

GCSE Computer Science - Year 10

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1 & 2
Topics	Block 1 - Understanding the machine Block 4 - Programming fundamentals	Block 2 - Computer hardware and software Block 4 - Programming fundamentals	Block 3 - Networks Block 4 - Programming fundamentals	Block 3 - Networks Block 4 - Programming fundamentals	Block 5 - Impact of Computer Science technology Block 4 - Programming fundamentals
Learning components	<u>Block 1</u> <ul style="list-style-type: none"> CS1: Boolean Logic CS2: Von Neumann Architecture CS3: Low-level languages CS4: Binary numbers CS5: Data representation of characters CS6: Data representation of images CS7: Data representation of sound CS8: Data compression <u>Block 4</u> <ul style="list-style-type: none"> CS28: Algorithmic thinking CS29: High-level languages CS30: Programming basics CS31: String manipulation 	<u>Block 2</u> <ul style="list-style-type: none"> CS9: CPU Performance CS10: Embedded Systems CS11: Primary storage CS12: Solid-state storage CS13: Magnetic storage CS14: Optical storage <u>Block 4</u> <ul style="list-style-type: none"> CS32: Selection CS33: Counter-controlled iteration 	<u>Block 3</u> <ul style="list-style-type: none"> CS17: Types of networks CS18: Network hardware CS19: The internet CS20: Network topologies CS21: Network protocols CS22: Social engineering CS23: Malware CS24a: Network security CS24b: Cyber resilience <u>Block 4</u> <ul style="list-style-type: none"> CS34 - Condition-controlled iteration 	<u>Block 3</u> <ul style="list-style-type: none"> CS25: SQL & data structures CS26: Defensive design CS27: Testing <u>Block 4</u> <ul style="list-style-type: none"> CS35 - Computational thinking CS36 - Subprograms 	<u>Block 5</u> <ul style="list-style-type: none"> CS40: Copyright CS41: GDPR CS42: Computer Misuse Act CS43: Software licensing CS44: Privacy CS45: Digital Divide CS46: Sustainability CS47: Online services CS48: Artificial intelligence CS49: Crime CS50: Medicine <u>Block 4</u> <ul style="list-style-type: none"> CS37: Searching and sorting algorithms. CS38: Data structures CS39: File handling

Linked learning	<ul style="list-style-type: none"> • Students build on knowledge, skills and understanding from Computer Science based units in KS3. • The design of the two components allows overlap. For example, a topic in Unit 2 will draw on prior knowledge from Unit 1.
SMSC links	<ul style="list-style-type: none"> • 293. Develops pupils to become responsible, respectful and active citizens who are able to play their part and become actively involved in public life as adults. • 293. Ensures an inclusive environment that meets the needs of all pupils, irrespective of age, disability, gender reassignment, race, religion or belief, sex or sexual orientation, and where no discrimination exists, for example in respect of wider opportunities for pupils. • 293. Develops pupils' confidence, resilience and knowledge so that they can keep themselves mentally healthy. • 293. Enables pupils to recognise the dangers of inappropriate use of mobile technology and social media
Literacy	<ul style="list-style-type: none"> • Subject specific terminology • Decoding command words used in the exam (e.g. explain, describe...) • Vocabulary by writing answers that require a more extended response.
Numeracy	<ul style="list-style-type: none"> • Arithmetic (Add, Subtract, Multiply, Divide, Exponentiation and Modulus (remainder)) • Logical (AND, OR and NOT) • Comparison (Equal to, Not equal to, Greater/Less than) • Using algorithms to solve complex problems.
Enrichment	<ul style="list-style-type: none"> • Computing Club that runs after school each week. • Educational trips (e.g. Girls in IT (Swansea), Bletchley, Cadbury World)
Impact	<ul style="list-style-type: none"> • Students are required to develop a range of techniques using a wide range of software packages and apply them effectively when developing their own digital artefacts or to solve complex problems. • Using real-life problems that will help students become more logical in their thinking and have the confidence to break down complex problems into smaller and more manageable tasks that make it easier to solve, a skill that is transferable and can be applied to all subjects and beyond education.

Ways to support student learning in this subject	<ul style="list-style-type: none"> • Encourage the use of technology at home, provide an opportunity for students to use our facilities that they may not be provided with at home. • Homework completed on time and to the expected standard. • Help students understand the 'bigger picture' - technology is becoming more prominent in our everyday lives and because they can use a smartphone they assume they know everything they ever need to about the subject. • CLIMB sessions put in place for underachieving students. • Action plans that can be used as in-class intervention. • Access to online platforms that allow them to develop their coding skills. • Encourage discussion of Computer Science issues that arise in the news. • Encourage self-assessment and reflection using personalised learning checklists (PLCs) • Encourage students to use GCSEPod and Smart Revise to consolidate knowledge and build on recall skills. • Purchase CGP revision guides and workbooks for independent revision and practice.
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