Computing Medium Term Plan
2023-2024

Year 1	Knowledge	Skills
Autumn 1 iSafe	Children will know: • some information is personal; • personal information should only be given to trusted people; • you should get permission form an adult before going online; • they should not talk to anyone they do not know online; • they need to be careful using computers and devices; • that people can bully and be bullied online.	Children will be able to: • use computers safely.
Autumn 2 iAlgorithm	Children will know: • humans and computers follow instructions; • instructions need to be precise to follow them correctly.	Children will be able to: • follow a simple algorithm; • devise a simple algorithm; • work collaboratively with others; • read a set of instructions and usually predict the correct outcome; • produce a set of instructions that others can follow; • create simple instructions to make things happen and understand that this is called an algorithm; • make changes to instructions if they are wrong.
Spring 1 iModel	Children will know: • a keyboard is used to enter words in to a computer; • a mouse is selecting thing on screen; • work needs to be saved to go back to it later; • computers can show real events and things; • a computer can be used to model an environment where choices can be made.	Children will be able to: • use a keyboard; • use a simple adventure game; • use digital drawing tools to create a storyboard of a game or story; • create digital content using IT tools • save a file with support; • use a mouse to point, select and move objects around the screen.
Spring 2 iDraw	Children will know: • art can be created on the computer; • digital art can be made with shapes; • different paint tools do different jobs; • you can create and save different versions of your work.	Children will be able to: • create simple digital drawings; • choose appropriate shapes for art; • draw shapes and fill them in to re-create a vector image; • use shape and line tool effectively; • combine their work into an eBook; • save work with some assistances.

Summer 1 iProgram	Children will know: • algorithms are implemented as programs on a range of digital devices; • how to give instructions to a programmable toy; • how to program an object to move to on~screen objects; • programs are executed by following precise and unambiguous instructions.	Children will be able to: • guide a programmable toy to where they want it to go; • plan, test and amend a sequence of instructions that moves a programmable toy; • make predictions about where an object will be after executing an algorithm; • create and debug simple programs; • produce a clear set of instructions for others to follow; • follow a set of instructions given by others.
Summer 2 iWrite	Children will know: • a keyboard is used to enter words in to a computer; • text can be created in a number of ways; • a computer can be connected to a printer; • the value of using a word processor to produce text.	Children will be able to: • use a keyboard; • identify a number of different methods for producing text; • Use word processor to create simple text; • select and insert text into a word processor; • to print work.

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Year 2	Knowledge	Skills
Autumn 1 iSafe	Children will know: • you need to be respectful and stay safe online; • various information is personal; • that personal information should only be given to trusted people; • that people can bully and be bullied online.	Children will be able to: • use computers safely; • use their knowledge of online safety to identify risks; • identify some ways they can keep themselves safe was using ICT; • follow simple e-safety guidelines; • identify characteristics of trustworthy people; • give examples of when it may and may not be appropriate to share pictures.
Autumn 2 iProgram	Children will know: • programming applications can be given commands to produce specific effects on screen.	Children will be able to: • use a mouse to navigate the computer; • open computer programs; • use digital drawing tolls to create images; • program a simple animation involving movement; • write a simple program that produces an output; • combine images and text to create a simple animation; • save work produced; • work collaboratively with others; • produce a sequence of blocks that achieves a simple effect; • execute short a sequence of commands that results in an effect; • move a sprite in one direction on screen using steps; • program and test a simple program.
Spring 1 iSearch	Children will know: • information travels through a network; • devices have an address; • that a network is two or more devices connected; • connections can be wired or wireless; • the world wide web contains large amounts of information; • that the internet can be used to answer questions.	Children will be able to: • use links to navigate a website; • navigate around a website; • use the internet to search for answers to a questions; • use hyperlinks to find out information; • collect information from a website and present their findings; • use technology safely; • navigate around a website;
Spring 2 iAnimate	Children will know: • what an animation is; • an animation consists of characters, a stage, props, sound, text and a story;	Children will be able to: • navigate a document using arrow keys and a mouse; • locate, edit and save different versions of their work; • create a storyboard for a short stop-frame animated sequence;

