St Antony's Catholic Primary School Computing Curriculum Map

Topics that lend themselves to supporting British Values - Democracy   The Rule of Law   Individual Liberty   Mutual Respect   Tolerance

	Autumn 1	Autumn 2 –	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**iSafe** **Personal Information and being Safe Online** KPI'S: Children should learn to: - To understand what being online may look like, the different feelings we can experience online and how to identify adults who can help - To understand that people online may try to manipulate others, how this can make someone feel and how to identify and approach adults who can help. - To understand that photos can be shared online - To understand how to identify and approach adults who can help - To understand that people online may try to manipulate others, how this can make someone feel and how to identify and approach adults who can help Key vocab - personal information, trusted adult, permission, cyber bullying.	**iAlgorithm** **Unplugged activities to support understanding of algorithms** KPI'S: Children should learn to: - To understand that algorithms are precise instructions that can be followed - To follow a simple algorithm - To devise a simple algorithm - To understand that programs execute by following precise and unambiguous instructions - To plan, test and debug a simple algorithm - To make predictions about an outcome based on a simple algorithm - To understand conditions and outcomes - To understand that some statements can only be true or false Key vocab - algorithm, instruction, sequence, program, debug, repeat, true, false.	**iProgram Programming physical and virtual toys** KPI'S: Children should learn to: - To understand that algorithms are implemented as programs on a range of digital devices - To give instructions to a programmable toy - To plan a simple algorithm to that controls a toy - To program a virtual object to move to on screen objects - To record a sequence of instructions in a common format Key vocab - algorithm, instruction, sequence, program, debug, repeat, output	**iWrite** **Creating, manipulating and storing digital text** KPI'S: Children should learn to: - To recognise that text can be created in a number of ways - To use word processing software to create text - To understand that a computer can be connected to a printer - To select and insert text into a word processing application - To open and save a word processing document - To understand the value of using a word processor to produce text Key vocab - text, word, processor, key, keyboard, save, print, backspace, return/enter	**iData** **Introduction to data representation** KPI'S: Children should learn to: - To understand why pictograms are useful - To collect and organise information to solve a problem - To create a pictogram using collected data - Sorting information - Presenting data using a graph Key vocab - data, tally, pictogram	**iModel** **Introduction to modelling** KPI'S: Children should learn to: - To understand that computers can show real events and things - To use a mouse to move things accurately on screen - To understand that computers can be used to make choices - To understand that a computer can be used to model an environment where choices can be made - To understand that a computer model is not an exact replica of real life environments and/or scenarios - To create a representation of a real or fantasy game or story Key vocab - model, algorithm, instruction, choice.

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Year 2	**iSafe** **eSafety** KPI'S: Children should learn to: - To understand that personal information is unique to themselves - To understand that personal information should only be given to trusted adults - To begin to identify the characteristics of people who are worthy of trust and who can help them make choices that keep them safe - To understand that emotions can be a tool to help judge unsafe situations - To understand the importance of checking with an adult before participating in an online environment Key vocab - personal information, trustworthy, untrustworthy, trusted adult, internet, online	**iProgram** **Creating Simple Animations** KPI'S: Children should learn to: - To understand that an algorithm is a process that consists of a series of steps that achieves a specific goal - To understand algorithms can describe everyday activities and can be followed by humans and computers - To understand that algorithms are made up of steps - To know that steps can be repeated - To understand that computers need more precise instructions than humans do - To use digital drawing tools (Scratch) to create images - To program a simple animation involving movement - To write a simple program that produces an output (text) - To combine images and text to create a simple animation	**iPub** **Creating Interactive eBooks** KPI'S: Children should learn to: - To understand the world wide web and how it has developed throughout time - To consider how technology changes with time - To share knowledge through multimedia presentations - To plan/produce a presentation of research findings - To create an interactive eBook Key vocab - World Wide Web, network, internet, device, ebook	**iSearch** **Using the web to find things out** KPI'S: Children should learn to: - To understand that the world wide web contains large amounts of information - To use links to navigate a website - To know that the world wide web can be used to answer questions - To navigate a website user hyperlinks - To locate specific information using a website - To collect information from a number of different online sources and check they are the same Key vocab - World Wide Web, network, internet, hyperlink, search, URL.	**iAnimate** **Introduction to animation** KPI'S: Children should learn to: - To understand what an animation is - To understand the premise of a stop frame animation - To understand that an animation consists of characters, a stage, props, sound, text and a story - To understand the importance of a storyboard in the story planning process - To create a storyboard - To understand that animations need to be scripted - To understand that stop frame animations involve physical characters, settings and props - To work collaboratively in a group to achieve a common goal - To create a stop frame animation Key vocab - animation, scene, script, motion storyboard, props	**iDo Mail** **Introduction to email** KPI'S: Children should learn to: - To understand that messages can be sent electronically over distances - To understand that messages can be sent electronically over distances and that people can reply to them - To understand that communication can be images, sound and text Key vocab - email, email address, to, from, attachment

