

# Fareham Academy – Computer Science Overview – Year 10

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic(s)	Intro to GCSE Computer Science 1.1.1 Architecture of the CPU 1.1.2 CPU Performance 1.1 Units 1.2.4 Data storage (numbers) – binary & hex 2.2.1 Programming fundamentals 2.2.2 Data types	2.1.1 Computational Thinking 2.1.2 Designing, creating and refining algorithms 2.1.3 Searching and sorting algorithms 2.4.1 Boolean Logic 2.3.2 Testing 1.6.1 Ethical, Legal, Cultural Environmental	1.3.1 Networks and Network Topologies(Types, Hardware, Performance) Topologies(Raspberry Pi Networking)) 1.3.2 Wired and wireless networks, protocols and 1.4.1 Threats to computer systems and networks 1.4.2 Identifying and preventing vulnerabilities	2.5.2 The Integrated Development Environment (IDE) 2.5.2 The Integrated Development Environment (IDE) - GUI vs TEXT AI - Developing Machine Learning 2.3.1 Defensive design	2.5.1 Languages 1.2.1 Primary Storage 1.2.2 Secondary Storage 1.1.3 Embedded Systems 1.2.5 Further Compression 1.5.1 Operating Systems 1.5.2 Utility Software 2.2.3 Additional programming techniques 1.5.2 IDE ASCII, images, sound 1.2.5 Compression	Programming Project Planning. Design and Implementation, Exam based practice End of Year Review
Topic Objectives	<ul style="list-style-type: none"> <li>Introduction to the CPU</li> <li>Data representation</li> <li>Become familiar with programming concepts, structure, and keywords</li> </ul>	<ul style="list-style-type: none"> <li>Develop computational thinking skills for problem solving</li> <li>Apply skills and understanding to algorithms, programming techniques, producing robust programs, computational logic and translators</li> </ul>	<ul style="list-style-type: none"> <li>Utilise knowledge of computing systems and the internet to understand theory of networks and network threats</li> <li>Create risks, identify and resolve them using applied knowledge of solutions</li> </ul>	<ul style="list-style-type: none"> <li>Develop practical problem solving skills</li> <li>Identify programming solutions</li> <li>Develop programmes that meet specified criteria</li> </ul>	<ul style="list-style-type: none"> <li>Investigate storage, and software systems</li> <li>Apply knowledge of hardware and data representation to discover how images and sound are managed by a computer</li> </ul>	<ul style="list-style-type: none"> <li>Further programming development</li> <li>Include design, Testing and Implementation methods to manage a project</li> </ul>
Acquired Knowledge/Skills	<ul style="list-style-type: none"> <li>Computational thinking as its core, helps students to develop the skills to solve problems, design systems and understand human and machine intelligence</li> </ul>	<ul style="list-style-type: none"> <li>Applying the academic principles learned to real-world systems in an exciting and engaging way</li> </ul>	<ul style="list-style-type: none"> <li>Engage in real-world ethical, environmental and legal problems and investigate how computer science can provide solutions on a global scale</li> </ul>	<ul style="list-style-type: none"> <li>Gain practical experience in developing and evaluating programmes in multiple programming languages</li> </ul>	<ul style="list-style-type: none"> <li>Become competent and efficient in using and operating a computer, understand risks or possible errors and take practical steps to be able to resolve them</li> </ul>	<ul style="list-style-type: none"> <li>Giving students a clear progression into higher education, and provide a solid platform of learning</li> </ul>
Assessments	<ul style="list-style-type: none"> <li>Autumn Assessment</li> </ul>		<ul style="list-style-type: none"> <li>Spring Assessment</li> </ul>		<ul style="list-style-type: none"> <li>End of Year Assessment</li> </ul>	