	• the importance of a storyboard and script in the story planning process; • you can use a computer to present your work; • there are different tools you can use for different purposes; • you can save different version of your work.	• create a simple animation; • design and add a background layer to their animation.
Summer 1 iPub	Children will know: • ways technology has changed with time; • you can delete words form a text; • you can use a computer to present your work; • there are different tools you can use for different purposes.	Children will be able to: • type a web address into a browser; • create an interactive eBook; • plan/produce a presentation of research findings; • use the backspace button and delete button to remove text; • make choices about applications and tools to use for a particular purpose; • edit and refine previous work; • type a web address into a browser.
Summer 2 iBlog	Children will know: • what a blog is and how it will be used in the classroom; • you can use specific tools to help you with your work; • you can present information using ICT; • you need to be respectful and stay safe online.	Children will be able to: • use a username and password to access a blog; • write sentences that build on what another child has written before them; • post a comment on the class blog in response the post or comments already posted; • use a keyboard to write a write a blog; • reflect on work and make improvements; • can identify suitable information to present; • identify ways to keep themselves safe online; • use ICT to communicate and identify some of the risks; • respond to the writing of others; • post on a blog.

Year 3	Knowledge	Skills
Autumn 1 iSafe	Children will know: • some of the ways people can be influenced online; • some online content may be advertising; • ways technology can be used positively and what is appropriate to share online; • the need to use secure passwords and to keep them private.	Children will be able to: • use computers safely; • use their knowledge of online safety to identify risks; • identify some of the risks of communicating and collaborating online and act to minimise them; • demonstrate the use of basic safety measures when using technology and working online; • recognise what is acceptable/unacceptable behaviour when using technology online; • follow e-safety guidelines.
Autumn 2 iProgram	Children will know: • a program is a sequence of statements written in a programming language (Scratch); • computer programs containing graphics use x y coordinates and turns are measured in degrees; • a sequence of instructions creates visual effects; • algorithms and programs can involve repetition; • pictures can be imported form the internet.	Children will be able to: • use laptops to access computer programmes; • use Scratch effectivity to create an animation; • produce a sequence of instructions that result planned outcomes; • program and test a simple program; • move a sprite around a screen using turns and repetition; • predict the outcome of a simple algorithm; • use a repeat function to draw a 2D shape; • combine images, sounds and movement to create a personal animation.
Spring 1 iSimulate	Children will know: • computer simulations allow users to try things that would be difficult or impossible to do in real life; • computer simulations are guided by rules; • the effects of changing variables in a simulation; • simulations can help people try things quickly and inexpensively; • simulations help us understand difficult concepts; • you can combine images and text using a computer; • that you can copy text and images; • how to use appropriate effects and resize graphics.	Children will be able to: • use a simulation to identify patterns and rules; • make and test predictions; • use an electrical circuit simulation to try out combinations of circuits; • combine images; • copy text and images from an internet page; • use software, computers and devices to create things; • design and produce a computer simulation or adventure game; • undo and redo work;
Spring 2	Children will know:	Children will be able to:

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iNetworks	- each device has a unique address called an IP address and that websites address are nicknames for IP addresses; - why networks are used and what they are used for; - information travels through a network in a variety of way; - that networks connect to the internet through routers and telephone wires.	- talk about how information can be passed between devices; - model data transfer; - enter a URL for a website with support; - pass information between devices;
Summer 1 iConnect	Children will know: - the internet is many computers that are connected; - you can move around the web using hyperlinks; - the main features of web browsers; - that not all information on the web is reliable; - basic steps that can help distinguish safe and credible websites; - information online needs to be checked; - copyright is an author's right of ownership and it is illegal to steal other people's material.	Children will be able to: - navigate a website using hyperlinks and image links; - enter URLs into the address bar of a browser; - visit and browse several websites; - simulate a search engine; - find things out online using a search engine; - evaluate a website according to criteria; - produce their own cyber-hunt involving websites.
Summer 2 iPodcast	Children will know: - technology can be used to control sound; - sound can be stored digitally; - what a podcast is; - about ways audio can be changed.	Children will be able to: - record, manipulate and store audio; - edit sound; - plan and record a podcast; - use editing tools to improve the quality of a podcast; - adding music and other effects to a podcast; - evaluate work produces and suggest changes; - combine audio sound and effects.

