Y9 Computer Science

Name	
Teacher	

Group		GCSE Target	

CODE BREAKER

TOPIC	GCSE 1-3	GCSE 4-6	GCSE 7-9
9.1 Cracking the Code	❑ Explains and justifies how the use of technology impacts on society, from the perspective of social, economic political, legal, ethical & moral issues. ❑ Understands what encryption is and can give examples of how it can be used.	❑ Can decrypt the Caesar Cipher ❑ Can explain how encryption is used on the www. ❑ Can compare and contrast encryption methods and comment on their suitability. ❑ Can explain the difference between ASCII and Unicode. ❑ Can represent our character set using binary, denary & ASCII. ❑ Understands what compression is.	❑ Makes appropriate improvements to their work as a result of feedback. ❑ Understands the difference between Lossy and Lossless and can apply RLE.
9.2 Binary	❑ Can convert binary to denary and denary to binary. ❑ Understand that computers are not intelligent and have to be programmed. ❑ Understand why computers use binary	❑ Can work with different file sizes ❑ Can do binary addition ❑ Understand why overflow errors happen & give an example. ❑ Understand how negative numbers are represented in binary	❑ Understand why we use Two's Complement & Sign and Magnitude. ❑ Be able to apply logical and arithmetic shifts
9.3 Databases	❑ Understand database key terms such as; table, record, field, relationship. ❑ Can create a flat-file database. ❑ Can use different data types and understands what they are used for.	❑ Can search and sort a database using queries. ❑ Can create a report and format it professionally. ❑ Use a range of data types and validation techniques.	❑ Can create a relational database. ❑ Can create a query using a relational database. ❑ Understands what a primary key and foreign key are.
9.4 Searching & Sorting	❑ Understands the capabilities of humans and the 'brute force' approach. ❑ Understand what a linear and binary search are. ❑ Understand what a bubble and swap sort are.	❑ Understand the benefits and drawback of different searches and sorts and can choose and justify which would be best in a given situation. ❑ Can create a program for a linear search.	❑ Know what a flag is and why it is used. ❑ Can create an algorithm for a binary search programs.

9.5 The Internet & Networks	❑ Understand the difference between the internet and the world wide web. ❑ Has awareness of and can use a range of internet services e.g. VOIP. ❑ Understand the name and purpose of key hardware components.	❑ Understand the difference between different network topologies. ❑ Can explain why Sale High School uses a Star topology. ❑ Understand the difference between a hub and a switch. ❑ Knows what a network protocol is and can give examples.	❑ Knows a range of ways to report online concerns ❑ Has an awareness of digital content and references appropriately sources used. ❑ Understands the difference between a MAC and an IP address. ❑ Understands what handshaking is and how the internet works.
9.6 Digital Circuits	❑ Knows and can apply the rules for an AND, NOT and OR gate. ❑ Can create simple truth tables. ❑ Can give an example of a logic gate being used in everyday life.	❑ Can complete truth tables for combinations of gates. ❑ Understand how each gate is used in everyday life. ❑ Can apply logic, decomposition and abstraction to solve puzzles.	❑ Can apply the rules of logic gates to text-based logic problems. ❑ Can check and correct errors in their own work, by using patterns and logic to help.
9.7 Computer Architechture	❑ Understands the role of key hardware components; memory, CPU, input/output devices. ❑ Understand the role of the CPU.	❑ Understand the 3 key components of the CPU and what the function of each is. ❑ Explain the difference between a single core and quad-core computer. ❑ Explain how the Fetch-Decode-Execute cycle works.	❑ Understand how processor speed is measured. ❑ Be able to explain the role and importance of the clock counter.