

Computer Science

In the last few decades computing has completely redefined the society we live in, leaving virtually no area of life untouched.

At Norlington, we have two dedicated computer science rooms each containing 30 student PC's, with a variety of programming languages available starting at block programming and moving up to Python.

Computer Science is compulsory at KS3 and students opt to take the subject for their GCSE/A-Levels.

Staff:

Mr L Farrance (Head of Department)

Mr A Dumitru (KS3 – KS5)

Mr K Tonge (KS3)

KS3 Computer Science

- At KS3 Students will receive 2 x 60 minute over a two week period during which time they will cover the content identified below:

Cycle	Year 7	Year 8
1	E-Safety	Computer Safety
2	BYOB – Block Programming	Modelling in Small Basics
3	Small Basics	Python “Next Steps”
4	Spy School	Systems Architecture
5	Cryptography	FUT - Databases
6	Introduction to Python	Networks

KS4 Computer Science

- At KS4 students opt to take computer science at GCSE. They will follow the OCR (9-1) J276 specification ([download here](#))
- The course consists of 2 examined papers:
 - Computer Systems (50%)
 - Computational thinking & algorithms (50%)
- They will need to also undertake a programming project (NEA) which is not formally assessed but is a formal requirement of the course that consolidates the learning across the specification through practical activity.

In year 9 & 10, students receive 5 hrs a fortnight and year 11 they receive 6 hrs.

Cycle	Year 9	Year 10	Year 11
1	Computational Thinking	Programming	Programming
2	Python	Logic & Languages	NEA
3	Systems Architecture, Memory & Storage	Wired & Wireless Networks	Logic & Languages Networks
4	Wired & Wireless Networks	Systems Software & Security	Software & Security Ethical, Legal, Moral & Social Issues
5	Data Representation	Ethical, Legal & Cultural issues	Algorithms – Sorting & Searching Systems Architecture & Revision
6	Programming	Algorithms – Sorting & Searching	Revision Exams

KS5 A-Level (OCR H446) Computer Science

[Specification download](#)

Our A Level Computer Science qualification helps students understand the core academic principles of computer science. Classroom learning is transferred into creating real-world systems through the creation of an independent programming project. Our A Level will develop the student's technical understanding and their ability to analyse and solve problems using computational thinking.

Students must take all three components to be awarded the OCR A-Level in Computer Science. All assessments will take place at the end of year 13.

- Component 1: Computer Systems (40% Exam)
- Component 2: Algorithms & Programming (40% Exam)
- Component 3: Programming project (20% NEA)

Cycle	Year 12		Year 13	Practical Project / NEA
1	Computational Thinking	Systems Software	Programming Techniques	
2	Components of a Computer	Networks & Web Technologies	Algorithms	
3	Data Structures	Exchanging Data	Computational thinking Data Structures	
4	Software Development	Data Types	System Software Components of a computer	
5	Algorithms	Programming Techniques	Revision	
6	Boolean Algebra	Legal & Cultural Issues	Revision	

Extra-Curricular/Enrichment opportunities:

The computing department offers some exciting enrichment opportunities for the students throughout the year.

Code Club: (open to KS3 students)

- During the school year students will have the opportunity to get involved with code club where they will further develop their programming skills, along with their computational thinking.

Bebras Computing Challenge:

- Students will be given the opportunity to take part in the Bebras Computing Challenge which runs annually in November. The Bebras Computing Challenge introduces computational thinking to students. It is organised in over 40 countries and designed to get students all over the world excited about computing. Students who reach the top 20% nationally will be invited to take part in the The TCS Oxford Computing Challenge.
- Further information can be found at: <http://www.bebas.uk/>

iDEA (Duke of York) Inspiring Digital Enterprise Award

- iDEA is a programme that helps you develop digital and enterprise skills for free. Through our series of online challenges and events, you can win career-enhancing badges, unlock new opportunities and, ultimately, gain industry recognized awards that help you stand out from the crowd. iDEA is for anyone who wants to develop their skills.
- Further information can be found at: <http://idea.org.uk/>

Everybody Reads in Computer Science: (useful links/reading)

KS3:

<https://www.bbc.com/bitesize/subjects/zvc9q6f> - BBC Bitesize

<https://scratch.mit.edu/> - Scratch online (free)

<https://www.python.org/downloads/> - Python version 3.5 (free)

KS4:

Recommended text book: OCR GCSE (9-1) Computer Science, PG Online, PM Heathcote, 2016

Other useful Links:

<https://www.python.org/downloads/> - Python version 3.5 (free)

<https://craigdave.org/>

https://www.youtube.com/channel/UC0HzEBLIJxlrwBAHJ5S9JQg/playlists?view=50&shelf_id=9&sort=dd – GCSE Computer Science Revision Videos for Full Specification

<http://www.101computing.net> - Programming Challenges

KS5:

Recommended text book: OCR AS and A Level Computer Science, PG Online, PM Heathcote, 2016

Other useful Links:

<https://www.python.org/downloads/> - Python version 3.5 (free)

<https://craigndave.org/>

https://www.youtube.com/channel/UC0HzEBLIJxlrwBAHJ5S9JQg/playlists?shelf_id=10&view=50&sort=dd – A-Level computer Science revision videos for full Specification