Year 4	Knowledge	Skills
Autumn 1 iSafe	Children will know: • not all information online is reliable and needs to be checked; • you need to use secure passwords and keep them private; • the need to use secure passwords and to keep them private.	Children will be able to: • use computers safely; • use their knowledge of online safety to identify risks; • use basic safety measures when using technology; • use technology to communicate and collaborate, identify some of the risks and act to minimise them; • use search criteria to find relevant information online; • demonstrate the use of basic safety measures when using technology and working online.
Autumn 2 iProgram	Children will know: • algorithms are instructions, which are in order and some instructions can be repeated; • the outcomes of programs can be predicted; • programs can contain errors which can be corrected and this is called debugging.	Children will be able to: • programme a sequence of statements; • program an object to move and draw; • combine repetition and conditional statements in a programme; • accurately predict the outcome of a range of programme; • test, debug and refine programs; • use sequence and basic selection and repetition in computer programs; • write and amend computer programs; • sequence commands to produce specific effects; • use repetition and conditions; • synchronise action using timings and broadcasts; • combine sequences of commands into procedures (blocks of code) that are repeated.
Spring 1 iData	Children will know: • that computers represent data as numbers; • computers represent data as numbers and count using switches of 'on' and 'off'; • information can be stored as numbers, text and choices.	Children will be able to: • create a binary string that represents their own initials; • sort record cards using field names; • add records to a database; • search a database to answer questions; • information in a database to create a simple chart.
Spring 2 iAnimate	Children will know: • what an animation is; • animations can be created using digital tools; • Each frame shows a figure in a different pose;	Children will be able to: • create a flipping book animation; • draw a series of images on frames; • animate a sequence of digital images;

	• Storyboards are used to create an animation.	• design and add backgrounds to their animated scenes; • plan and make an animation.
Summer 1 iMail	Children will know: • messages can be used to communicate over distance a number of ways; • an email uses the internet to send and receive messages and files; • information in the form or text, sound and pictures can be combined to create digital content and communicate with an audience; • how email travels and how to retrieve it; • the advantages of attaching files to emails.	Children will be able to: • simulate sending messages over distance using different methods; • compose, send and respond to emails; • attach a file to an email.
Summer 2 iProgram2	Children will know: • a computer takes input, processes it and creates output; • a program is a sequence of statements written in a programming language; • computer programs consist of statements that perform a specific task; • that statements can be altered; • commands and actions can be programmed to be executed depending upon whether a condition is true or not.	Children will be able to: • to program a turtle to execute a sequence of statements; • draw simple shapes using programming blocks containing directional language and repetition; • create and test a sequence of statements that make letters of the alphabet; • amend an algorithm to change the size of a shape; • program a virtual design a program that makes choices; • design robot to move and draw; • combine repetition and conditional statements into a program; • test, debug and refine algorithms; • write and amend computer programs.

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Year 5	Knowledge	Skills
Autumn 1 iSafe	Children will know: • personal information should only be given to trusted sources; • the concept of personal and private information; • the SMART rules; • the difference between communicating online and face-to-face, and some of the dangers associated in communicating online; • definition of bullying and cyber bullying, exploring the differences and similarities; • the school rules about bullying also apply to online activity.	Children will be able to: • use computers safely; • use their knowledge of online safety to identify risks; • Make sensible and considered judgements; • identify a range of ways to keep themselves safe using technology and online services; • report concerns; • identify risks and benefits of forms of communication; • consider whether they trust the content of websites; • make judgments about the validity and suitability of websites; • identify a number of rules that apply to online chatting; • identify some types of cyber bullying.
Autumn 2 iProgram	Children will know: • abstraction is taking the detail out of a problem; • decompositions is splitting a problem down into a smaller part to make it easier to solve; • procedures help you reuse code; • variables can be text, numbers and list;	Children will be able to: • use (if) statements; • use variables in programmes; • save and access work; • write and amend more complex programs to create a variety of outcomes; • program algorithms that achieve a range of specified outcomes; • test, debug and refine programs; • create programs by design solutions using abstraction; • write and amend computer programs How to program a number of algorithms that achieve a specific outcome; • use repetition, variables and conditional statements in computer programs.
Spring 1 iDraw	Children will know: • digital tools can be used to create images; • that vector images are made up of shapes and lines; • which tools help create specific effects; • vector images are constructed of layers.	Children will be able to: • use software to create an image; • create vector images using digital tools; • make changes to images to create effects; • use layers to create a vector image; • design a vector drawing; • use digital tools to create a vector drawing according to a design; • evaluate and improve their work.
Spring 2 iCrypto	Children will know: • messages can be sent and received secretly;	Children will be able to: • create a coded message; • decode semaphore messages;

