Subject Curriculum Map: Computer Science Year 9 2024-25

Exam board: OCR – 100% Terminal Examination

Curriculum intent: -

Our Year 9 curriculum aims to hit upon all 3 main strands from the Key Stage 3 Computing curriculum – Computer Science, Information Technology and Digital Literacy. We have examined the schemes of work that are undertaken at our main middle-school feeders and from there have developed content that will provide a solid basis of understanding and engage learners and get them thinking about real world application. The curriculum will also enable learners to develop computational thinking skills built on a sound base of conceptual learning and understanding. During the course of the year students will think creatively, innovatively, analytically, logically and critically.

Curriculum Implementation: -

This year is delivered as 2 fortnightly lessons, which gives us roughly 6-7 lessons a half-term to teach and assess the content for each topic, that are split into half-terms. The choice of topics, as mentioned, have been chosen to ensure a good range of coverage from the KS3 curriculum and will set pupils up for them to choose either IT or Computer Science as a GCSE option in Year 10.

We have built in common assessment points to allow all classes to move through the plan at a similar pace (with stretch and challenge built in for the higher achieving students and differentiated worksheets to ensure lower ability students can still access the curriculum).

Curriculum impact: -

Students will understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, and logic, algorithms, and data representation. They will analyse problems in computational terms through practical experience of solving such problems, including designing, writing and applying mathematical skills relevant to Computer Science. Students will also understand the components that make up digital systems, and how they communicate with one another and with other systems. The curriculum will also allow the students to understand the impacts of digital technology to the individual and to wider society. There will be spreadsheet and database modules that focus on a more Information Technology background and the usage of these software packages so that they have a good basis of knowledge for whenever they use these in the future.

Year 9 Computer Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Themes, Concepts & Ideas	Intro and Spreadsheets	Binary and computer hardware	Web Design	Python	Databases	Network security
Knowledge and understanding	Key Terms: Formulae / Function Cell reference Pivot Tables Formatting Understanding of the school system including emails, remote login and school policy	Key Terms: Number Base Denary / Binary/ CPU / RAM / SSD / HDD Understanding how the computer converts everything into binary and the importance of the main components of a computer system.	Key Terms: HTML / CSS Tags House Style Interface Understanding of web-design techniques and the factors to consider when designing interfaces.	Key Terms: Flowcharts Print / input If / While / For Selection Iteration Understanding of problem-solving and algorithmic thinking.	Key Terms: Table / Field / Record Validation Data Type Forms / Queries Understanding of how databases are used in industry to store and analyse data.	Key Terms: Data protection Act Hacking Malware DDoS attack Brute force attack Firewall Anti-malware Understanding the potential threats to our computer systems and how we can prevent them.
Subject specific skills	Use of conditional formatting to help data stand-out Creation of basic formulae to carry out calculations Use of functions to help analyse data Creation of various graphs and charts that are suitable for the data	Converting between number bases. Binary to denary and denary to binary. Choosing the most suitable computer for a given scenario based on its specifications.	Creation of a website with the use of pictures and hyperlinks to create an effective user interface.	Use of sequence, selection and iteration to create a variety of mini programming applications	Use of table view to create a table by entering record information Add in validation to limit user error Create basic queries to help analyse the database and formulate decisions	Know how to spot network security risks and how to prevent them.

					Create a user-friendly form	
1.SMSC	Moral and Cultural: Data is governed by legislation, but also by morals about what data people have access to and how they use it. Cultures vary in what data they deem acceptable to share.	Social: Students work together to creates presentations and bring together research. Understanding that there is more than one number system that is used.	Social and cultural: Understanding the importance of interface design for websites, how websites are accessible.	Social: Students may work together to solve problems and to produce programs in python. Discussing problems and how we break them down in everyday situations.	Cultural: user friendly forms are developed for users and their requirements which have developed over time.	Social, Cultural: Looking at our school network and also how some rural areas do not have the same access to networks.
2.Skills For life	Collaborative working, offering new ideas and responding to feedback – both formal and verbal. Sending attachments with small file sizes.	Numeracy skills converting binary and hexadecimal numbers, defining and converting units such as Megabytes that are used on a daily basis.	Presentation skills when designing user friendly interfaces to suit all needs.	Resilience and problem-solving skills as they begin to learn to break down problems and tackle them step by step using algorithmic thinking.	Presentation of information, collaborative working when collecting data and independent thinking.	Communication and collaboration skills when working together in groups. Presentation skills when creating network diagrams.
3.FBV	Collaboration with teams, patience and timing. Demonstrating tolerance and respect.	Values of respect, collaboration and group work will be developed and promoted within a new working environment. Understanding of the tech industry job market.	Use of technology in entertainment and communication is shaping British Culture and students must be aware of positive and negative aspects of this revolution.	Collaboration with teams, patience and timing. Demonstrating tolerance and respect for others.	Collaboration with teams, patience and timing. Demonstrating tolerance and respect for others.	Understanding that people's experiences and needs vary. Values of respect and compassion for others.
Stretch & challenge	Advanced functions. Linking data from multiple tables using v look up functions.	Analysis on why extended ASCII is used. Independent research on units after petabyte. Investigation into metadata.	Adding interactivity to the webpages using JavaScript.	Advanced programming skills. Creating flowcharts with sub-programs and multiple decisions.	Creating multiple tables to create a relational database.	Explain the factors that affect the performance of networks.

Key assessment focus, suggested assessments	**Data Modelling Testing skills of formula, function and formatting.** **<u>Autumn 1 Assessment point</u>**	**Binary conversion and knowledge test** **<u>Autumn 2 assessment point</u>**	**Creation of website Test on key terms** **<u>Spring 1 Assessment point</u>**	**Programming project Algorithm assessment** **<u>Spring 2 Assessment point</u>**	**Project – building of a database model w/ queries and forms.** **<u>Summer 1 Assessment point</u>**	**<u>End of year mock</u>**
Special events						**Lego trip Stafford College**
Visits/extra-curricular	**Chess club Coding/homework club**	**Chess club Coding/homework club**	**Chess club Coding/homework club**	**Chess club Coding/homework club**	**Chess club Coding/homework club**	**Chess club Coding/homework club**
Homework/Independent Learning	**Homework on key terms for spreadsheets and uses of data models.**	**Homework task on binary calculations. Independent research on ASCII code and meta data.**	**Working on website project at home and school.**	**Creating flowcharts for real life scenarios that happen at home. Research into data types and variables.**	**Homework on key terms for databases.**	**Revision for end of year assessment**