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	Key vocab - algorithm, instruction, sequence, program, repeat, test, debug				

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y e a r 3	**iSafe Staying Safe Online** KPI'S: Children should learn to: - To identify some of the risks of sharing publicly online - To understand some measures that can be taken to stay safe - To understand potential consequences of sharing without consent - To understand some of the ways we can protect ourselves online against manipulation - To understand the need for strong passwords Key vocab - privacy settings, online sharing	**iProgram Unit 1 Games and animation development** KPI'S: Children should learn to: - To understand that a program is a sequence of statements written in a programming language (Scratch) - To program an animation that executes a sequence of statements - To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees - To program a sequence of instructions that create visual effects - To import, create and record sounds - To understand that algorithms and programs can involve repetition - To import pictures from a computer and/or the internet - To combine images, sounds and movement to create a personal animation	**iSimulate Exploring Computer Simulations** KPI'S: Children should learn to: - To understand that computer simulations can represent real or imaginary situations - To understand that computer simulations are guided by rules - To explore the effect of changing variables in a simulation using them to make and test predictions - To understand that simulations can help people try things quickly and inexpensively - To understand that simulations help us understand difficult concepts - To design and produce a computer simulation or adventure	**iData Introducing Databases** KPI'S: Children should learn to: - To understand how information in a database is organised - To understand the advantages of a computer based database over a paper one - To find and enter information to create additional records in a database - To demonstrate the knowledge skills and understanding they have learned during this unit	**iConnect Internet and the World Wide Web incl Searching** KPI'S: Children should learn to: - To understand that the internet is many computers that are connected - To understand some of the services available on the internet - To use basic navigation skills to browse the world wide web - To use search terms when looking for information using a search engine - To know the basic steps that can help distinguish safe and credible websites - To understand that copyright is an author's right of ownership and it is illegal to steal other people's material	**iNetwork Introducing Computer Networks** KPI'S: Children should learn to: - To understand what a network is - To know key parts of a computer network - To understand how information is exchanged between devices - To understand that the internet is the physical connections between computers and networks - To understand how data travels throughout a network - To understand that devices on networks have a unique address

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	consent, strong password, manipulation	Key vocab - sprite, blocks; programming, coordinates. up, down, right, left, x and y axis, coordinates, import; record; animate; repeat, loop, sequence	Key vocab - simulation, rules, choices, variables	Key vocab - field, record data, database, search, sort.	Key vocab - World wide web, network, internet, hyperlink, search, URL, IP address, web browser, Copyright.	Key vocab - network, network switch, server, Wireless Access Point (WAP), WIFI, router, internet, IP address, URL, DNS

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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	**iSafe** **Being Safe, responsible digital citizens** KPI'S: Children should learn to: - To distinguish between personal information, which is safe to share online, and private information which is unsafe to share - To use keywords in search engines to refine online searches - To understand when it is acceptable to use the work of others - To use strong passwords - To explore strategies for safely managing spam - To analyse why private information should not be shared without permission - To identify strategies for dealing responsibly with cyberbullying	**iProgram Unit 1** **Making Shapes and Navigating Mazes** KPI'S: Children should learn to: - To understand that a program is a sequence of statements written in a programming language - To program a sequence of statements - To program an object to move and draw - To understand that commands and actions can be programmed to be executed depending upon whether a condition is true or not - To combine repetition and conditional statements in a program	**iProgram Unit 3** **Programming Puzzles with LightBot** KPI'S: Children should learn to: - To understand that a program is a sequence of statements written in a programming language - To program a sequence of statements - To program an object to move and draw - To understand that commands and actions can be programmed to be executed depending upon whether a condition is true or not - To combine repetition and conditional statements in a program	**iMail** **Communicating and Collaborating via email** KPI'S: Children should learn to: - To understand that messages can be used to communicate over distance a number of ways - To understand how email travels and how to retrieve it - To send and reply to emails - To attach a file to an email - To understand the advantages of attaching files to emails - To use email to communicate ideas Key vocab - email, email address, to, from,	**iData** **Introduction to data representation** KPI'S: Children should learn to: - To sort record cards using field names - To understand that information can be stored as numbers, text and choices (e.g. yes/no) - To understand that storing information in an organised way helps answer questions - To search a database to answer questions - To use the information in a database to create a simple chart	**iAnimate** **Introduction to data representation** KPI'S: Children should learn to: - To understand what an animation is - To create a scene for an animation - To understand that animations can be created using digital tools - To create an animated scene - To storyboard and create a short animation

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Key vocabulary - privacy settings, keywords, copyright, strong password, spam, virus, cyberbullying	Key vocabulary - program, sequence, selection, condition, repeat, test, debug	Key vocabulary - program, sequence, selection, condition, repeat, test, debug	attachment, forward.	Key vocab - data, database, record, file, field, search, sort, chart	Key vocab - animation, frame, frame rate, frames per second (FPS)