	• signalling is a form of communication; • messages can be sent electronically over distances; • data can be transmitted as binary; • messages have been encrypted/decrypted throughout time; • the importance of cryptography historically and today.	• encode and decode messages using Morse Code; • encode/decode messages using a simple shift cipher; • use frequency analysis to decipher encrypted text; • use an Enigma Simulator to crack code.
Summer 1 iWeb	Children will know: • the world wide web is one of the services offered on the internet; • that the world wide web consists of many websites and web pages that can be accessed using the internet; • many people remix content to work on the world wide web; • that websites are written in HTML and gives the webpage structure.	Children will be able to: • edit a webpage using images, text and styling; • read basic HTML code; • use research to create a website; • upload an image for insertion into a website; • develop and define digital content for a specific audience.
Summer 2 iModel	Children will know: • the difference between 2D and 3D shapes; • graphical models can easily be changed; • digital content needs to be planned to take account of the intended audience.	Children will be able to: • use the basic building tools of graphical modelling software to build a simple 3D model; • make changes to graphical models; • combine shapes by grouping, connecting, repositioning and resizing to create a 3D model; • identify improvements that could be made to a model; • amend their models to improve them.

Year 6	Knowledge	Skills
Autumn 1 iSafe	Children will know: • the concept of personal and private information; • privacy matters and how it relates to online security; • what types of situations call for getting help or talking things out with a trusted adult; • when and why to report online abuse; • the definition of bullying and cyber bullying, exploring the differences and similarities.	Children will be able to: • use computers safely; • use their knowledge of online safety to identify risks; • create passwords; • customize privacy settings; • make good decision when choosing how and what to communicate; • use online tools for reporting abuse; • identify risks and benefits of forms of communication; • identify some types of cyber bullying and what positive behaviour looks like online and offline; • demonstrate responsible use of technology and online tools.
Autumn 2 iProgram	Children will know: • problems can be solve in different ways; • programming commands can be given in shorter form; • decomposition means splitting a problem down into smaller parts to make it easier to solve; • pattern spotting makes it easier to solve problems and write code; • algorithm and programs need to be tested; • finding and fixing errors on programs is called de-bugging.	Children will be able to: • use variables in programs; • use procedures in programs; • use repeats an loops in algorithms and programs; • write and amend programs to produce a specific action.
Spring 1 iNetwork	Children will know: • a computer network is a group of computers that are connected; • computer networks allow users to communicate and share; • the internet is many networks that are connected to each other; • a router sends/receives information as packets of data; • computers connected to the Internet have their own address; • services involving web pages on the internet are known as the World Wide Web; • websites can be traced to a particular webserver; • internet search engines maintain, and rank, a list (or index) of other websites	Children will be able to: • can model a network using physical materials; • draw the Internet (a network of networks); • trace the route a request takes to reach a website; • use the world wide web to answer questions on an online quiz; • use clear search terms when conducting internet searches in order to find things out; • can use basic HTML and simple CSS (styling) to create web content.

	available on the world wide web; • web pages are written in HTML.	
Spring 2 iData	Children will know: • A spreadsheet contains and organises data; • you can search and sort spreadsheets; • spreadsheets can be used to store numerical data and to make calculations; • recalculations with different values can be done quickly; • graphs and charts can be created and easily be changed from spreadsheet data.	Children will be able to: • solve problems involving cell references; • enter numerical data into cells; • enter a formula to calculate totals; • create, edit and copy graphs using a spreadsheet; • use the SUM function in formulae to add numerical data; • sort data in a spreadsheet; • search for data in a spreadsheet; • use the data in a spreadsheet to answer questions and make choices.
Summer 1 iModel	Children will know: • features of geographical modelling software are used to develop a 3D model	Children will be able to: • create compound, connected 3D models using SktechUp; • add components to a design; • amend their models to improve them; • can import and add images; • evaluate own work and make improvements; • import their model accurately in Google Earth.
Summer 2 iApp	Children will know: • the value of mobile technology and its future development; • importance of decomposition (breaking a problem into smaller parts and solve one part at a time); • a procedure is chunks that can be used more than once; • condition in programming is a choice; • variables contain values; • apps are computer programs that are developed according to a plan.	Children will be able to: • design futuristic mobile technology; • code using Bitsbox; • design and create a paint app; • algorithms to develop a solution to a problem; • translate algorithms into code; • design and develop an app using functions and variables; • test computer programs for bugs and make them work as expected; • find and fix problems with their apps.