification

What skills will I develop?

WJEC GCSE specification in Digital Technology will enable learners to:

- become independent, confident and knowledgeable users of existing, new and emerging digital technologies
- develop knowledge of different digital technology systems used across a range of occupational sectors
- understand the impact digital technologies can have on individuals and wider society and the ways in which they can bring about change
- develop skills in organising and analysing data to identify trends and audiences
- become creators of digital products, in a variety of formats and for a variety of purposes, that meet specified, authentic needs
- develop transferable skills in using a range of hardware and software
- develop their understanding of the systems development life cycle and how ideas can become products