



## Computing Progress Curriculum Plan



### By the time the children leave St Peter's School they will:

- All pupils will have equal, inclusive access to computing facilities and curriculum;
- Children know how to be safe and report unsafe behaviour;
- Computing to be presented as a creative and fascinating process in which children are encouraged to use their own initiative, imagination, reasoning and investigative skills;
- Children appreciate the relevance of computing in our society and that they see it as an essential tool for learning, communication, finding information and for controlling and understanding their environment;
- Children receive equal opportunity to develop their computing capability, with the use of computing being planned for in line with its status as a core National Curriculum subject;
- Differentiation is planned for in each area of the computing curriculum so that children achieve to the best of their ability;
- Children learn to work individually and collaboratively;
- Children have a heightened interest and awareness of computing through the regular display of their computing enhanced work in the classrooms and around the school, and the positive role modelling of staff towards an appropriate use of computing

Computer Science	EYFS	KS1		Lower KS2		Upper KS2	
	Reception	Year 1 We are treasure hunters	Year 2 We are astronauts	Year 3 We are programmers	Year 4 We are software developers	Year 5 We are cryptographers	Year 6 We are toy makers
CODING	<ul style="list-style-type: none"> <li>• know how to turn a programmable toy on and off.</li> <li>• program a beebot to follow a simple algorithm.</li> <li>• become aware of the importance of sequencing instructions in the correct order.</li> </ul>	<ul style="list-style-type: none"> <li>• understand a programmable robot can be controlled by inputting a sequence of instructions</li> <li>• to develop and record sequences of instructions as an algorithm</li> <li>• to program a robot to follow their algorithm</li> <li>• to debug programs</li> </ul>	<ul style="list-style-type: none"> <li>• plan a sequence of instructions to move sprites in Scratch Jr</li> <li>• create, test and debug programs for sprites in Scratch Jr</li> <li>• work with input and output in Scratch Jr</li> <li>• use repetition in their programs</li> <li>• design costumes for sprites</li> </ul>	<ul style="list-style-type: none"> <li>• plan and create an algorithm for an animated scene in the form of a storyboard</li> <li>• write a program in Scratch to create the animation, including characters, dialogue, costumes, backdrops and sound</li> <li>• review their animation programs and correct mistakes</li> </ul>	<ul style="list-style-type: none"> <li>• develop an educational computer game using selection and repetition.</li> <li>• understand and use variables.</li> <li>• start to debug computer programs.</li> <li>• recognise the importance of user interface design, including consideration of input and output</li> </ul>	<ul style="list-style-type: none"> <li>• be familiar with semaphore and Morse code</li> <li>• understand the need for private information to be encrypted</li> <li>• encrypt and decrypt messages in simple ciphers</li> <li>• appreciate the need to use complex passwords and to keep them secure</li> <li>• have some understanding of how encryption</li> </ul>	<ul style="list-style-type: none"> <li>• how computers use stored programs to connect input to output</li> <li>• how to generate and evaluate designs in response to a brief</li> <li>• to plan a complex project by decomposing it into smaller parts</li> <li>• to work with physical components of a system</li> <li>• how to design and write a program for an embedded system</li> <li>• to use criteria to provide others with feedback on their work</li> </ul>

		•to predict how their programs will work				works on the internet	
<i>Computer Science</i>	<b>EYFS</b>	<b>KS1</b>		<b>Lower KS2</b>		<b>Upper KS2</b>	
<b>COMPUTATION and THINKING</b>	<b>Reception</b>	<b>Year 1</b> We are TV chefs	<b>Year 2</b> We are game testers	<b>Year 3</b> We are bug fixers	<b>Year 4</b> We are makers	<b>Year 5</b> We are game developers	<b>Year 6</b> We are computational thinkers
