GCSE COMPUTER SCIENCE

Examination Board: OCR

Watch our short video below which contains our students' views on what Computer Science is all about and why you should study Computer Science at Warden Park!

WHY SHOULD STUDENTS CHOOSE GCSE COMPUTER SCIENCE?

This GCSE provides the platform for students to be creators, encouraging computational thinking rather than just users of technology. Students will be using a high level programming language (e.g. Python) to solve problem sets and gain a deeper theoretical understanding of the technology around them.

WHAT WILL STUDENTS NEED TO BE SUCCESSFUL IN THIS COURSE?

Significant independence, patience and tenacity will be required. Students must enjoy solving problems, know how to work independently and be a self-starter when it comes to progressing their own learning. Students who do well in this subject have an aptitude for mathematics and languages as this typically improves their’ chances of doing well within the programming and theory elements. This course is open to any enthusiastic computer scientist!

SUPPORT FOR STUDENTS

This is a challenging academic course and will require self-determination and willingness to work hard. Students aiming for high grades of 7 and above will be given the opportunity to stretch themselves further on an optional AS-Level Computer Science course, held as part of the twilight curriculum. This will be available to students from Year 9 onwards and will build directly upon theory topics already covered for GCSE. Those with aspirations of Grade 3 and above should focus on key terms, definitions and exam technique, prioritising memorisation of facts over application of algorithms and logical constructs. Resources will be provided to assist with this such as Quizlet flashcards and scaffolded electronic worksheets. For all students there will be regular past paper assessments to allow them to monitor their own progress against standardised assessment criteria.

COURSE DESCRIPTION

This course is designed to offer students an in-depth understanding of how computer technology works and a look at what goes on behind the scenes. A very demanding, academic and technical course; it will include an understanding of current and emerging technologies and develop skills in the creation of computer programs to solve problems.

COURSE CONTENT

Part 1 – Computer Systems (written exam 50%): This unit will introduce learners to the Central Processing Unit (CPU), computer memory and storage, wired and wireless networks, network topologies, system security and system software. It is expected that learners will become familiar with the impact of Computer Science in a global context through the study of the ethical, legal, cultural and environmental concerns associated with Computer Science.

Part 2 – Computational thinking, algorithms and programming (written exam 50%): This unit incorporates and builds on the knowledge and understanding gained in part 1, encouraging learners to apply this knowledge and understanding using computational thinking. Learners will be introduced to algorithms and programming. Learning about programming techniques, how to produce robust programs, computational logic, translators, facilities of computing languages and data representation. Learners will become familiar with computing related mathematics.

Part 3 - Programming Experience: Students will be required to develop good functional programming skills and be able to plan, design, code and evaluate a software application real world conditions. This is a challenging part of the course, which requires patience and resilience as students develop their abilities over three years. While there is no formal practical exam, the exam board will require evidence of students' experience of programming over the duration of the course.

ASSESSMENT

There are two 90 minute written exams taken at the end of Year 11.

FURTHER EDUCATION AND CAREER PATHWAYS

Progression to A-level/Apprenticeships in Computing, ICT, Software Engineering, ICT & Informatics and IT Practitioners. Information Security, Networking and Cryptography. See also the BTEC Tech Award in Creative Media Production course. Possible careers would include any in the computing sector e.g. software engineering, database administration, information architecture etc.