Long Term Plan for Computing

Fields Multi Academy Trust

Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	**Computing systems and networks 1** During this unit, children will learn about the main parts of a computer, use the keyboard and the mouse and logging in and out.	**Programming 1** During this unit, children will learn to receive and give instructions and understand why it is important to give precise instructions.	**Computing systems and networks 2** During this unit, children will recognise a range of technology used in the home or at school and will learn to operate a camera.	**Programming 2** In this unit, children will learn about directions, experiment with programming a Beebot and explore different hardware.	**Data handling** In this unit, children will sort and categorise data and will be introduced to branching databases and pictograms.	**Programming 2** In this unit, children will refine their skills to give directions and continue to experiment with programming a Beebot and exploring different hardware.
Year 1 and 2	**Computing Systems and Networks:** During this unit, children will develop skills to log onto a computer and use and improve mouse skills. They will learn to 'drag and drop' and control a cursor to help create digital 'paintings'.	**Programming 1:** Algorithms unplugged In this unit, children will understand the need for following instructions carefully to achieve a specific outcome through practical 'unplugged' learning – for example, following instructions to dress up.	**Skills Showcase** Rocket to the Moon: During this unit, children will use drawing software to capture ideas. They will create lists using 'word' software and will record simple data collected from exploration using computer tools or by hand.	**Computing Systems and Networks** What is a computer? Through exploration, children will create a sequence of instructions for a 'Beebot' to make it move. They will explore how they can change instructions to alter the direction of movement Beebot takes.	**Programming** Algorithms and Debugging In this unit, children will begin to understand what an 'algorithm' is. They will write clear and precise algorithms to achieve a specific outcome and create a simple loop of codes.	**Computing Systems and Networks** Word Processing During this unit, children will learn to 'touch type' and use simple keyboard shortcuts to facilitate actions such as copying. They will learn to import images and change font colour and size.
On-line Safety	**On-line Safety lesson taught every half term.**					

Year 3 and 4	**Computing systems and networks** Emailing Children will begin this unit by considering what an email is. They will learn how to send emails and add attachments. Children will learn about ensuring that content sent via an email is responsible and respectful.	**Programming** Programming: Scratch In this unit, we will use more advanced loops to create repeated actions. The children will develop a story or animation using coding blocks and one or more images and backdrops.	**Computing systems and networks 2** Video Trailer During this unit, children will understand what is meant be a 'trailer'. They will take video footage and understand how this can be shared between devices. Children will then use 'editing' software to store, combine and share their 'trailer'.	**Creating Media** Website design Children will gather research and images for a specific purpose. They will understand how a simple website is formed and will add information to a webpage. Children will learn to change the order, style and positions of information on a simple webpage.	**Programming** Further Coding with Scratch In this unit, children will create a script for an animation or game. They will understand what a variable is and will create a sequence of codes with a variable. The children will learn to 'debug' codes when something does not work as expected.	**Programming** Computational thinking Children will begin to understand how computers can be used to solve problems. They will explore use of coding software to draw a square and at least one other shape. The children will consider use of decomposition to work out what coding might have been required to achieve a specific action.
On-line Safety	**On-line Safety lesson taught every half term.**					

Year 5 and 6	**Programming** Microbit In this unit, children will start to recognise that coding through blocks on screen can control an external output, such as a Microbit. They will use coding blocks to create a sequence of codes to make a flashing animation on a Microbit.	**Data Handling** Mars Rover 1 Children will learn about computerised technologies such as the Mars Rover and will identify the sorts of data that the Mars Rover would collect. They will use and understand the function of binary code for sharing and sending data, before adding numbers together presented in binary code.	**Skills Showcase** Mars Rover 2 In this unit, the children will have the opportunity to further explore binary and begin to understand pixels. They will use and understand the term JPEG and Bitmap to exchange data in image form. Children will begin to understand the purpose and use of 3D design tools.	**Computing systems and networks** Bletchley Park Within this unit, children will know what the significance of Bletchley Park is on our own history. They will recognise the role that some of the people had in Bletchley Park and will present information in a chosen format about some of these historical figures.	**Creating Media** History of computers Children in this unit will write, record and present a short radio segment set in a historical time period. To start with, they will research how computers have evolved over time. They will then have the chance to design a computer for the future and justify the choices they have made.	**Skills Showcase** Inventing a product During this unit, the children will understand what computer aided design (CAD) software can be used to create. Through use of different CAD software, the children will have the chance to design a product for the future and will then develop an advert for the product.
On-line Safety	**On-line Safety lesson taught every half term.**					

Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	**Computing systems and networks 1** During this unit, children will learn about the main parts of a computer, use the keyboard and the mouse and logging in and out.	**Programming 1** During this unit, children will learn to receive and give instructions and understand why it is important to give precise instructions.	**Computing systems and networks 2** During this unit, children will recognise a range of technology used in the home or at school and will learn to operate a camera.	**Programming 2** In this unit, children will learn about directions, experiment with programming a Beebot and explore different hardware.	**Data handling** In this unit, children will sort and categorise data and will be introduced to branching databases and pictograms.	**Programming 2** In this unit, children will refine their skills to give directions and continue to experiment with programming a Beebot and exploring different hardware.
Year 1 and 2	**Computer systems and networks** What is a computer? In this unit, the children will explore what is meant by a computer input and output. They will understand how computers are used in the wider world and know some of the computerised inputs and outputs we use in school.	**Creating Media** Digital Imagery During this unit, the children will take and save photos, as well as learning to gather images from the internet. They will explore software to enhance or change photos using simple editing techniques.	**Data Handling** Introduction to Data Children will have the chance to understand what data is and how data can be helpful. They will explore ways of recording data by humans and by computers for a specific purpose.	**Programming** Scratch Jr In this unit, we will begin to understand what coding 'blocks' are. The children will carry out a cycle of 'predict, test and review' using inputted codes. They will create an animation of an animal with sounds developed through use of Scratch Jr.	**Creating Media** Stop Motion During this unit, the children will learn to use storyboards to help plan for an animation. They will learn about 'stop motion' software before breaking down larger parts of a story into smaller steps to assist in developing animation between movements.	**Data Handling** International Space Station Here, the children will gain an understanding of what it is like for an astronaut living in space. They will begin to understand what the International Space Station and understand how space exploration can benefit Earth.
On-line Safety	**On-line Safety lesson taught every half term.**					

Year 3 and 4	**Computing systems and networks** Networks and the Internet In this unit, the children will start to understand what a network is. They will recognise how devices can 'communicate' between other using networks. The children then will explore 'real life' networks used to share information and data.	**Data Handling** Comparison Cards and Databases During this unit, we will learn and understand what the term 'record, field and data,' mean in relation to data stored through a technology source. The children will learn how technology can be used to sort and filter information and data.	**Computing systems and networks** Journey Inside a Computer Within this unit, the children will consider parts of computer systems further. The children will understand what the role is of different parts of a computer are through exploration and drama work.	**Computing systems and networks** Collaborative Learning In this unit, we will explore the creation of digital forms for asking questions or gathering data. We will use 'track and change' tools on documents to suggest amendments to someone else's work.	**Data Handling** Investigating the Weather Here, the children will understand what a spreadsheet is and how data can be added. They will create and design a weather station to gather data about weather, before producing a short weather forecast video.	**Skills Showcase** HTML • Know what HTML code is. Explore how simple HTML code can be changed to amend the colours, shapes and positions of information stored on a webpage.
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Year 5 and 6	**Programming** Programming Music In this unit, the children will have the chance to learn that computer programming software, APPs and other facilities can be used to make and record melodies. They will compare and evaluate different melodies made using digital technologies.	**Creating Media** Stop Motion Animation During this unit, we will take videos and photos with different devices. The children will learn to upload and edit their own images and videos using cropping or editing tools. They will then learn to create a video in which images and video are sequenced together for a specific purpose.	**Computer systems and networks** Search Engines During this half term, children will understand what a search engine is and how information is presented on a search engine. The children will use strategies to improve the validity of searches. We will compare research and evaluate the accuracy of a website. The children will learn that information presented online is not always true or accurate.	**Data Handling** Big Data 1 In this unit, we will understand that data can be carried in QR codes, barcodes, infrared, and RFID technologies (Radio Frequency Identification). The children gather, store and present their own data, before creating QR codes so that their data sets can be accessed by other people.	**Data Handling** Big Data 2 During this unit, we will understand what is meant WiFi and mobile data. The children will compare data activities on different digital devices and compare to recognise which are high or low data use tasks.	**Programming** Introduction to Python The children will understand that a programming language is available called Python. They will learn how to build and use repeats when programming using Phyton language. Finally, we will decompose coding from Python to explain what processes might have been carried out.
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