	<ul style="list-style-type: none"> <li>• understand that an algorithm is an instruction.</li> <li>• know that there is technology in the home and how it helps us.</li> <li>• know which technology to use for purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• to break down a process into simple, clear steps (an algorithm)</li> <li>• use different features of a video camera</li> <li>• use a video camera to capture moving images</li> <li>• edit a video to include an audio commentary</li> <li>• develop collaboration skills</li> <li>• discuss their work and think about how it could be improved</li> </ul>	<ul style="list-style-type: none"> <li>• observe and describe carefully what happens in computer games</li> <li>• use logical reasoning to make predictions of what a program will do and test these predictions</li> <li>• think critically about computer games and their use</li> <li>• create sequences of instructions for a virtual robot to solve a problem</li> <li>• work out strategies for playing a game well</li> <li>• be aware of how to use games safely and in balance with other activities</li> </ul>	<ul style="list-style-type: none"> <li>• develop a number of strategies for finding errors in programs.</li> <li>• build up resilience and strategies for problem solving.</li> <li>• increase their knowledge and understanding of Scratch.</li> <li>• recognise a number of common types of bug in software.</li> </ul>	<ul style="list-style-type: none"> <li>• about the input-process-output model of computation</li> <li>• about the inputs and outputs available on a BBC micro:bit</li> <li>• to program using the MakeCode block-based environment</li> <li>• to test and debug programs they write, using an on-screen simulator and the micro:bit</li> <li>• how to convert and transfer a program written on screen to the micro:bit</li> </ul>	<ul style="list-style-type: none"> <li>• create original artwork and sound for a game</li> <li>• design and create a computer program for a computer game, which uses sequence, selection, repetition and variables</li> <li>• detect and correct errors in their computer game</li> <li>• use iterative development techniques (making changes) to improve their game</li> </ul>	<ul style="list-style-type: none"> <li>• develop the ability to reason logically about algorithms</li> <li>• to understand how some key algorithms can be expressed as programs</li> <li>• understand that some algorithms are more efficient than others for the same problem</li> <li>• understand common algorithms for searching and sorting a list</li> </ul>
<i>Digital Literacy</i>	<b>EYFS</b>	<b>KS1</b>		<b>Lower KS2</b>		<b>Upper KS2</b>	
<b>ON LINE SAFETY</b>	Reception	<b>Year 1</b> In all units	<b>Year 2</b> In all units	<b>Year 3</b> In all units	<b>Year 4</b> In all units	<b>Year 5</b> In all units	<b>Year 6</b> In all units

	<ul style="list-style-type: none"> <li>● know that they need an adult present when going online.</li> <li>● understand stranger danger can be online too.</li> <li>● know to speak to an adult immediately if they see/ hear something online that seems wrong.</li> <li>● know not to give out personal information online.</li> </ul>	<ul style="list-style-type: none"> <li>● use simple programmable toys safely and sensibly</li> <li>● show respect for the work of their peers.</li> <li>● understand filming must have consent</li> <li>● how to use digital video cameras safely and to show respect to those they are filming</li> <li>● understand the importance of not sharing videos more widely than is appropriate</li> <li>● know what to do if they encounter material that concerns them.</li> <li>● start to learn about copyright, recognising that they own the copyright in their original work and that this cannot be published or copied without their permission.</li> <li>● always use safe search</li> </ul>	<ul style="list-style-type: none"> <li>● recognise advertising on websites and learn to ignore it</li> <li>● be aware of online safety issues when using email</li> <li>● think through privacy implications of their use of search engines</li> <li>● be more discerning in evaluating online information</li> <li>● understand the age restrictions of certain games and the need for age restrictions</li> <li>● understand playing games in moderation</li> <li>● understand that if encounter content or comments which cause distress, to let an adult know straight away</li> <li>● where else to go for help</li> <li>● once images are posted online, it is impossible to control what happens to them</li> </ul>	<ul style="list-style-type: none"> <li>● give examples of the risks posed by online communications.