



Computing Progression of learning Wootton St Peter's

"The People That Have Really Made The Contributions Have Been The Thinkers And The Doers." Steve Jobs

National Curriculum Overview	
Key Stage 1	Key Stage 2
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school • Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Multimedia and Word Processing			
Nursery and Reception	Years 1 and 2	Years 3 and 4	Years 5 and 6
<ul style="list-style-type: none"> • I am beginning to use the mouse and keyboard. • I use ICT hardware to interact with age appropriate computer software. 	<ul style="list-style-type: none"> • I can word process a range of short texts • I can use editing skills to improve my work • I select different presentational features • I can save, print and retrieve my work • I can use the mouse, arrow keys or touchscreen to insert text • I can use graphics, video and sound to enhance my work • I can talk about how my use of graphics, sound and video enhance the mood • I can use different layouts and templates for different purposes 	<ul style="list-style-type: none"> • I can evaluate a range of electronic multimedia • I can plan the structure and layout of a document/presentation • I can select and import graphics from digital media and the Internet • I can select and import sounds and video/ visual effects • I choose freely from a range of text styles • I use more than two fingers to enter text 	<ul style="list-style-type: none"> • I can plan the structure of a presentation • I can use a multimedia program to organise, refine and present information for a specific audience • I can use a hyperlinks in my work • I can format text to indicate relative importance. I can justify text where appropriate. • I can cut and paste between applications. • I can delete/insert and replace text to improve clarity and mood. • I can make corrections using spell check • I can use both hands when typing

Digital Media			
Nursery and Reception	Years 1 and 2	Years 3 and 4	Years 5 and 6
<ul style="list-style-type: none"> • I can begin to make simple marks on a computer drawing program. • I select and use technology for a particular purpose. 	<ul style="list-style-type: none"> • I can use ICT to source, generate and amend ideas for their art work • I can talk about the advantages and disadvantages of using a graphics package over paper based art activities • I can use a variety of skills using a range of tools and techniques to communicate a specific idea or artistic style /effect • I can choose an art programme or APP for a purpose and explain my choice • I can manipulate digital stills or video • I can select and edit and change images • Begin to change or enhance photographs and pictures (crop, re-colour) • I can use a sequence of still images which together form a short animated sequence • I can create a simple animation to illustrate a story or idea • I can upload images to a 	<ul style="list-style-type: none"> • I can import photos and explore effects • I can use visual effects such as filters, hues and painting over photographs. • I can create patterns and montages • I can plan and create audio for a podcast 	<ul style="list-style-type: none"> • I can use different filming techniques and camera angles • I can plan a video or animation by drawing a storyboard • I can use sound effects, music and voice-overs to create mood/ atmosphere • I can select and edit sounds, text and movie clips to suit a purpose • To create vector graphics using different shapes. • I can explain how alignment grids and resize handles can be used to improve consistency • I can modify objects to create a new image • I can copy part of a drawing by duplicating several objects • I can recognise when I need to group and ungroup objects

	safe website, blog, iCloud or server		
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Programming			
Nursery and Reception	Years 1 and 2	Years 3 and 4	Years 5 and 6
<ul style="list-style-type: none"> I can complete a simple program on a computer. 	<ul style="list-style-type: none"> I can talk about how everyday devices can be controlled I can control actions on screen by sequences of instructions I can create a sequence of instructions to control a programmable robot to include direction, distance and turn I can use a range of control devices and programmes/APPs I can control music software through sequencing icons I can talk about how to improve/change their sequence of commands 	<ul style="list-style-type: none"> I can navigate a programming APP I can create a sprite for a game. I can add inputs to control my sprite. I can use conditional statements (if... then) within my game. I can create a 3D digital world for a game with land, water and scenery. I can program my sprite to navigate my 3D world I can use conditional statements ('if...then') to give objects behaviours 	<ul style="list-style-type: none"> I can create a basic HTML page with head and body sections. I can create more complex games I can create a user controlled sprite and sprites with different behaviours. I can shift camera angles in settings and in the code

Communication and Collaboration			
Nursery and Reception	Years 1 and 2	Years 3 and 4	Years 5 and 6
<ul style="list-style-type: none"> I recognise that a range of technology is used in places such as homes and schools. 	<ul style="list-style-type: none"> I can contrast the different ways that messages can be sent I can contribute/respond to emails, forums and blogs I can talk about benefits of using online communications with a wider audience I can look and talk about other people's contributions on the learning platform I consider who can see their contributions on the learning platform 	<ul style="list-style-type: none"> I can select my best work to organise and save I can use different online communication methods to share my work I can discuss advantages and disadvantages of different communication methods I can use different levels of formality when I communicate with different people online 	<ul style="list-style-type: none"> I can work collaboratively online. I can create and publish a new post I understand that websites such as Wikipedia are made by users I use strategies to check the reliability of information and websites I can save/upload/download files in iCloud and on servers I can make use of a web search to find specific information I can refine my web search

