Computing

Topics taught			
Year Group	**Autumn Term**	**Spring Term**	**Summer Term**
Year 7	**Introduction to the Network** Students will become familiar with our systems, including Teams and Arbor. They will develop good practice in terms of managing files and folders. **Office Applications** Students will ensure they can use word processing and spreadsheet software to handle a range of tasks and present their information effectively.	**Digital Safety** Students will reflect on the threats posed to their safety and wellbeing in the online world and consider how to respond effectively. **Careers** Students will explore the school's careers platform and will reflect on how computers affect people's careers. **Algorithms** Students will learn about the fundamental approaches to algorithm design and use Scratch to solve problems using variables and arrays.	**Introduction to HTML** Students will use tags to present information that can be read in a browser. **Coding with the MicroBit** Students will learn how to code a portable device, making creative use of its input and output devices. **Game Development** Students will consider the algorithms behind computer games and develop a 3D game with Kodu.
Year 8	**Office Applications** Students will be given work-related challenges to complete using word processing and spreadsheet software. **Digital Safety** Students will consider technological threats that pose a risk to their data and devices and how they can minimise them.	**Introduction to Coding with Python** Students will become familiar with a text-based IDE and learn the fundamentals of Python. They will learn about computing principles such as abstraction. **Python and Turtle** Students will use an algorithmic approach to drawing shapes efficiently.	**Handling Data** Students will learn about binary numbers and how they are used by computers. They will consider how images are stored digitally and will learn how to edit images. They will learn about data protection legislation. **Coding Challenges** Students will undertake a range of challenges to develop their coding skills.

	Networks and the Internet Students will learn about computer networks. They will also develop their ability to create web pages by using cascading style sheets.		
Year 9	**Coding Challenges** Students will refresh their coding skills and demonstrate how they handle a range of challenges. **Cyber Security** Students will learn about threats to large organisations and the skills needed for careers in cyber security. **Computational Thinking** Students will learn about some of the history of Computing. **Networks and the Internet** Students will learn about the development of the Internet and its infrastructure.	**Coding with Python** Students will engage with mathematical coding challenges as well as string manipulation. There will be a strong focus on the use of iteration (which students will use again at a later date…) **Databases** Students will learn how to handle relational databases and use SQL. **Functions in Python** Students will learn how to use modular programming to improve the efficiency of their code.	**Large Datasets** Students will learn how to use more complex functions as well as pivot tables in Excel to analyse large volumes of data. **Website Development** Students will revisit HTML and CSS and will integrate JavaScript to improve the functionality of their pages. **Artificial Intelligence** Students will study machine learning and consider the impact that AI is likely to have in the future. **Project Development** Students will choose a creative project that they will develop.

Year Group	**What parents can do to support learning**	**Useful links and reference materials**
Year 7	Where possible, allow students time to use a desktop or laptop computer as they are likely to struggle to code effectively on a smart phone. Discuss how students are using technology and what they do to ensure their privacy and security.	Scratch: https://scratch.mit.edu/

Year 8	Discuss how you use technology at work and the skills you have found most important in your career.	Thonny (free Python IDE): https://thonny.org/
Year 9	Ask students to show you what they have done with code and then challenge them with problems related to your work or something similar. If appropriate, show how important data management is in your experience.	