GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.1 System architecture				
The purpose of the CPU				
Von Neumann architecture: • MAR (Memory Address Register) • MDR (Memory Data Register) • Program Counter • Accumulator				
Common CPU components and their function: • ALU (Arithmetic Logic Unit) • CU (Control Unit) • Cache				
The function of the CPU as fetch and execute instructions stored in memory				
How common characteristics of CPUs affect their performance: • clock speed • cache size • number of cores				
Embedded systems: • purpose of embedded systems • examples of embedded systems.				
I am most confident with the following topic/topics:				
I have struggled most with the following topic/topics:				

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.2 Memory				
Difference between - RAM and ROM				
Purpose of ROM				
Purpose of RAM				
Need for Virtual Memory				
Flash Memory				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.3 Storage				
The need for secondary storage				
Data capacity and calculation of data capacity requirements				
Common types of storage: • optical • magnetic • solid state				
Suitable storage devices and storage media for a given application, and the advantages and disadvantages of these, using characteristics: • capacity • speed • portability • durability • reliability • cost.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.4 Wired and wireless networks				
Types of networks: • LAN (Local Area Network) • WAN (Wide Area Network)				
Factors that affect the performance of networks				
The different roles of computers in a client-server and a peer-to-peer network				
The hardware needed to connect stand-alone computers into a Local Area Network • wireless access points • routers/switches • NIC (Network Interface Controller/Card) • transmission media				
The internet as a worldwide collection of computer networks: • DNS (Domain Name Server) • hosting • the cloud				
The concept of virtual networks.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.5 Network topologies, protocols and layers				
Star and mesh network topologies				
Wifi: • frequency and channels • encryption				
Ethernet				
The uses of IP addressing, MAC addressing, and protocols including: • TCP/IP (Transmission Control Protocol/Internet Protocol) • HTTP (Hyper Text Transfer Protocol) • HTTPS (Hyper Text Transfer Protocol Secure) • FTP (File Transfer Protocol) • POP (Post Office Protocol) • IMAP (Internet Message Access Protocol) • SMTP (Simple Mail Transfer Protocol)				
The concept of layers				
Packet switching				
I am most confident with the following topic/topics:				
I have struggled most with the following topic/topics:				

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.6 System Security				
Forms of attack				
Threats posed to networks: • malware • phishing • people as the 'weak point' in secure systems (social engineering) • brute force attacks				

	Red	Amber	Green	Revised Tick ☑
• denial of service attacks • data interception and theft • the concept of SQL injection • poor network policy				
Identifying and preventing vulnerabilities: • penetration testing • network forensics • network policies • anti-malware software • firewalls • user access levels • passwords • encryption.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.7 Systems software				
The purpose and functionality of systems software				
Operating systems: • user interface • memory management/multitasking • peripheral management and drivers • user management • file management				

Utility system software:
• encryption software
• defragmentation
• data compression
• the role and methods of backup:
   o full
   o incremental.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 1.8 Ethical, legal, cultural and environmental concerns				
How to investigate and discuss Computer Science technologies while considering: • ethical issues • Legal issues • cultural issues • environmental issues. • privacy issues.				
How key stakeholders are affected by technologies				
Environmental impact of Computer Science				
Cultural implications of Computer Science				
Open source vs proprietary software				
Legislation relevant to Computer Science: • The Data Protection Act 1998 • Computer Misuse Act 1990 • Copyright Designs and Patents Act 1988 • Creative Commons Licensing • Freedom of Information Act 2000.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 2.1 Algorithms				
Computational thinking: • abstraction • decomposition • algorithmic thinking				
Standard searching algorithms: • binary search • linear search				
Standard sorting algorithms: • bubble sort • merge sort • insertion sort				
How to produce algorithms using: • pseudocode • using flow diagrams				
Interpret, correct or complete algorithms.				
I am most confident with the following topic/topics: *I have struggled most with the following topic/topics:*				

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 2.1 Programming techniques				
The use of variables, constants, operators, inputs, outputs and assignments				
The use of the three basic programming constructs used to control the flow of a program: • sequence • selection				

• iteration (count and condition controlled loops				
The use of basic string manipulation				
the use of basic file handling operations: • open • read • write • close				
The use of records to store data				
The use of SQL to search for data				
The use of arrays (or equivalent) when solving problems, including both one and two dimensional arrays				
How to use sub programs (functions and procedures) to produce structured code				
The use of data types: • integer • real • Boolean • character and string • casting				
The common arithmetic operators				
The common Boolean operators.				
I am most confident with the following topic/topics:				
I have struggled most with the following topic/topics:				

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST				
	Red	Amber	Green	Revised Tick ☑
Area of Study: 2.3 Producing robust programs				
Defensive design considerations: • input sanitisation/validation • planning for contingencies • anticipating misuse				

	Red	Amber	Green	Revised Tick ☑
• authentication				
Maintainability: • comments • indentation				
The purpose of testing				
Types of testing: • iterative • final/terminal				
How to identify syntax and logic errors				
Selecting and using suitable test data.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST				
	Red	Amber	Green	Revised Tick ☑
Area of Study: 2.4 Computational logic				
Why data is represented in computer systems in binary form				
Simple logic diagrams using the operations AND, OR and NOT				
Truth tables				
Combining Boolean operators using AND, OR and NOT to two levels				
Applying logical operators in appropriate truth tables to solve problems				
applying computing-related mathematics: • + • − • / • * • Exponentiation (^) • MOD				

• DIV				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST

	Red	Amber	Green	Revised Tick ☑
Area of Study: 2.5 Translators and facilities of languages				
Characteristics and purpose of different levels of programming language, including low level languages				
The purpose of translators				
The characteristics of an assembler, a compiler and an interpreter				
Combining Boolean operators using AND, OR and NOT to two levels				
common tools and facilities available in an integrated development environment (IDE): • editors • error diagnostics • run-time environment • translators.				

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics:

GCSE COMPUTING: PERSONALISED LEARNING CHECKLIST				
	Red	Amber	Green	Revised Tick ☑
Area of Study: 2.6 Data representation				
Units • bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, petabyte • how data needs to be converted into a binary format to be processed by a computer.				
Numbers • how to convert positive denary whole numbers (0–255) into 8 bit binary numbers and vice versa • how to add two 8 bit binary integers and explain overflow errors which may occur • binary shifts • how to convert positive denary whole numbers (0–255) into 2 digit hexadecimal numbers and vice versa • how to convert from binary to hexadecimal equivalents and vice versa • check digits.				
Characters • the use of binary codes to represent characters • the term 'character-set' • the relationship between the number of bits per character in a character set and the number of • characters which can be represented (for example ASCII, extended ASCII and Unicode).				
Images • how an image is represented as a series of pixels represented in binary • metadata included in the file • the effect of colour depth and resolution on the size of an image file.				
Sound • how sound can be sampled and stored in digital form • how sampling intervals and other factors affect the size of a sound file and the quality of its playback: • sample size • bit rate • sampling frequency.				
Compression • need for compression • types of compression: • lossy				

• lossless.					

I am most confident with the following topic/topics:

I have struggled most with the following topic/topics: