# KING EDWARD VI HANDSWORTH SCHOOL FOR GIRLS
# Computer Science Department

## Staffing

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| Mr Tim Pentland | Head of Computer Science |
| Mr Colin Jackson | Teacher of Computer Science and Technology |
| Mr Zack Solomon | Teacher of Computer Science |
| Miss Jo Merrick | Teacher of Physics and Computer Science |
| New Appointment | Teacher of Computer Science |
| Mr Curtis Reid | ICT Systems & Network Manager |
| Mr Usman Salim | Senior ICT Technician |
| Mr Jagjit Bains | ICT Technician |

Computer Science is taught as a discrete subject in Key Stages 3, 4 and 5.

## Facilities

There is a school-wide cabled and wireless network with over 400 PCs. We have a managed wireless network which is due to be upgraded later this year and we use the Windows 10 operating system. There are 6 dedicated computer suites which are available for departments to book for lessons when not in use for discrete Computer Science or Technology lessons. All classrooms in the school are equipped either with an interactive screen or with a data projector standard or interactive whiteboards depending on departmental requirements. All staff are provided with a laptop. A wide range of software is available on computers including Microsoft Office 2019. Department specific software is available, for example in Computer Science we use a range of software including Python 3, Haskell and Flowol. All staff and students have their own Google account providing access to Gmail, Google Drive and Google Classroom and the school is currently in the process of transitioning to Microsoft Teams in time for the 2024-25 academic year.

## External Examinations

Computer Science is well established as an examination subject in the school. It is a very popular optional GCSE for students in Key Stage 4 – we currently have 97 students in Year 10 and 95 students in Year 11 who are studying for the OCR Computer Science GCSE, specification J277.

A Level Computer Science has been offered since September 2016 and we have 15 A Level students in Year 13 and 13 A Level students in Year 12. Common with other subjects at the school, we do not offer AS Level. We follow the OCR Computer Science A Level course, specification H446.

Students studying in one of

The main programming language we use at both GCSE and A Level is Python 3, although some students use additional languages when undertaking their A Level NEA Programming Project.

## Timetable

Computing is compulsory for all KS3 students. We operate a fortnightly timetable and the current structure, in which all lessons last 50 minutes, is as follows:

Year 7: 3 lessons a fortnight
Year 8: 4 lessons a fortnight
Year 9: 2 lessons a fortnight
KS4 GCSE: 5 lessons a fortnight.
KS5 A Level: 11 lessons a fortnight.

## Accommodation

Lessons are taught in one of the Computer Suites in the Main School building – the rooms are equipped with an interactive screen at the front, 32 student PCs and a teacher PC.

## Courses Taught

Schemes of learning are written in line with National Curriculum and examination board specification requirements. Our aim is to provide a high quality computing education that equips students to develop into increasingly independent & discerning learners, creators and users of digital systems and content.

Key Stage 3 schemes are designed to prepare students for life in an ever-changing digital world as well as developing their thinking and computational skills and helping to prepare them for their future studies. Schemes are designed to encourage deep learning and metacognition as well as delivering Computer Science content. Students use a range of software including Microsoft Office and develop programming skills, initially with Scratch and, from Year 8, Python. Problem solving and exploring different solutions is encouraged both in the design of computer programs and the approach taken. Students are encouraged to develop as independent and collaborative learners who embrace the challenge of problem solving.

GCSE students creating a flow chart to plan a computer program

At Key Stage 4 students study the OCR J277 Computer Science GCSE specification which is designed to equip learners with the logical and computational skills necessary to succeed at A Level, in the workplace and beyond. The GCSE is assessed through two written examinations at the end of the course in Year 11. The programming language used at Key Stage 4 is Python 3 and students are required to undertake programming challenges as part of the course. Other topics studied include data representation, computer systems and networks, cyber security and the impacts of digital technology on society.

In Key Stage 5 we follow the OCR H446 Computer Science A Level which is designed to help students develop the knowledge, understanding and skills needed to progress to higher education or thrive in the workplace. Assessment is through two examinations and a non-examination assessment (NEA). Paper One is a written examination based on theory topics, such as networking and legislation, Paper 2 is a written examination on Algorithms, coding and problem solving, and the NEA is a practical computing project. Students continue to use Python 3 as their main programming language in Key Stage 5 but some also use other languages for their NEA and all learn about procedural, object-oriented and functional programming techniques. Other topics studied include data structures, algorithms, theory of computation, data representation, computer systems, architecture, networking and databases.

Students are encouraged to use computer rooms at lunchtimes and we have a Computer Club in which students can explore computing beyond the taught curriculum, for example programming Microbits and Raspberry Pi Computers. Many students participate in national competitions, for example Bebras UK and CyberFirst.

## Further Information

This is a forward thinking and innovative department committed to raising standards in teaching and learning. The successful candidate will be joining a hard-working department with enthusiastic staff who want to continue to innovate in order to inspire and enthuse the next generation.

T Pentland
Head of Computer Science
March 2024