Computer Science

Key Information

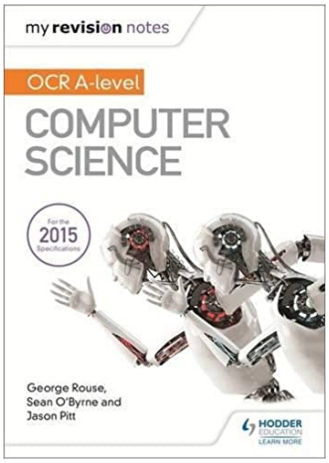
We follow the OCR specification for A level. Previous experience of the subject is not required.

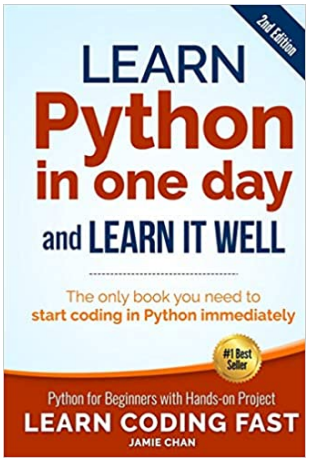
A level Computer Science is ideal for pupils who:

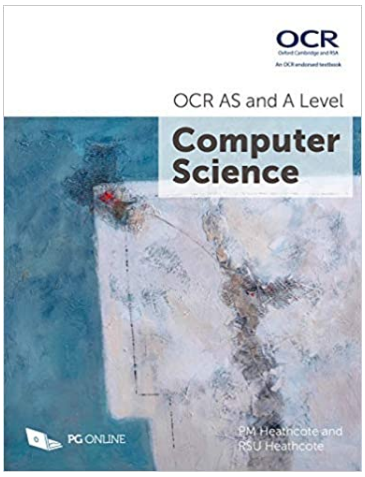
- Are looking to develop an advanced understanding of computer science
- Want to apply their coding ability to solve real-world problems
- Have an expanded maths focus, much of which will be embedded within the course
- Put computational thinking at its core, helping students to develop the skills to solve problems, design systems and understand human and machine intelligence
- Are looking at a computing-orientated degree
- Are aiming to work in the computing industry progress to university, employment or apprenticeships.

Textbooks

Pupils will be given copies of the following textbooks at the start of the course:







If you want to brush up on coding skills, we use Python v3 and the *Learn Python in One Day and Learn It Well* book is a good read for covering the basics. Solo Learn Python website is also a good tutorial platform available as a smartphone app or online.

The Qualification

A level Computer Science is relevant to the modern and changing world of computing. It splits learning into three sections: Computer Fundamentals, Programming Techniques and Logical Methods, and a Programming Project. A natural progression from GCSE Computer Science, it provides the perfect springboard for learners looking at specialising in a computing-based career. Within the course, learners study a range of theory topics, which include the principles and understanding linked to programming, topics such as hardware and software, networks, systems development life cycles and implications of computer use.

The course will develop a learner's ability to:
- Think creatively, innovatively, analytically, logically and critically
- Apply skills in and an understanding of computing (including programming) in a range of contexts to solve problems
- See relationships between different aspects of the subject
- Be aware of emerging technologies and appreciate their potential impact on society
- Delve into producing graphical user interfaces and object-orientated programming solutions. Through the creation of a Programming Project, students will have the opportunity to create a substantial piece of software using modern design methods and, guided by teachers, they will look to display their skills and talents.

Learners must take three components (01, 02 and 03 or 01, 02 and 04) to be awarded the OCR A Level in Computer Science.

Content Overview	Assessment Overview	
• The characteristics of contemporary processors, input, output and storage devices • Software and software development • Exchanging data • Data types, data structures and algorithms • Legal, moral, cultural and ethical issues	Computer systems (01) 140 marks 2 hours and 30 minutes written paper (no calculators allowed)	**40%** of total A level
• Elements of computational thinking • Problem solving and programming • Algorithms to solve problems and standard algorithms	Algorithms and programming (02*) 140 marks 2 hours and 30 minutes written paper (no calculators allowed)	**40%** of total A level
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	Programming project 03* – Repository or 04* – Postal or 80 – Carry forward (2018 onwards)* 70 marks Non-exam assessment	**20%** of total A level

Additional Information

Please email Mr Jenkins so he can forward details about a course introduction session, show you the Computer Science IT suite and to meet the staff in June.

Further information about the specification can be found at:
https://www.ocr.org.uk/qualifications/as-and-a-level/computer-science-h046-h446-from-2015/