</li> <li>● that comments made online that are hurtful or offensive are the same as bullying</li> <li>● the need for caution when using an internet search for images</li> <li>● consider copyright when downloading resources</li> <li>● use safe search</li> <li>● know what to do if they see something inappropriate</li> <li>● know what information is ok to share and who with</li> <li>● how to participate positively online</li> <li>● how to protect your identity online</li> <li>● know what to do if they encounter inappropriate images or other content</li> <li>● discuss why schools and other organisations have</li> </ul>	<ul style="list-style-type: none"> <li>● independently, and with regard for e-safety, select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school</li> <li>● they should not publish other people's pictures or tag them on the internet without permission</li> <li>● that content put online is extremely difficult to remove</li> <li>● that comments made online that are hurtful or offensive are the same as bullying.</li> <li>● know what to do if they find an unsuitable image</li> <li>● consider copyright when sourcing images or media</li> <li>● develop safe search habits</li> <li>● know what information they can share and how to participate positively in an online community</li> <li>● know what</li> </ul>	<ul style="list-style-type: none"> <li>● develop their research skills to decide what information is appropriate.</li> <li>● question the plausibility and quality of information.</li> <li>● develop their understanding of online safety and responsible use of technology.</li> <li>● collaborate with others online on sites approved and moderated by teachers.</li> <li>● give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems.</li> <li>● understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.</li> <li>● understand the effect of online comments and show responsibility and sensitivity when online.</li> <li>● recognise that information on the internet may not be accurate or reliable and may be used for bias, manipulation or persuasion</li> <li>● understand that the internet contains fact, fiction and opinion and begin to distinguish between them</li> <li>● use strategies to verify information, e.g. cross-checking</li> <li>● understand the need for caution when using an internet search for images</li> </ul>	<ul style="list-style-type: none"> <li>● collaborate with others online on sites approved and moderated by teachers.</li> <li>● give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems.</li> <li>● understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.</li> <li>● understand the effect of online comments and show responsibility and sensitivity when online.</li> <li>● recognise that 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	<i>Information Technology</i>	<b>EYFS</b>		<b>KS1</b>		<b>Lower KS2</b>		<b>Upper KS2</b>
	<b>MEDIA</b>	<b>Reception</b>	<b>Year 1</b> We are publishers We are TV chefs	<b>Year 2</b> We are animators We are safe researchers	<b>Year 3</b> We are co-authors	<b>Year 4</b> We are bloggers	<b>Year 5</b> We are web developers We are VR designers	<b>Year 6</b> We are connected We are advertisers

	<ul style="list-style-type: none"> <li>• know which technology to use for purpose.</li> <li>• use an ipad to take a photo/video .</li> <li>• be able to switch it on and find appropriate icon.</li> </ul>	<ul style="list-style-type: none"> <li>• use different features of a video camera</li> <li>• use a video camera to capture moving images</li> <li>• edit a video to include an audio commentary</li> <li>• develop collaboration skills</li> <li>• discuss their work and think about how it could be improved</li> <li>• plan a small multimedia eBook</li> <li>• choose and import images</li> <li>• record audio commentary</li> <li>• add and format titles and other text</li> <li>• think carefully about protecting their privacy</li> <li>• respect other people's copyright</li> <li>• revise and improve their work</li> </ul>	<ul style="list-style-type: none"> <li>• understand how animation works</li> <li>• use storyboards to plan an animation</li> <li>• create their own original characters, props and backgrounds for an animation</li> <li>• film, review and edit a stop-motion animation</li> <li>• record audio to accompany their animation</li> <li>• provide constructively critical feedback to their peers</li> <li>• develop collaboration skills through working as part of a group</li> <li>• <i>develop research skills through searching for information on the internet</i></li> <li>• <i>improve note-taking skills through the use of mind mapping</i></li> <li>• <i>develop presentation skills through creating and delivering a short multimedia presentation</i></li> </ul>	<ul style="list-style-type: none"> <li>• understand the conventions for collaborative online work, particularly in wikis. <ul style="list-style-type: none"> <li>• be aware of their responsibilities when editing other people's work.