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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	**iSafe** **Being Safe, responsible digital citizens** KPI'S: Children should learn to: - To distinguish between personal information, which is safe to share online, and private information which is unsafe to share - To understand the risks and benefits of various modes of communication - To begin to make sensible and considered judgments about whether or not to trust online content and people when online - To identify different forms of cyber bullying - To understand what to do if confronted with cyber bullying Key vocab - personal information, reliable, cyberbullying, SMART	**iProgram Unit 2** **Designing and developing computer games** KPI'S: Children should learn to: - To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees - To use conditional (if) statements - To understand that some variables can only be true of false (boolean) - To understand that programs can do different things if the value of a boolean variable is true or false (conditional statements) - To use variables in programs Key vocab - sequence, selection, condition, repeat, boolean, variable, co-ordinates, x-y axis	**iModel** **Unplugged Activities - Searching, Sorting and Networks** KPI'S: Children should learn to: - To understand the difference between 2D and 3D shapes - To become familiar with basic 3D modelling tools - To understand that graphical models can easily be changed - To use features of graphical modelling software to develop a 3D model - To evaluate and improve 3D model Key vocab -	**iWeb** **Remixing and creating web content using HTML** KPI'S: Children should learn to: - To understand that the world wide web is one of the services offered on the internet - To know that the world wide web consists of many websites and web pages that can be accessed using the internet - To know that websites are written in HTML code - To read basic HTML code - To understand how HTML provides structure for web content Key vocab - World wide web, HTML, CSS, Element, Togs	**iProgram Unit 2** **Designing and developing multi-level X-Box games** KPI'S: Children should learn to: - To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees - To use conditional (if) statements - To understand that some variables can only be true of false (boolean) - To understand that programs can do different things if the value of a boolean variable is true or false (conditional statements) - To use variables in programs Key vocab - sequence, selection, condition, repeat, boolean, variable, co-ordinates, x-y axis	**iCrypto** **Introduction to cryptography** KPI'S: Children should learn to: - To understand that messages can be sent and received secretly - To learn encrypt/decrypt simple messages - To understand that messages can be sent electronically over distances - To understand that data can be transmitted as binary (on or off) - Understand the algorithm of a simple shift cipher - To use frequency analysis to decipher encrypted text - To understand the importance of cryptography historically and today Key vocab - cryptography, encrypt, decrypt, cipher, key, shift, binary, frequency analysis.

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Year 6	**iSafe** **Staying safe in a digital world** KPI'S: Children should learn to: - To re\cognise the importance of never sharing passwords, except with parents or guardians - Know how to create passwords that are hard to guess, yet easy to remember - Customise privacy settings for the online services they use - Learn specific ways to respond to bullying when you see it - Know how to behave if you experience harassment - Make good decisions when choosing how and what to communicate and whether to communicate at all - Be aware of online tools for reporting abuse Key vocab - personal information, reliable, cyberbullying, strong password, privacy settings	**iProgram Unit 1** **Designing and developing computer games** KPI'S: Children should learn to: - To program a computer game by sequencing conditional statements - To use variables in programs - To use procedures in programs - To understand that the behaviour of a computer program should be planned - To understand that programs are developed according to a plan - To develop strategies for testing and debugging computer programs Key vocab - sequence, selection, condition, repeat, Boolean, variable, procedure, test, debug	**iProgram Unit 2** **Designing and developing 3D animations** KPI'S: Children should learn to: - To program a computer game by sequencing conditional statements - To use variables in programs - To use procedures in programs - To understand that the behaviour of a computer program should be planned - To understand that programs are developed according to a plan - To develop strategies for testing and debugging computer programs Key vocab - sequence, selection, condition, repeat, Boolean, variable, procedure, test, debug	**iNetwork** **Networks, data and creating web content** KPI'S: Children should learn to: - To understand that a computer network is a group of computers that are connected - To know that computer networks allow users to communicate and share - To understand that the internet is many networks that are connected to each other - To know that a router sends/receives information as packets of data - To know that internet search engines maintain, and rank, a list (or index) of other websites available on the World Wide Web - To know that web pages are written in HTML - To recognise and use basic HTML syntax Key vocab - network, router, internet, world wide web, IP address, URL, data, packet,	**iApp Unit 1** **Designing and Developing apps** KPI'S: Children should learn to: - To understand the value of mobile technology and its future development - To use development tools to create an app - To understand that procedures are a sequence of statements that can be called repeatedly using only one command - To create an app involving variables and procedures - To understand that apps are computer programs that are developed according to a plan - To develop an app according to a plan	**iApp Unit 2** **Designing and Developing mobile apps** KPI'S: Children should learn to: - To understand the value of mobile technology and its future development - To explore event driven programming using a text based programming language - To understand the importance of decomposition (breaking a problem into smaller parts and solve one part at a time) - To understand the event driven nature of Bitsbox programming - To understand that variables contain values - To use algorithm to develop a solution to a problem - To translate algorithms into code - To use abstraction and functions in programs To understand that apps are computer programs that are developed according to a plan

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