



## CHS Curriculum Intent

**SUCCESSFUL:** Learners who gain deep and powerful knowledge in preparation for life; combining academic rigour, curiosity and creative flair.

**CREATIVE:** Learners who are imaginative, optimistic and inventive; finding their voice to become effective communicators prepared for lifelong adaptability

**HAPPY:** Learners who are confident, resilient, well-rounded citizens; they understand the world's communities and are ready to discover their place in it.

## CHS Curriculum Area Framework for Learning – Year 9

<b>SUBJECT</b>	<b>Computer Science</b>
<b>INTENT</b>	<p>“I believe that at the end of the century, the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted” Alan Turning</p> <ul style="list-style-type: none"><li>• Studying Computing at Chorlton High School allows our students to be prepared for a digital world, digital careers and how to use digital systems safely and responsibly.</li><li>• Students will be taught the key skills to develop their digital literacy and awareness of computational thinking.</li><li>• We aim to help our learners to become happy, successful and creative through our curriculum with students exploring a range of ways that the technology they interact with on a daily bases works and operates. Students are also able to develop their awareness through applying some of these in skillful tasks and activities.</li></ul>



# CHORLTON HIGH SCHOOL: CURRICULUM

<b>Year Group</b>	<b>9</b>
<b>Rationale/ Narrative</b>	<p>Following on from their Key Stage 3 study, students will be taught topics that overlap between the Computer Science and current DIT qualifications throughout their “Common Term”. Students following the Computer Science route will then move on to build up foundational knowledge regarding Paper 1 alongside their programming skills which will benefit them in regards to Paper 2:</p> <p><b>Common Term</b></p> <ul style="list-style-type: none"><li>- During Autumn term, students will begin by studying the <b>impact of modern technologies</b>, this relates largely to how students have engaged with School over the past academic year and students will gain a deeper knowledge in how organizations and individuals use modern technologies to exchange information, communicate and complete work-related tasks, as well as access and manipulate data.</li><li>- It is vital students understand the implication of these tools and technologies so students will move onto looking at the <b>legal impact and ethical considerations</b> as well as the wider implications of digital systems and their use. Students will look at how legislation covering data protection, computer crimes and intellectual property has an impact on the way digital systems are used.</li><li>- Following on from this, Students will begin to understand the increased reliance of digital systems and it’s need to hold onto data and the nature of threats to data through looking at <b>Cyber Security</b>, ways in which computer systems are attacked, how they occur and potential impact of breaches as well as preventative measures.</li><li>- Students will revisit <b>programming</b> (part of their common term) and build upon this knowledge to create an authorized login system as part of a programming project.</li><li>- Students will be introduced to Graphical User Interfaces (GUI’s) through studying <b>User Interfaces</b> as part of Autumn 2, and will understand the different types of user interfaces used by individuals and organizations. They will investigate how Graphical User Interfaces differ from a range of other interfaces, (such as text based interfaces, making reference to their login system program), alongside <b>how hardware and software</b> influence User Interface design.</li></ul> <p><b>Year 9 Computer Science</b></p> <p><b>1.1 Systems Architecture:</b> Students will learn about the architecture of the CPU, alongside CPU performance and embedded systems.</p> <p><b>1.2 Memory &amp; Storage:</b> Students will look at both Primary storage (Memory) and Secondary storage and will learn about the basics of how computers represent different information; including numbers, characters, images, sound</p> <p><b>1.3 Computer Networks, Connections &amp; Protocols:</b> Following on from looking at Network security in Autumn, students will begin to look at Networks and different topologies, alongside wired and wireless networks.</p> <p><b>1.5 System Software:</b> Students will look at what each function of the operating system does, and understand that computers come with utility software – the purpose of this and why it is required.</p> <p><b>1.6 Ethical, cultural, legal and environmental concerns:</b> students will have the opportunity to learn about and discuss different issues in computing. This will give them the initial understanding needed to approach long mark questions in Y11, but it will not focus on exam technique.</p> <p><b>2.1 Algorithms:</b> here students will learn how to read and write pseudocode and flowcharts. This will tie in heavily to their programming skills. They will complete a mini programming project.</p>