Data			
Nursery and Reception	Years 1 and 2	Years 3 and 4	Years 5 and 6
	<ul style="list-style-type: none"> I can present data in a range of ways I can use a graphing package to record information, adding labels and numbers I can use ICT to edit and change the information quickly. 	<ul style="list-style-type: none"> I can enter data into a graphing package to create a range of graphs, and to interpret data across all subjects I can compare how different graphs can be used for different purposes I can create and use a branching database to 	<ul style="list-style-type: none"> I can change variables in a spreadsheet to solve problems I can enter formulae for the four operations (+-x/) into a spreadsheet I can use 'SUM' to calculate the total of a set of numbers in a range

	<ul style="list-style-type: none"> I can talk about how ICT helps them to organise their information 	<p>organise and analyse information</p> <ul style="list-style-type: none"> compare the use of graphing software, branching database and card-based database for organising and interpreting data I can explore real-life examples of branching databases, such as keys for animal identification 	<ul style="list-style-type: none"> of cells I can change data in a spreadsheet to answer 'what if...?' questions I can create a simple spreadsheet model and use it to solve problems I can plan and carry out an investigation using data logging technology I make predictions for my investigation and know how to make it a fair test I can interpret results and draw conclusions from my investigation
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E-Safety			
Nursery and Reception	Years 1 and 2	Years 3 and 4	Years 5 and 6
<ul style="list-style-type: none"> I demonstrate the school's e- safety rules in all aspects of my ICT work 	<ul style="list-style-type: none"> I demonstrate the school's e- safety rules in all aspects of my ICT work 	<ul style="list-style-type: none"> I demonstrate the school's e- safety rules in all aspects of my ICT work 	<ul style="list-style-type: none"> I demonstrate the school's e- safety rules in all aspects of my ICT work

Computing Long Term Overview

EYFS			
CYCLE	AUTUMN TERM	SPRING TERM	SUMMER TERM
A	<p>Use pretend technology eg cameras, keyboards etc engage in age appropriate computer programmes on the large interactive whiteboard.</p> <p><i>Rational: Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Be confident to try new activities and show independence, resilience and perseverance in</i></p>	<p>Use pretend technology eg cameras, keyboards etc</p> <p><i>Rational: Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Use a variety of materials, tools and techniques. Explore, use and refine a variety of artistic effects to express their ideas and feelings To develop an enquiring mind</i></p>	<p>Engage in age appropriate computer programmes on the large interactive whiteboard.</p> <p><i>Rational: Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Use a variety of materials, tools and techniques. Explore, use and refine a variety of artistic effects to express their ideas and feelings To develop an enquiring mind To be independent thinkers To ask questions</i></p>

	<p><i>the face of challenge.</i></p> <p><i>Use a variety of materials, tools and techniques.</i></p> <p><i>Explore, use and refine a variety of artistic effects to express their ideas and feelings</i></p> <p><i>To develop an enquiring mind</i></p> <p><i>To be independent thinkers</i></p> <p><i>To ask questions</i></p> <p><i>To be confident to take risks</i></p>	<p><i>To be independent thinkers</i></p> <p><i>To ask questions</i></p> <p><i>To be confident to take risks</i></p>	<p><i>To be confident to take risks</i></p>
B	<p>Use pretend technology eg cameras, keyboards etc engage in age appropriate computer programmes on the large interactive whiteboard.</p> <p><i>Rational: Develop their small motor</i></p>	<p>Use pretend technology eg cameras, keyboards etc</p> <p><i>Rational: Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</i></p> <p><i>Be confident to try new activities and show independence, resilience and</i></p>	<p>Engage in age appropriate computer programmes on the large interactive whiteboard.</p> <p><i>Rational: Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</i></p> <p><i>Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</i></p>

