



Year 9 Computing

Aims:

- *To build on student's fluency and understanding of computing*
- *To develop student's ability to think computationally and programmatically*
- *To encourage student's inquisitiveness and creativity with computers*
- *To prepare students for GCSE Computer Science*

Content:

Term 1 - Driving Question: Aspirations – Careers (all terms)

In Term 1, students explore how computing skills connect to future careers and opportunities in the digital world. They begin with Cyber Security, learning how personal data is collected and protected, how social engineering attacks work, and how organisations defend themselves from threats such as bots, malware, and hacking. Students consider the growing importance of cyber security careers in modern society.

Students also develop their understanding of Data Science where they 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.

Term 2

In Term 2, students focus on developing technical and creative skills that are valuable in a wide range of careers. They study Python Programming, building on prior coding knowledge to create more advanced programs using variables, selection, iteration, functions, and problem solving. Students learn how programming is used in careers such as software development, engineering, and data analysis.

Later in the term, students complete Mobile App Development projects using App Lab. They research user needs, design interfaces, code their apps, and test solutions, mirroring the real-world processes used in the technology industry.

Term 3

In Term 3, students investigate specialist areas of computing linked to future industries. They study 3D Modelling using Blender, learning how digital models are created for gaming, animation, architecture, and product design.

Students also explore Computing Systems and physical computing with BBC micro:bit, learning how hardware and software interact to control devices. This helps students understand careers in robotics, electronics, programming, and emerging technologies.

Curriculum Map:

Year	Term	Curriculum	Assessment
8	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 into cyber security.	Online assessment x 1

Half Term 2	Data Science In this unit, learners will be introduced to data science, and by the end of the unit they will be 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
Half Term 3	Python Programming In this unit learners will refresh their Python programming skills and encounter a range of programming patterns that arise frequently in physical computing applications.	Assessed classwork – assessed using BASEOM criteria
Half Term 4	Mobile App Development Using App Lab. They research user needs, design interfaces, code their apps, and test solutions, mirroring the real-world processes used in the technology industry.	Demo of App
Half Term 5	3D Modelling Using Blender to learn how to produce digital 3d models and how they are created for gaming, animation, architecture, and product design.	Demo
Half Term 6	Computing Systems Using BBC micro:bits. Learning how hardware and software interact to control devices	Demo

Assessment:

Assessment for computing varies greatly depending on the nature of the unit. Digital forms to assess knowledge will be a frequent method, project / portfolio work is most appropriate for programming units.

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 animation and coding club.

Connection to the JTFS Approach

Whole School Theme	How does Computing support this?
STRIPE	<p>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/Participant: 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 apps and will be innovating by their application of knowledge on data representation. Enquirer: Students learn new technologies, and how technology changes the</p>

	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	Representation uses binary as an alternative method of language representation (and hexadecimal as an extension). The use of numeracy in the sample rate and bit rate of sound gives a computational application of large numbers, and exponentials. CSS uses numeracy for the physical layout of a web page, including spacing, size, and colourisation.
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.