


## The Computer Science curriculum

<b>Computer Science curriculum vision</b>			
<p><i>Computer Science prepares our students for the most important technology of our age. We're ambitious in driving our students to understand the technology they use every day. By the end of their time with us students should have the ability to explain how computers work, and use them to create impressive products.</i></p> <p><i>The curriculum begins with understanding the foundations of all computer technology – 1s and 0s, which we call binary. Computers use billions of these every second to process and store everything from Minecraft to Mozart. Once we know the building blocks we start using them to construct our own computer programs.</i></p>			
<b>Key stage 3 – Units of study</b>			
Term	Year 7	Year 8	Year 9
Rotation 1	Binary and data representation Computer Hardware Introduction to code with Python blocks	Uses of Booleans and binary Computational thinking with Python	Algorithms Iteration with Python

<b>Key stage 4 – Units of study OCR GCSE J277</b>		
Term	Year 10	Year 11
1	1.1 Systems architecture 1.2 Memory and storage	1.6 Ethics and legislation 2.3 Producing robust programs 2.5 Programming languages and IDEs
2	2.1 Algorithms 2.2 Programming fundamentals	2.2 Problem solving with programming 2.4 Boolean logic Trial exam prep
3	1.3 Networks	2.2.3 SQL Programming for the exam
4	1.4 Network security 2.2 Programming fundamentals	2.1 Algorithms for the exam paper.
5	1.5 Systems software	Review and exam preparation
6	2.3 Producing robust programs NEA task	

<b>Key stage 5 – Units of study OCR A level H446</b>		
Term	Year 12	Year 13
1	1.1 Systems architecture 2.2 Problem solving and programming	3.1 – 3.4 The programming project 1.4.3 Boolean algebra 1.5 Legislation and ethics
2	1.2 Software and software development 2.2 Problem solving and programming	3.1 – 3.4 The programming project Exam skills: short answer questions
3	1.3 Exchanging data 2.2 Problem solving and programming	Applied problem solving Exam skills: programming 1.3 Databases and SQL
4	1.3 Exchanging data 2.2 Problem solving and programming	Applied problem solving Exam skills: programming Exam skills: 9 & 12 mark questions
5	1.4 Data types, data structures and algorithms 2.2 Problem solving and programming	Review and exam preparation
6	1.1 – 1.4 review 2.2 Problem solving and programming	

## Supporting your child with their learning

Year	How you can help	Link
7	<ul style="list-style-type: none"> <li>- Learn more about how computers process data from BBC bitesize.</li> <li>- Learn the basics of programming for the BBC microbit using blocks.</li> </ul>	<a href="https://www.bbc.co.uk/bitesize/guides/z26rcdm/revision/1">https://www.bbc.co.uk/bitesize/guides/z26rcdm/revision/1</a> <a href="https://python.microbit.org/v/3">https://python.microbit.org/v/3</a>
8	<ul style="list-style-type: none"> <li>- Learn how computers turn binary into images and sound from BBC bitesize.</li> <li>- Learn the basics of typed Python using turtles</li> </ul>	<a href="https://www.bbc.co.uk/bitesize/topics/zxnfr82">https://www.bbc.co.uk/bitesize/topics/zxnfr82</a> <a href="https://hourofpython.com/">https://hourofpython.com/</a>
9	<ul style="list-style-type: none"> <li>- Revise the famous Computer Science algorithms with BBC bitesize.</li> <li>- Learn more about Python from W3 Schools</li> </ul>	<a href="https://www.bbc.co.uk/bitesize/guides/zpp49j6/revision/1">https://www.bbc.co.uk/bitesize/guides/zpp49j6/revision/1</a> <a href="https://www.w3schools.com/python/">https://www.w3schools.com/python/</a>
10 & 11	<ul style="list-style-type: none"> <li>- We provide a set of digital flashcards on a service called <i>BrainScape</i>. Your child will have access to these. Aim to help them revise for 10 minutes per day.</li> <li>- Complete programming challenges from the exam board with Python.</li> <li>- The textbook we use is PG Online's OCR GCSE textbook:</li> </ul>	<a href="https://www.ocr.org.uk/images/260930-coding-challenges-booklet.pdf">https://www.ocr.org.uk/images/260930-coding-challenges-booklet.pdf</a> <a href="https://www.amazon.co.uk/OCR-GCSE-J277-Computer-Science/dp/1910523216">https://www.amazon.co.uk/OCR-GCSE-J277-Computer-Science/dp/1910523216</a>
		
12 & 13	<ul style="list-style-type: none"> <li>- We provide a set of digital flashcards on a service called <i>BrainScape</i>. Your child will have access to these. Aim to help them revise for 15 minutes per day.</li> <li>- Complete programming challenges from the exam board with Python.</li> <li>- The textbook we use is the PG Online OCR A Level textbook. You may also want to use their guide to the programming project.</li> </ul>	<a href="https://www.ocr.org.uk/images/260930-coding-challenges-booklet.pdf">https://www.ocr.org.uk/images/260930-coding-challenges-booklet.pdf</a> <a href="https://www.amazon.co.uk/OCR-AS-Level-Computer-Science/dp/1910523054">https://www.amazon.co.uk/OCR-AS-Level-Computer-Science/dp/1910523054</a> <a href="https://www.amazon.co.uk/Tackling-Level-Projects-Computer-Science/dp/1910523194">https://www.amazon.co.uk/Tackling-Level-Projects-Computer-Science/dp/1910523194</a>
	