

GCSE COMPUTER SCIENCE

Why choose WJEC GCSE Computer Science?

Computers are widely used in all aspects of business, industry, government, education, leisure and the home. In this technological age, a study of computer science, and particularly how computers are used in the solution of a variety of problems, is essential to learners.

Computer science integrates well with subjects across the curriculum. It demands both logical discipline and imaginative creativity in the selection and design of algorithms and the writing, testing and debugging of programs; it relies on an understanding of the rules of language at a fundamental level; it encourages an awareness of the management and organisation of computer systems; it extends learners' horizons beyond the school or college environment in the appreciation of the effects of computer science on society and individuals.

The WJEC GCSE in Computer Science has been designed to give an understanding of the fundamental concepts of computer science and a broad scope of study opportunities. This specification has been designed to free centres to concentrate on innovative delivery of the course by having a streamlined, uncomplicated, futureproof structure, with realistic technological requirements.

This specification also gives learners an opportunity to produce extended written responses and demonstrate the quality of their written communication, including appropriate use of punctuation and grammar.

What will I study?

This specification promotes the integrated study of computer science. It will enable learners to develop a broad range of skills in the areas of programming, system development, computer architecture, data, communication and applications.

The subject content for GCSE Computer Science will be assessed across three units. Whilst there is a degree of overlap between the content in Unit 1 and Unit 2, the context in which this content is assessed differs. In Unit 1, content is assessed in a theoretical way, whereas in Unit 2 it is assessed through its use within programs and algorithms.

The non-exam assessment (NEA) is designed to assess a candidate's ability to apply the knowledge and understanding gained from Units 1 and 2. Candidates will be presented with a given scenario describing the requirements for a computer based solution. All work carried out for Unit 3 should be under teacher supervision, with no access to the Internet or email.



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What will I study?

Unit 1

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

This unit investigates problem solving, algorithms and programming constructs, programming languages, data structures and data types and security and authentication.

Unit 3

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. Throughout the production of the solution learners are required to produce a refinement log that evidences the development of the solution.

What skills will I develop?

The WJEC GCSE in Computer Science 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.

How will I be assessed?

Unit 1: Understanding Computer Science	Written examination: 1 hour 45 minutes	50% of the qualification 100 marks
Unit 2: Computational Thinking and Programming	On-screen examination: 2 hours	30% of the qualification 60 marks
Unit 3: Software Development	Non-exam assessment: 20 hours	20% of qualification 80 marks

Careers with Computer Science

Computers are widely used in all aspects of business, industry, government, education, leisure and the home. In this increasingly technological age, a study of computer science, and particularly

how computers are used in the solution of a variety of problems, is not only valuable to the learners themselves but also essential to the future well-being of the country.