William Fletcher Primary School Curriculum Knowledge Map

Computing

EYFS

In EYFS, we provide children with a broad, play-based experience of IT and computing in a range of contexts, including off-computer activities. Our learning environment features IT scenarios based on experience in the real world, such as in role play. Children have opportunities to explore the use of technology and develop a familiarity with different equipment and vocabulary. This can include: taking a photograph with a camera or tablet; searching for information on the internet; playing games on the interactive whiteboard; exploring an old typewriter, telephone or other mechanical toys; using a Beebot; watching a video clip and listening to music.

Year	Autumn	Spring	Summer
KS1: Years 1 & 2			
Year A	**Beebots (Programming)** To explore a new device To create a demonstration video To plan and follow a set of instructions precisely To program a device To create a program **Digital Imagery (Creating Media)** To understand and create a sequence of pictures To take clear photos To edit photos To search for and import images To create a photo collage **Online Safety** To know what the internet is and how to use it safely To understand different feelings when using the internet	**Introduction to data (Data handling)** To represent data in different ways To use technology to represent data in different ways To collect and record data To sort data To design an invention to gather data **International Space Station (Data handling)** To understand how computers can help humans survive in space To create a digital drawing of essential items for life in space To understand the role of sensors on the ISS To create an algorithm for growing a plant in space To interpret data **Online Safety** To understand how to treat others, both online and in-person	**ScratchJr (Programming)** To explore a new application To create an animation To use characters as buttons To follow an algorithm To plan and use code to create an algorithm **Stop motion (Creating media)** To understand what animation is To understand what stop motion animation is To plan a stop motion animation To create a stop motion animation **Online Safety** To understand the importance of being careful about what we post and share online
Year B	**Algorithms unplugged (Programming)** To understand what an algorithm is To follow instructions precisely to carry out an action To understand that computers and devices around us use inputs and outputs To understand and be able to explain what decomposition is To know how to debug an algorithm **Improving mouse skills (Computing systems and networks)** To log into a computer and access a website To develop mouse skills	**What is a computer? (Computer systems and networks)** To recognise the parts of a computer To recognise how technology is controlled To recognise technology To create a design for an invention To understand the role of computers **Algorithms and debugging (Programming)** To decompose a game to predict the algorithms that are used	**Word processing (Computing systems and networks)** To begin to learn to touch type To understand how to use a word processor To understand how to add images to a text document To create a poetry book using sources from the internet To understand what happens to information posted online **Rocket to the Moon (Skills Showcase)** To recognise that digital content can be represented in many forms To design a rocket To sequence a set of instructions To build a rocket

	To use mouse skills to draw and edit shapes To draw a scene from a story using digital tools To create a self-portrait using digital techniques **Online Safety** To know what happens to information posted online To know how to keep things safe and private online	To understand that computers can use algorithms to make predictions (machine learning) To plan algorithms that will solve problems To understand what abstraction is To understand what debugging is **Online Safety** To explain what should be done before sharing information online To explain why I have the right to say no and deny permission	To add data to a table or spreadsheet **Online Safety** To understand strategies that will help me decide if something seen online is true or not

LKS2: Years 3 & 4

Year A	**Networks and the Internet (Computing systems and networks)** To understand what a network is and understand our school network To understand how information moves around a network and begin to recognise real world network To understand how the Internet works and explain a website's journeys To explore the role of routers To understand the role of packets **Comparison cards (Data handling)** To understand the terminology around databases To compare paper and computerised databases To sort, filter and interpret data To represent data in different ways To sort data for a purpose **Online Safety** To describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy To describe some of the methods used to encourage people to buy things online	**Journey inside a computer (Computer systems and networks)** To recognise basic inputs and outputs To decompose a laptop To understand the purpose of computer parts To decompose a tablet computer **Collaborative learning (Computing systems and networks)** To understand that software can be used collaboratively online to work as a team To understand how to contribute to someone else's work effectively To understand how to create effective presentations To understand how to create and share Google Forms To understand how to use a shared spreadsheet to explore data **Online Safety** To explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true To explain that technology can be designed to act like or impersonate living things	**Investigating weather (Data handling)** To log data taken from online sources within a spreadsheet To design a weather station To design an automated machine to respond to sensor data To understand how weather forecasts are made To use tablets or digital cameras to present a weather forecast **HTML (Skills Showcase)** To understand and identify examples of HTML tags To change HTML code for a specific purpose To change the HTML and CSS to alter the appearance of an object on the web To understand and explore more complex components of a web page To alter key elements on a webpage including text and images **Online Safety** To explain how technology can be a distraction and identify when I might need to limit the amount of time spent using technology
Year B	**Online Safety** To understand how the internet can be used to share beliefs, opinions and facts To understand the effects that some internet use can have on our feelings and emotional wellbeing To understand the ways personal information can be shared on the internet To understand the rules for social media platforms	**Video trailers (Creating media)** To plan a book trailer To take photos or videos to tell a story To edit a video To add text and transitions to a video To evaluate video editing	**Further coding with Scratch (Programming)** To recall the key features of Scratch To understand how a Scratch game works by using decomposition to identify key features To understand what a variable is and how to make one To understand how to make a variable in Scratch To use knowledge of how variables work to create a quiz

