COMPUTER SCIENCE

Why is the study of KS3 Computer Science important?

Computer Science is about solving problems. It is the principle of making technology work for you, enabling you to find efficient and effective solutions. Throughout your study, you will apply computational thinking and the cornerstones of computer science to a variety of problems. Modern-day societies require people to work in an innovative way and computer science provides you with the foundation to build your learning journey upon.

In Computer Science you will learn to further consolidate your skills in text-based programming languages, you will also get an opportunity to use block-based programming languages in a variety of different applications. Computer Science theory is also explored, looking 'under the bonnet' at the computer system that you use on a day-to-day basis.
You will develop an excellent understanding of network security, hardware, representing data in computer systems and fundamentally you will become a responsible e-citizen.

Within the computer science curriculum, we focus on digital literacy, to ensure that you have all the life skills that you require moving forward into the workplace or further education. Whilst computer science focuses on creating, ICT focuses on using. Throughout your study, you will learn valuable ICT skills, such as spreadsheets and document creation.

Your computer science lessons will encourage you to think deeply and help you become a more effective and resilient problem solver that doesn't give up.
Computer science provides a fantastic start to your understanding of the technological world in which we live, a great life skill that all universities and employers will appreciate.

What skills will the study of KS3 Computer Science teach you?
- The skills you will learn through KS3 Computer Science include:
- Apply computational thinking techniques (abstraction, decomposition, pattern recognition, algorithms) in a range of scenarios to solve problems.
- Develop resilience by not being afraid of challenges when solving problems, but to break them down and keep trying.
- Be creative in a subject that may not be renowned for it – there is no limit to creativity when you create the solution.
- How to act responsibly online to ensure that you and others stay safe online.
- Identify the key programming constructs (sequence, selection, iteration) required to solve a problem.
- Apply the key programming constructs (sequence, selection, iteration) to any programming language.
- Work independently and as part of a team to solve complex problems.
- Construct reasoned arguments to ethical, social and moral problems that have arisen due to technology and communicate these in an effective way.
- Identify links between different elements of computer science
- Evaluate different methods of representing data and decide on the most suitable method for presentation/storage

What skills and knowledge will the study of KS4 Computer Science teach you?

- understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation
- analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs
- think creatively, innovatively, analytically, logically and critically
- understand the components that make up digital systems, and how they communicate with one another and with other systems
- understand the impacts of digital technology to the individual and to wider society
- apply mathematical skills relevant to Computer Science.
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Curriculum Progression Pathway

COMPUTER SCIENCE

	CURRICULUM PROGRESSION PATHWAY FOR COMPUTER SCIENCE AT OUTWOOD ACADEMY CITY				
	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11
Autumn 1	Introduction to G Suite, internet safety and basic IT skills	Computer Science theory	Introduction to cybersecurity	Introduction to programming (Python) and Algorithms.	Revision Y11 Exam Writing Component 1

Autumn 2	Computational thinking	**Small basic introduction**	Programming	Data representation	Mock Practice, exam questions, component 1 & 2

Curriculum Progression Pathway

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Spring 1	**Outwood Travels - Website**	Computer science theory - Components of a computer system	Computer Science theory - Binary and data representation	Design, testing and IDEs.	Mock Revision and preparation practice
Spring 2	**Ethics - Technology & Ethics**	Digital literacy - Events that changed our time	Gaming production	Programming - string manipulation, arrays, file handling, searching data.	Revision Y11 Exam Writing Component 1

Summer 1	Micro:Bit - Displaying Data	Programming - Turtle	Adobe software project	Components of a Computer System.	
Summer 2	Photoshop	Gaming creation project	Digital literacy project - Outwood advertising agency	Programming - Mini project.	