	<p>skills so that they can use a range of tools competently, safely and confidently.</p> <p>Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</p> <p>Use a variety of materials, tools and techniques.</p> <p>Explore, use and refine a variety of artistic effects to express their ideas and feelings</p> <p>To develop an enquiring mind</p> <p>To be independent thinkers</p> <p>To ask questions</p> <p>Be confident to take risks</p>	<p>perseverance in the face of challenge.</p> <p>Use a variety of materials, tools and techniques.</p> <p>Explore, use and refine a variety of artistic effects to express their ideas and feelings</p> <p>To develop an enquiring mind</p> <p>To be independent thinkers</p> <p>To ask questions</p> <p>To be confident to take risks</p>	<p>Use a variety of materials, tools and techniques.</p> <p>Explore, use and refine a variety of artistic effects to express their ideas and feelings</p> <p>To develop an enquiring mind</p> <p>To be independent thinkers</p> <p>To ask questions</p> <p>To be confident to take risks</p>
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KEY STAGE 1

CYCLE	AUTUMN TERM	SPRING TERM	SUMMER TERM
A	<ul style="list-style-type: none"> Computing systems and networks- technology around us- Recognise common 	Moving a robot- Understand what algorithms are; how they are implemented as programs on	Creating Media- Digital writing - Use technology purposefully to create, organise, store, manipulate and retrieve digital content

	<p>uses of information technology beyond school.</p> <p><i>Develop learners' understanding of technology and how it can help them. They will become more familiar with the different components of a computer by developing their keyboard and mouse skills, and also start to consider how to use technology responsibly.</i></p>	<p>digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p><i>Learners will explore using individual commands, both with other learners and as part of a computer program. As well as introducing students to early programming concepts and algorithms.</i></p>	<p><i>Promote your learners' understanding of the various aspects of using a computer to create and change text.</i></p>
	<ul style="list-style-type: none"> Digital Photography- Use technology purposefully to create, organise, store, manipulate and retrieve digital content <p><i>Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos.</i></p>	<p>Data and information- Pictograms- Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p>This unit introduces the learners to the term 'data' and allow them to use the data to answer questions.</p>	<p>Programming- programming animations- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p><i>They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.</i></p>
B	<p>Computing systems and networks - around us- Recognise common uses of information technology beyond school.</p> <p><i>How is information technology (IT) being used for good in our</i></p>	<p>Robot Algorithms- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <ul style="list-style-type: none"> Create and debug simple programs <p><i>This unit develops learners' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. They will also</i></p>	<p>Creating Media- Digital Music- Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p><i>Learners will explore how music can make them think and feel. They will make patterns and use those patterns to make music with both percussion instruments and digital tools.</i></p>

	<p><i>lives? With an initial focus on IT in the home, learners explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of technology, and how to make smart choices when using it.</i></p>	<p><i>design algorithms and then test those algorithms as programs and debug them.</i></p>	
	<p>Digital Painting- Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p><i>Empower them to create their own paintings, while getting inspiration from a range of other artist.</i></p>	<p>Data and information- grouping data- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <p><i>Pupils will use their ability to sort objects into different groups to answer questions about data.</i></p>	<p>Programming- Programming Quizes- Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p><i>Learners begin to understand that sequences of commands have an outcome and make predictions based on their learning.</i></p>

KEY STAGE 2: YEARS 3 & 4

CYCLE	AUTUMN TERM	SPRING TERM	SUMMER TERM
A	<p>Computer Systems – connecting computers</p> <p>Rationale: Learners will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Next, learners will be introduced to computer networks, including devices that make up a network’s infrastructure, such as wireless access points and switches. Finally, learners will discover the benefits of connecting devices in a network.</p> <p>This unit progresses learners’ knowledge and understanding of technology by focusing on digital and non-digital devices, from KS1 units exploring technology and IT systems around us. It introduces the concept of computers connected together as a network. Following this unit, learners will explore the internet as a network of networks.</p>	<p>(ICT: Online safety) Safer Internet Day</p> <p>Animation – Stop frame animation</p> <p>Rationale: Learners will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with learners adding other types of media to their animation, such as music and text.</p> <p>This unit progresses students’ knowledge and understanding of using digital devices to create media, exploring how they can create stop-frame animations. Following this unit, learners will further develop their video editing skills in UKS2.</p>	<p>Programming – Sequencing sounds</p> <p>Rationale: This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most learners. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Learners also apply stages of program design through this unit.</p> <p>This unit builds on prior experience of programming, including floor robots, Scratch and ScratchJr.</p>
	<p>Computer systems and networks – the internet</p> <p>Rationale: Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will</p>	<p>Creating media – Audio production</p> <p>Rationale: Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of</p>	<p>Programming - events and actions in programs</p> <p>Rationale: This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They then explore movement within the context of a maze, using design to</p>