</li> <li>• become familiar with Wikipedia, including potential problems associated with its use</li> </ul> </li> <li>• practise research skills</li> <li>• write for a target audience using a wiki tool.</li> <li>• develop collaboration skills.</li> <li>• develop proofreading skills</li> </ul>	<ul style="list-style-type: none"> <li>• become familiar with blogs as a medium and a genre of writing</li> <li>• create a sequence of blog posts on a theme</li> <li>• incorporate additional media</li> <li>• comment on the posts of others</li> <li>• develop a critical reflective view of a range of media, including text</li> </ul>	<ul style="list-style-type: none"> <li>• the name and function of components making up the school's network</li> <li>• how information is passed between the components that make up the internet</li> <li>• what the source code for a web page looks like, and how it can be edited</li> <li>• how a website can be structured</li> <li>• how to add content to a web page</li> <li>• explore real-world and imagined locations in VR (if possible)</li> <li>• create 360 degrees photosphere images</li> <li>• link physical objects to digital content using QR codes</li> <li>• create their own VR scene</li> <li>• program objects and interactions in VR</li> </ul>	<ul style="list-style-type: none"> <li>• about appropriate rules or guidelines for a civil online discussion</li> <li>• how to search results are selected and ranked</li> <li>• how to argue their point effectively, supporting their views with sources</li> <li>• how to counter someone else's argument while showing respect and tolerance</li> <li>• how to judge the reliability of an online source</li> <li>• some strategies for dealing with online bullying</li> <li>• think critically about how video is used to promote a cause</li> <li>• storyboard an effective advert for a cause</li> <li>• work collaboratively to shoot original footage and source additional content</li> <li>• acknowledge intellectual property rights</li> <li>• work collaboratively to edit the assembled content to make an effective advert</li> </ul>
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<i>Information Technology</i>	<b>EYFS</b>	<b>KS1</b>		<b>Lower KS2</b>		<b>Upper KS2</b>	
	<b>Reception</b>	<b>Year 1</b> <b>We are detectives</b>	<b>Year 2</b> <b>We are Zoologists</b>	<b>Year 3</b> <b>We are opinion pollsters</b>	<b>Year 4</b> <b>We are meteorologists</b>	<b>Year 5</b>	<b>Year 6</b> <b>We are AI developers</b>
	<b>DATA</b>	<ul style="list-style-type: none"> <li>• know how to log on.</li> <li>• use online programs eg Espresso to sort images according to simple criteria.</li> <li>• learn how to hold and begin to use and control a mouse.</li> <li>• begin to become familiar with the keyboard including using letters and basic keys eg space bar, enter/return, backspace</li> <li>• introduce the program Word</li> </ul>	<ul style="list-style-type: none"> <li>• learn how data can be structured as records with fields for information</li> <li>• how data can be organized into groups and subgroups</li> <li>• how data can be structured as a tree</li> <li>• how data can be organized into a table</li> <li>• how data in a table can be filtered and searched</li> </ul>	<ul style="list-style-type: none"> <li>• sort and classify a group of items by answering questions</li> <li>• collect data using tick charts or tally charts</li> <li>• take, edit and enhance photographs</li> <li>• use Google Sheets or Microsoft Excel to produce basic charts</li> <li>• record information on a digital map</li> <li>• summarise what they have learnt in a presentation</li> </ul>	<ul style="list-style-type: none"> <li>• understand some elements of survey design.</li> <li>• understand some ethical and legal aspects of online data collection.</li> <li>• use the internet to facilitate data collection.</li> <li>• use charts to analyse data</li> <li>• interpret results</li> </ul>	<ul style="list-style-type: none"> <li>• understand different measurement techniques for weather, both analogue and digital</li> <li>• use computer-based data logging to automate the recording of some weather data.</li> <li>• use spreadsheets to create charts</li> <li>• analyse data, explore inconsistencies in data and make predictions</li> <li>• practise using presentation and video software</li> </ul>	
