

Year 11-12 Transition Pack

Computer Science

A Level



**Introduction**

Computer Science is a practical subject where students can apply the academic principles learned in the classroom to real-world systems. It’s an intensely creative subject that combines invention and excitement, and can look at the natural world through a digital prism.

The key features of this specification encourage:

• Emphasis on problem solving using computers

• Emphasis on computer programming and algorithms

• Less emphasis on ICT.

**Career Prospects**

A vast array of jobs exists within the field of Computer Science including **Analyst**, **Programmer**, and **Developer** roles. Opportunities within many sectors such as **Telecommunication**, **Aerospace and Defence**, **Financial Services**, **Healthcare** and **Manufacturing**. If you prefer a more direct route into industry a **Degree Apprenticeship in Software Engineering** (where you earn a salary and have your university fees paid) is another possible progression route from this course.

**Suitability**

If you have studied Computer Science before and you enjoy problem solving and are logical and good at Maths then this is the right course for you.

* Grade 5 in Maths and Computer Science will be advantageous

**Contact**

If you have further questions about the course contact anyone from the ICT / Computer Science Department:

Mr Amin - r.amin@georgesalter.com

Miss Millington - l.millington@georgesalter.com

Mrs Bissell - p.bissell@georgesalter.com

Mr Manir - m.manir@georgesalter.com

Mr McInerney - j.mcinerney@georgesalter.com

**Summer Activity - Due in your first lesson in September**

Ask a member of the ICT / Computer Science Department to give you a copy of the summer activity.

**Course Overview**

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| **Content Overview** | **Assessment Overview** |

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| **Component 1 and 2*** The characteristics of contemporary processors, input, output and storage devices
* Software and hardware development
* Exchanging data
* Data types, data structures and algorithms
* Legal, moral, cultural and ethical issues
* Elements of computational thinking
* Problem solving and programming
* Algorithms to solve problems and standard algorithms
 | **Component 1*****Computer systems***140 marks2 hours and 30 minutes written paper(no calculators allowed) | **40%****of total A-Level** |
| **Component 2*****Algorithms and programming***140 marks2 hours and 30 minutes written paper(no calculators allowed) | **40%****of total A-Level** |

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| The learner will choose a computing problem to work through according to the guidance in the specification.* Analysis of the problem
* Design of the solution
* Developing the solution
* Evaluation
 | **Component 3****Programming project**70 marksNon-exam assessment | **20%****of total A-Level** |

**Articles to Read**

**The 10 Most Common Mistakes That Python Developers Make**

<https://www.toptal.com/python/top-10-mistakes-that-python-programmers-make>

**Textbooks**

**(Please do not buy any of these. Many pages of these can be read on Google Books for free or within your library).**

OCR AS and A Level Computer Science Textbook

M Heathcote and RSU Heathcote

ISBN: 978-1-910523-05-6 **Heathcote and RSU Heathcote**

**Websites**

[www.codecademy.com/learn/learn-python](http://www.codecademy.com/learn/learn-python) - Learn to program

[www.w3schools.com/python](http://www.w3schools.com/python)- Learn to program