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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KNOWLEDGE	<ul style="list-style-type: none"> <li>• Introduction to Computer Systems &amp; Networks</li> <li>• Impact of modern technologies</li> <li>• Legal impact and Ethical considerations</li> <li>• Cyber Security</li> </ul>	<ul style="list-style-type: none"> <li>• Programming</li> <li>• User Interface Design</li> <li>• Hardware &amp; Software</li> </ul>	<ul style="list-style-type: none"> <li>• 1.1 Systems Architecture               <ul style="list-style-type: none"> <li>- Architecture of CPU</li> <li>- CPU Performance</li> <li>- Embedded Systems</li> </ul> </li> <li>• 1.2 Memory and Storage               <ul style="list-style-type: none"> <li>- Primary Storage</li> <li>- Secondary Storage</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Units/Binary</li> <li>• Data Storage               <ul style="list-style-type: none"> <li>○ Characters</li> <li>○ Images</li> <li>○ Sound</li> </ul> </li> <li>• Compression</li> <li>• 1.3 Computer Networks, Connections &amp; Protocols</li> <li>• Networks &amp; Topologies</li> <li>• Wired &amp; Wireless Networks (Protocols &amp; Layers in Year 10)</li> </ul>	<ul style="list-style-type: none"> <li>• 1.5 System Software               <ul style="list-style-type: none"> <li>- Operating Systems</li> <li>- Utility Software</li> </ul> </li> <li>• 1.6 Ethical, Legal, Cultural &amp; environmental impacts of digital technology</li> </ul>	<ul style="list-style-type: none"> <li>• Algorithms               <ul style="list-style-type: none"> <li>- Computational Thinking</li> </ul> </li> </ul>
SKILLS	<ul style="list-style-type: none"> <li>• Evaluation skills</li> <li>• Metacognitive practice</li> <li>• Identifying and selecting information</li> <li>• Breaking down key information</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation skills</li> <li>• Metacognitive practice</li> <li>• Exam technique</li> <li>• Identifying and selecting information</li> <li>• Breaking down key information</li> </ul> <p><b>Programming skills:</b></p> <ul style="list-style-type: none"> <li>• Identifying and using variables</li> <li>• Using operators</li> <li>• Using inputs</li> <li>• Using outputs</li> <li>• Using sequence</li> <li>• Using selection</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation skills</li> <li>• Metacognitive practice</li> <li>• Exam technique</li> <li>• Identifying and selecting information</li> <li>• Breaking down key information</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation skills</li> <li>• Metacognitive practice</li> <li>• Exam technique</li> <li>• Identifying and selecting information</li> <li>• Breaking down key information</li> <li>• Analytical Skills</li> <li>• Maintenance</li> <li>• System Performance</li> <li>• Critical Thinking</li> <li>• Converting binary to denary</li> <li>• Converting denary to binary</li> <li>• Converting hex to denary</li> <li>• Converting denary to hex</li> <li>• Converting hex to binary</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation skills</li> <li>• Metacognitive practice</li> <li>• Exam technique</li> <li>• Identifying and selecting information</li> <li>• Breaking down key information</li> <li>• Debating</li> <li>• Analysis</li> <li>• Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation skills</li> <li>• Metacognitive practice</li> <li>• Exam technique</li> </ul> <p>Computational thinking</p> <p><b>Programming skills:</b></p> <ul style="list-style-type: none"> <li>• Identifying and using variables</li> <li>• Using operators</li> <li>• Using inputs</li> <li>• Using outputs</li> <li>• Using sequence</li> <li>• Using selection</li> </ul> <p><b>Programming skills:</b></p> <ul style="list-style-type: none"> <li>• Using iteration (for loops)</li> <li>• Using iteration (while loops)</li> <li>• Using different types of data appropriately</li> <li>• Using basic string manipulation</li> </ul>



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				<ul style="list-style-type: none"> <li>• Converting binary to hex</li> <li>• Logical reasoning.</li> <li>• Metacognitive practice</li> </ul>		
<b>ASSESSMENTS</b>	<ul style="list-style-type: none"> <li>• Baseline KAP</li> <li>• KAP – Cyber Security Assessment (<i>Watered down progress test from 2019/20</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Classwork Piece – Students to have their final login program assessed from their programming project - <b>KAP</b></li> <li>• Progress Test based on content covered during Autumn term formally assess understanding and knowledge – KAP</li> <li>• User Interface analysis assessment - KAP</li> </ul>	<ul style="list-style-type: none"> <li>• Architecture of CPU (VN) OCR Exam style question as <b>KAP</b></li> <li>• Units/Binary OCR Exam Style question as <b>KAP</b></li> </ul>	<ul style="list-style-type: none"> <li>• CGP OCR Exam Practice Workbook Questions – Secondary Storage - <b>KAP</b></li> <li>• Progress Test – Formal assessment of understanding and knowledge from 1.1 Systems Architecture &amp; 1.2 Memory and Storage (alongside network questions from Autumn Term)</li> <li>• Extended Networks Exam style question <b>KAP</b></li> </ul>	<ul style="list-style-type: none"> <li>• KAP</li> <li>• KAP</li> </ul>	<ul style="list-style-type: none"> <li>• KAP- Computational thinking, four cornerstone exam question with algorithm exam question.</li> <li>• Progress Test – Programming techniques Assessment.</li> <li>• OCR Computer Science Paper 2 [6/8] mark question.</li> </ul>