<i>Information Technology</i>	<b>EYFS</b>	<b>KS1</b>		<b>Lower KS2</b>		<b>Upper KS2</b>	
	<b>Reception</b>	<b>Year 1</b> <b>We are digital artists</b>	<b>Year 2</b> <b>We are photographers</b>	<b>Year 3</b> <b>We are presenters</b> <b>We are who we are</b>	<b>Year 4</b> <b>We are musicians</b> <b>We are artists</b>	<b>Year 5</b> <b>We are architects</b> <b>We are adventure gamers</b>	<b>Year 6</b> <b>We are publishers</b>
	<b>CREATIVITY</b>	<ul style="list-style-type: none"> <li>• children use Colour Magic/ Tate Paint to create marks and pictures.</li> </ul>	<ul style="list-style-type: none"> <li>• how to select and set brushes and colours</li> <li>• to create artwork in a</li> </ul>	<ul style="list-style-type: none"> <li>• consider the technical and artistic merits of photographs</li> <li>• use the iPad camera app</li> </ul>	<ul style="list-style-type: none"> <li>• develop their web-based research skills</li> <li>• structure, prepare and deliver a talk about</li> </ul>	<ul style="list-style-type: none"> <li>• create a repeating percussion rhythm</li> <li>• play music using virtual instruments</li> </ul>	<ul style="list-style-type: none"> <li>• understand the work of architects, designers and engineers working in 3-D.</li> </ul>

	<ul style="list-style-type: none"> <li>• Children select and use basic paint program tools for effect.</li> </ul>	<p>range of styles on iPads</p> <ul style="list-style-type: none"> <li>• to use the undo function if they make mistakes, and to encourage experimentation</li> <li>• to use multiple layers in their art</li> <li>• to transform layers</li> <li>• to paint on top of photographs</li> </ul>	<ul style="list-style-type: none"> <li>• take digital photographs</li> <li>• review, reject or pick the images they take</li> <li>• edit and enhance their photographs</li> </ul>	<p>a given topic or subtopic studied in another curriculum area</p> <ul style="list-style-type: none"> <li>• record a piece to camera</li> <li>• edit a movie using static images and green screen footage</li> <li>• give constructive, critical feedback on recorded presentations</li> <li>• create a number of structured presentations</li> <li>• narrate presentations</li> <li>• consider issues of trust and privacy when sharing information</li> </ul>	<ul style="list-style-type: none"> <li>• compose or edit tunes using the piano roll (pitch and durations) tool</li> <li>• perform electronic music using pre-recorded loops, and create their own loops</li> <li>• create a multi-track composition or performance using multiple instruments</li> <li>• give feedback to others on their composition and performances</li> <li>• develop an appreciation of the links between geometry and art</li> <li>• become familiar with the tools and techniques of a vector graphics package</li> <li>• develop an understanding of turtle graphics</li> <li>• experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers</li> <li>• develop some awareness of</li> </ul>	<ul style="list-style-type: none"> <li>• develop familiarity with a simple CAD (computer-aided design) tool</li> <li>• develop spatial awareness by exploring and experimenting with a 3-D virtual environment</li> <li>• develop greater aesthetic awareness</li> <li>• how to plan a non-linear presentation</li> <li>• to create text as part of a presentation</li> <li>• to add and edit images in presentation</li> <li>• to use hyperlinks for navigation between the slides of a presentation</li> <li>• to record and add audio narration to presentation</li> <li>• to use commenting tools to give feedback on a presentation</li> </ul>	<ul style="list-style-type: none"> <li>• source digital media while demonstrating safe, respectful and responsible use</li> <li>• design and produce a high-quality print document</li> </ul>
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					computer generated art		
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