Computing Curriculum 2021 - 2022

	Autumn	Spring	Summer
Year 5	**Computing systems and networks - Sharing information:** Develop understanding of computer systems and how information is transferred between systems and devices. Explain the input, output, and process aspects of a variety of different real-world systems. **Creating media - Vector drawing:** Start to create vector drawings. Learn how to use different drawing tools to create images.	**Creating media - Video editing:** Learn how to create short videos in groups. Using topic-based language and developing the skills of capturing, editing, and manipulating video. **Data and communication - Flat file databases:** Explore how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data.	**Programming A - Selection in physical computing:** Using physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Explore how to use a microcontroller and learn how to connect and program components. **Programming B Selection in Quizzes:** Develop their knowledge of selection by revisiting how conditions can be used in programs and then learning how the If… Then… Else structure can be used to select different outcomes depending on whether a condition is true or false.
Year 6	**Computing systems and networks - Communication:** Learning about the World Wide Web as a communication tool. 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. **Creating media - 3D Modelling:** Develop knowledge and understanding of using a computer to produce 3D models. Examining the differences between working digitally with 2D and 3D graphics. .	**Creating media - Web page creation:** Creation of websites for a chosen purpose. Identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. **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 A: 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. **Programming B - Sensing:** Applying knowledge gained in different programming unit in a different, but still familiar environment whilst also utilising a physical device - the micro:bit. Build in and test in the programming environment before transferring it to their micro:bit.

Year 7	**Impact of technology - Collaborating online respectfully:** How to use the school network appropriately. Exploring why appropriate usage is important, as well as examining online safety issues. **Modelling data - Spreadsheets:** 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.	**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. **Programming essentials in Scratch - part 1:** Build confidence and knowledge of the key programming constructs. Exploring sequencing, variables, selection, and count-controlled iteration.	**Programming essentials in Scratch - part 2:** Building on understanding of the control structures' sequence, selection, and iteration (the big three), and develop problem-solving skills. Learn how to create subroutines, develop understanding of decomposition. **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	**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.	**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. **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.	**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. **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.