Computing

Aims:

Skills and knowledge will emerge through

- Developing student's ability to think computationally and programmatically
- Encouraging student's inquisitiveness and creativity with computers
- Preparing students for GCSE Computer Science

Content:

The year begins with work on Cyber Security, with world that is ever reliant on Computing technology, an understanding of the challenges in cyber security is essential. Half of the year will be spent developing programming skills focussing on Python and HTML, which is the core knowledge required behind all computing devices. One unit of work will look at Data Science, allowing links to the focus for the term "Persuasion".

Curriculum Map

Term	Curriculum	Assessment
Half Term 1	Cyber Security What challenges does society face because of a lack of security in the digital age? This unit answers why criminals exploit weaknesses in computer systems, and what can be done to stop it. It also introduces careers in cyber security.	Online assessment x 2
Half Term 2	Python Programming Python programming from Year 8 is continued and built upon further. Learning about iteration, loops and commands for example.	Online assessment x 1
Half Term 3	Python Programming Continued This half term is spent applying skills taught in the previous half term through various Python programming projects.	Assessed classwork – assessed using BASE criteria
Half Term 4	Data Science Become empowered by knowing how to use data to investigate problems and make changes to the world around them. Learners will be exposed to both global and local data sets and gain an understanding of how visualising data can help with the process of identifying patterns and trends.	Online assessment x 1 Written end of unit exam
Half Term 5	HTML and Webpages The language of the internet and how websites are built. How information is sent back and forth between user's devices and the site's servers. HTML is the structure and content of a website.	Online Assessment Completion of a webpage project – assessed using BASE criteria

Half Term 6	Computer Networks Learning is focussed around LANs and WANs. Historical figures who have been instrumental in the development of Computing are discussed through this unit of work, such as Alan Turing and Charles Babbage.	Written end of year exam Online Assessment on key concepts of networks

Assessment:

Assessment for Computing will take a variety of forms, including online assessments using Yacapaca, written assessments and assessed classwork.

Extended Learning:

Students will be set one to two hourly blocks of extended learning per half term. Extended learning will also be available in the weekly enrichment club.

Connection to the JTFS Approach

Whole School Theme	How does computing support this?
STRIPE	Self-manager – Even in group work, the upkeep of one's record is an individual task. Students will need to pay attention to their own folders, keeping it up to date and organised. Team player/Participator – Paired programming gives students different roles, the helper and the writer. This relationship requires patience and communication skills. Reflective and resilient – Resilience to grasp and think carefully about new concepts that may feel completely new and unapproachable. Innovate and create – Students will be creating their own websites and will be innovating by their application of knowledge on data representation. Enquirer – Students learn new technologies, and how technology changes the world and their lives. They will have many avenues to explore they can apply their new skills and knowledge to other areas that interest them.
STEAM	All units relate closely to STEAM, with computing being a STEAM subject.
Literacy	The grammar of web languages follow the programming paradigm of 'declarative language'. This means declaring what is required of the computer. This strips down language to simplest terms and uses the structure of the code to do the work of compounding, conjunction and functions words.
Numeracy	HTML uses numeracy for the physical layout of a web page, including spacing, size, and colourisation. The Data Science unit links into mathematical thinking, with the application of statistics.
SMSC, British Values and Citizenship	Students will explore the responsibilities of being a knowledgeable and conscientious citizen in Cyber Security. This also involves the British Value of the rule of law, and the moral element of SMRC, in considering issues such as privacy and data integrity.