	<p>be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.</p> <p>This unit progresses students' knowledge and understanding of networks from that developed earlier in the term. In UKS2, they will continue to develop their knowledge and understanding of computing systems and understand how search engines work via the internet and the world wide web.</p>	<p>duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers.</p> <p>This unit progresses students' knowledge and understanding of creating media, by focusing on the recording and editing of sound to produce a podcast. Following this unit, learners will explore combining audio with video in the 'Video editing' unit in UKS2.</p>	<p>choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of Pen blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze-tracing program.</p> <p>This unit builds on prior experience of programming, including floor robots, sequencing, Scratch and ScratchJr.</p>
B	<p>Data information – branching databases</p> <p>Rationale: Learners will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Learners will create physical and on-screen branching databases. To conclude the unit, they will create an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching databases.</p>	<p>(ICT: Online safety) Safer Internet Day</p> <p>Creating media – desktop publishing</p> <p>Rationale: Learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine</p>	<p>Programming – Logo (repetition of shapes)</p> <p>Rationale: Learners will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. This unit is the first of the two programming units in Year B and looks at repetition and loops within programming.</p> <p>This unit progresses students' knowledge and understanding of programming. This unit progresses on to using count-controlled loops in sequences. Pupils will create algorithms and then implement those algorithms as code.</p>

<p>This unit progresses learners' knowledge and understanding of the categories of data handling, with a particular focus on implementation. It builds on their knowledge of data and information from key stage 1. They will continue to develop their understanding of attributes and begin to construct and interrogate branching databases as a means of displaying and retrieving information.</p>	<p>front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.</p> <p>This unit progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from creative digital units in KS1.</p>	
<p>Data Logging</p> <p>Rationale: In this unit, learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.</p> <p>This unit progresses learners' knowledge and understanding of data and how it can be collected over time to answer questions.</p>	<p>Creating media – photo editing</p> <p>Rationale: Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.</p> <p>This unit progresses students' knowledge and understanding of digital photography and using digital devices to create media. Following this unit, learners will further develop their image editing skills in UKS2 – vector drawing.</p>	<p>Programming - Scratch (repetition in games)</p> <p>Rationale: Learners will explore the concept of repetition in programming using the Scratch environment. The unit begins with a Scratch activity similar to that carried out in Logo in Programming earlier in the term, where learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.</p> <p>This unit builds on previous unit programming with repetition and on prior programming units involving Scratch or ScratchJr, floor robots and sequencing.</p>

	Specifically, it builds on the concept of answering questions with data which is first introduced in the KS1 data and information units. The unit also introduces the idea of automatic data collection. Learners are also introduced to data in tables and graphs, knowledge they will build on in the UKS2 units (Flat file databases and Spreadsheets).	
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KEY STAGE 2: YEARS 5 & 6			
CYCLE	AUTUMN TERM	SPRING TERM	SUMMER TERM
A	Programming A selection into Physical Computing <i>Programming</i> Rationale: Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program components (including output devices- LEDs and motors) through the application of their existing programming knowledge.	Creating Media Video Production <i>Digital Media</i> Rationale: This unit gives learners the opportunity to learn how to create short videos in groups.	Data and Information Flat-file databases <i>Data</i> Rationale: Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.
	Programming Variables in Games <i>Programming</i> Rationale: This unit explores the concept of variables in programming through games in Scratch. First, learners find out what variables are and relate them to real-world examples of values that can be set and changed.	Creating Media Web page creation <i>Multimedia Programming</i> Rationale: Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites.	Data and Information Introduction to spreadsheets <i>Data</i> Rationale: Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data.
B	Computing Systems and Networks Systems and Searching	Creating Media Introduction to Vector Graphics	Programming Selection in Quizes

	<p><i>Communication and Collaboration</i></p> <p>Rationale: In this unit, learners develop their understanding of computer systems and how information is transferred between systems and devices.</p>	<p><i>Digital Media</i></p> <p>Rationale: Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work</p>	<p>Rationale: In this unit, pupils 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. They represent this understanding in algorithms and then by constructing programs using the Scratch programming environment.</p>
	<p>Computing Systems and Networks <i>Communication and Collaboration</i></p> <p>Rationale: Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet.</p>	<p>Creating Media 3D Modelling</p> <p>Rationale: Learners will develop their knowledge and understanding of using a computer to produce 3D models.</p>	<p>Programming Sensing Movement <i>Programming</i></p> <p>Rationale: The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit.</p>