GCSE Computer Science – Y9 Transition

The spread of computers and the Internet will put jobs in two categories. People who tell computers what to do, and people who are told by computers what to do

– Marc Andreessen

Computer Science will always be relevant. The world is in dire need of software developers and hardware specialists to help build the future we dream of. This course aims to introduce you to the fundamentals of programming, which can then help you build whatever app or program you imagine. As well as learning practical programming skills, you will learn about how a computer works, including the processing of machine code (1s and 0s) to make images appear on your screen.

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<tr><td>Preparation</td><td colspan="2">✓ Get started with Python Programming. The Majority of your Y10 and Y11 lessons are focused on programming. Getting started with Python programming in your own time will give you the best chance of success. There lots of online resources to help you write code in Python, but the best way to get started is to download Python/IDLE and get started using this Python YouTube playlist.
✓ Look into the architecture of a computer – You will need to look into what hardware a computer needs to operate correctly. One way to do this is to look inside a computer! If this is not possible, then this video will help explain the key components
✓ Investigate how the Internet works – One of the largest topics in Computer Science is Networking. There are lots of parts to the Internet that make it work on a global scale, and this can get very confusing. Code.org have made a playlist of videos to help explain different parts of the Internet and they are brilliant.
✓ Look into recent advances in technology and their dangers – As technology gets more advanced, we have to deal with new challenges. Investigate the following:
o The dangers of Artificial Intelligence
o Quantum Computing and what it means for the world
o Driverless cars and the ethical dilemma they create</td></tr>
<tr><td>Overview of course</td><td colspan="2">✓ Exam Board: OCR
✓ External exams: Two exams (both are 80 marks each and worth 50% each)
✓ Themes: Paper 1 focuses on “Computer Systems” (Computer Architecture, Memory & Storage, including Networks and The Internet) & Paper 2 focuses on “Computational Thinking” (Programming concepts, Logic Gates, and Translators)</td></tr>
<tr><td>Short term focus: Term 1</td><td colspan="2">In the September of Y10 we start with Memory and Storage, as well as an introduction to programming. This includes looking at RAM and how it differs to secondary storage such as Hard Drives and Solid-State Drives. In programming, you will learn how to create variables and use IF statements.</td></tr>
<tr><td>Careers & Suitability</td><td>This course would suit you if:
✓ You like solving puzzles (like Maths problems)
✓ You enjoy writing programs.
✓ You have a keen interest in technology.
✓ You have the resilience to look for small mistakes in large programs</td><td>Careers:
• Software engineering
• Freelance developer
• Computer programmer
• Data analyst
• Computer Science research (e.g., quantum computers, AI)
• Networks Engineer
• Hardware Specialist</td></tr>
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