Computing Curriculum

Year 6	**Creating presentations for an audience:** Creation of slideshow presentations for a chosen purpose. Identify what makes a good web presentation and different tools (triggers, animations, slide master and hyperlinks) to increase efficiency and impact. Create hyperlinked presentations with non-linear progression. **Safe use of the Internet and World Wide Web:** Learning about the World Wide Web as a communication tool and the Internet's ability to share data. How we find information on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines. Students to make informed choices about reliability and bias of sites and consider ways they can keep themselves safe in online	**Using databases - Solving a murder mystery:** Students will be introduced to Microsoft Access and spreadsheet packages to explore the ways that they can sort through data and search for key information. **Programming A - Selection:** Students will explore If/Else statements within programs to select desired outputs. They will use these principles to create a quiz program in Scratch which self marks and moves through sections as appropriate	**Data and information - Spreadsheets:** Introduction to spreadsheets. Organising data into columns and rows to create their own data set. Understanding the importance of formatting data to support calculations, while also being introduced to formulas. **Programming B: Variables in games:** Exploring the concept of variables in programming through games in Scratch. Using understanding of variable to create simulations and their own games in Scratch.
Year 7	**Impact of technology - Digital basics and respectful use:** How to use the school network appropriately. Exploring why appropriate usage is important, as well as examining online safety issues. They will explore which tools are most appropriate for each task and develop confidence using these. **Computational thinking:** Introduction to the core principles of computational thinking (abstraction, decomposition, pattern recognition and algorithmic thinking). Build on this for approaches to problem solving and program planning. Students to work through Just Dance and create a program using these principles to express a dance online.	**Spreadsheets and computer modelling** Explore the wonderful world of spreadsheets and the concept of cell referencing. Understand how to collect, analyse, and manipulate data, before turning it into graphs and charts. **Programming essentials in Scratch:** Build confidence and knowledge of the key programming constructs. Exploring sequencing, variables, selection, and count-controlled iteration. Learn how to create subroutines, apply principles of computational thinking to problem solving for successful solutions.	**Networks from semaphores to the Internet:** Imagine a world without computer networks: there would be no more YouTube, Google, instant messaging, online video gaming, Netflix, and iTunes; no online shopping; no file sharing; and no central backups of information. Defining a network and addressing the benefits of networking, before covering how data is transmitted across networks using protocols. **Using media - Gaining support for a cause:** Developing a deeper understanding of information technology and digital literacy by using skills across the unit to create a blog post about a real world cause that they are passionate about and would like to gain support for.
Year 8	**Media - Vector Graphics:** Vector graphics can be used to design anything from logos and icons to posters, board games, and complex illustrations. Understand the processes involved in creating such graphics and use the knowledge and tools to create their own. **Computing systems:** Understand how computing systems operate. Tour through the different layers of computing systems: from programs and the operating system, to the physical components that store and execute these programs, to the fundamental binary building blocks that these components consist of.	**Developing for the web:** Explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, investigate how websites are catalogued and organised for effective retrieval using search engines. **Binary representation and data storage:** This unit conveys essential knowledge relating to binary representations. The activities gradually introduce learners to binary digits and how they can be used to represent text and numbers. The concepts are linked to practical applications and problems that the learners are familiar with	**Mobile app development:** Explore the entire process of creating a mobile app, using App Lab from code.org. Build on the programming concepts from previous units to perform user research, design an app, write the code for it, before finally evaluating and publishing it for the world to use. **Introduction to Python Programming:** Introduction to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration.
Year 9	**Problem solving with Python Programming** Creating programs to solve scenarios and problems which draw on programming knowledge from Year 8. Pupils will be given different contexts and programs to create using their knowledge of variables, iteration and basic Python functions. Programs will be commented for clarity and tested for effectiveness before submission. **Representations - from clay to silicon:** Introduction of binary digits as the symbols computers use to perform these tasks and focus on the representation of text and numbers. Calculating storage sizes of files including binary sound, images and video.	**Apps for Good** Students will work in teams to produce apps which will have a positive impact on their society. Teams will carry out research, develop ideas and create a wireframe for their app as well as marketing and presentation materials. Submissions will be entered for the Apps for Good anuual schools competition. **Data Science.** Pupils are introduced to data science, and 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.	**Cybersecurity** Learners will understand the techniques used by cybercriminals to steal data, disrupt systems, and infiltrate networks. They will recognise the value of their data to organisations and what they might use it for. They will then look at social engineering techniques used by cybercriminals as well as the more common cybercrimes such as hacking, DDoS attacks, and malware, as well as looking at methods to protect ourselves and our networks against these attacks. **ICT in specific contexts** Students will begin to explore specific context appropriate uses of IT such as spreadsheet models and augmented reality. Exploring the ways that IT use has developed in working environments in the last fifty years.