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| **A Level Computer Science** |
| **Exam Board: OCR** | **Qualification Code: H446** |
| **Subject overview:** |
| **Combines well with:** Mathematics, Physics, Business |
| Computer Science has computational thinking at its core; thinking that provides solutions to problems, designs systems and recognises the nature of human and machine intelligence.It is a creative subject that involves the innovative thinking and development of ideas through coding. You will learn to become a strong programmer using different programming paradigms.  As part of this you will explore many of the standard algorithms used in searching, sorting and pathfinding and will be able to select the most appropriate to use, based on its efficiency and suitability for the problem at hand. A diverse range of theoretical topics arecovered, including how computers use logic, number systems, networks, databases and more. A Level Computer Science is very popular at TKAW with many boys and girls choosing it after their GCSE. We have state-of-the-art computer suites as well as mobile devices available with the latest software and physical computing such as Raspberry Pi. Russell Group universities list Computer Science as a useful A Level for many degree courses including biology, chemistry, economics, engineering, geology, mathematics, materials science, medicine, physics, psychology, and sociology. |
| **Course outline including assessment method:** |
| These qualifications are linear. Students will sit all the A-level examinations at the end of their A-level course.  Students will sit 2 x 2.5-hour examinations (80%) at the end of the two years course.There is a programming project to be completed in year 12 and 13 920%). Knowledge and understanding of this project will also be assessed paper 2.  |
| **Paper 1 Contents:** | **Paper 2 Contents:** |
| 1. The characteristics of contemporary processors, input, output, and storage devices
2. Software and software development
3. Exchanging data
4. Data types, data structures and algorithms
5. Legal, moral, cultural, and ethical issues

  | 1. Elements of computational thinking
2. Problem solving and programming.
3. Algorithms
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| **Programming Project (NEA)** |
| 1. Analysis of the problem
2. Design of the solution
3. Coding/testing/debugging the solution.
4. Evaluating a solution
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| **Resources and Facilities at TKAW:** | **Careers and Progression:** |
| The Computer Science Department at The Khalsa Academy Wolverhampton is well resourced with textbooks, up-to-date hardware & software and state-of-the-art IT suites and other physical computing devices.  | A Level computer Science will lead to careers in software and hardware development, engineering, medicine, data modelling and any other STEM pathway. |
| **Entry Requirements:** |
| Due to the high level of mathematical requirements for this qualification, all students must have at least a grade 6 in GCSE Mathematics. Due to the written communication requirement of this course, all students must have at least a grade 6 in GCSE English Language. A grade 6 in GCSE Computer science is desirable, but not essential, as we teach Computer science theory and practice from the start. |
| Who to contact: |
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