	Programming: Scratch To explore a programming application To use repetition (a loop) in a program To program an animation To program a story To program a game	**Website design (Creating media)** To explore the features of Google Sites to learn how to create content for a web page To plan content for a web page as a collaborative online piece of work To create a web page as part of a collaborative class website To plan and create a website To create a website and evaluate its success **Online Safety** Review of Online Safety learning	**Computational thinking (Programming)** To understand that computational thinking is made up of four key strands To understand what decomposition is and how to apply it to solve problems To understand what pattern recognition and abstraction mean To understand how to create an algorithm and what it can be used for To combine computational thinking skills to solve a problem **Online Safety** Review of Online Safety learning
	UKS2: Years 5 & 6		
Year A	**Bletchley Park (Computing systems and networks)** To understand that there are lots of different types of secret codes To understand the importance of having a secure password To understand the importance of Bletchley Park to the World War II war effort To understand about some of the historical figures that contributed to technological advances in computing To research and present information about historical figures in computing **History of Computers (Creating media)** To tinker with sound To record, edit and add sound effects to a radio play To understand how computers have changed and the impact this has had on the modern world To research one of the computers that changed the world and present information about it to the class To design a computer of the future **Online Safety** To understand how apps can access our personal information and how to alter the permissions To be aware of the positive and negative aspects of online communication	**Mars Rover 1 (Data handling)** To identify how and why data is collected from space To read and calculate numbers using binary code To identify the computer architecture of the Mars Rovers To use simple operations to calculate bit patterns To represent binary as text **Mars Rover 2 (Skills showcase)** To understand how bit patterns represent images as pixels To explain how the data for digital images can be compressed To identify and explain the 'fetch, decode, execute' cycle To create a safe online profile and tinker with 3D design software To modify the design of a 3D object using CAD software **Online Safety** To understand how online information can be used to form judgements To discover ways to overcome bullying	**Stop motion animation (Creating media)** To understand what animation is To understand what stop motion animation is To plan my stop motion video, thinking about the characters I want to use To create a stop motion animation To edit and assess my stop motion animation **Inventing a product (Skills showcase)** To design an electronic product To code and debug a program To use CAD to design a product To create a website To create and edit a video To understand the techniques used in advertising a product **Online Safety** To understand how technology can affect health and wellbeing

Year B			
	Programming: music (Programming) To tinker with Scratch music elements To create a program that plays themed music To plan a soundtrack program To program a soundtrack To program music for a specific purpose **Search engines (Computing systems and networks)** To understand what a search engine is and how to use it To be aware that not everything online is true To search effectively To create an informative poster To understand how search engines work **Online Safety** To describe issues online that give us negative feelings and know ways to get help To think about the impact and consequences of sharing online	**Programming: Micro:bit (Programming)** To tinker with a new piece of software To program an animation To recognise coding structures To create a program **Big data 1 (Data handling)** To identify how barcodes and QR codes work To explore how infrared waves transmit data To recognise the uses of RFID To input and analyse real-world data To analyse and evaluate data **Online Safety** To know how to create a positive online reputation To be able to describe how to capture bullying content as evidence	**Big data 2 (Data handling)** To explain how data can be safely transferred To investigate the data usage of online activities To identify how data analysis can improve city life To design a system for turning a school into a smart school To present ideas for turning a school into a smart school **Introduction to Python (Programming)** To tinker with a new piece of software To understand nested loops To understand basic Python commands To use loops when programming To understand the use of random numbers **Online Safety** To manage personal passwords effectively To be aware of strategies to help be protected online	