St Mark's C. E Junior School

Progressive Knowledge, Skills & Outcome Journey for Computing

Outcomes				
	Year 3	**Year 4**	**Year 5**	**Year 6**
Autumn	Children will type a paragraph explaining how Networks connect to each other using touch typing. (inetwork IT & CS) Children will use a range of editing tools in Word to create a short piece of informative text about the Stone Age; understanding that copyright is an author's right of ownership and it's illegal to steal other people's material. (iconnect IT & DL)	Children will create their own data base from set of top trump cards (Earthquakes or Volcanoes) and ask key questions to search the data base. (idata IT & CS) Children will use logical reasoning and abstraction to design algorithms for a solution so that the fewest ice-cream vans are used according to rules. (ialgorithm CS & DL)	Children will design a bird box in Sketchup to make in DT. (imodel Y6 IT & CS) To create their own virtual word that a Kodu can navigate around. (iprogram 2 CS)	Children will develop an Angry Bird style computer game in Scratch. (iprogram 1 CS & DL) Children will create a spreadsheet to show profit/loss. (IT)
Spring	Children will use hyperlinks and animation in PowerPoint to produce an informative presentation about healthy eating; knowing the basic steps that can help distinguish safe and credible websites. (iconnect IT & DL) Children will choose the best holiday destination for different holidaymakers using Microsoft Excel. (idata IT)	Children will develop a collaborative storytelling project in Scratch. (iprogram 1 CS) Children write a programme, using a Micro:bit, to make a mindful moment. (CS)	Children will design and create their own maths game in Scratch. (iprogram 1 CS & DL) Children will use formulae in Excel to show science results. (idata Y6 IT)	Children will develop an app (iapp 2 CS) Children will recognise and use basic HTML syntax. (inetwork CS & DL)
Summer	Children will combine sound, motion and images to create an animation about Ancient Egypt in Scratch. (iprogram CS) Children will design and produce a computer simulation or adventure game (isimulate IT & CS)	Children will create an animation, using Doink Animation App, of a food chain using scientific language. (ianimate IT & CS) Children will share ways to protect yourself online. (iMail and iSafety IT & DL)	Children will use an Enigma Simulation to write coded messages and decode messages to each other. (icrypto CS & IT) Children will edit a website with their own content. (iweb DL & CS)	Children will develop an animation about the circulatory system, that represents their storyboard. (iprogram 2 CS & DL)

	Year 3	Year 4	Year 5	Year 6
Coding & Programming	• know how to design a basic computer program • know how to create a basic computer program using a design • know how to test and correct simple programs • know how to combine sequences of commands into procedures (blocks of code) that are repeated • know how to evaluate my own work and comment on improvements	• know how to write an algorithm to produce a given effect using repetition • know how to accurately predict the outcome of a range of algorithms and programs • know how to test, debug and refine algorithms and programs • know how to use sequence and basic selection and repetition in computer programs • know how to explain how a programmed effect has been achieved • know how to talk about improvements that could be made to programs	• know how to create programs by decomposing them into smaller parts • know how to use a variety of selection commands in programs • know how to use conditions in repetition commands • know how to work with variables	• know how to use a range of sequence, selection and repetition commands to implement my design • know how to identify the need for, and work with variables • know how to create procedures to hide complexity in programs • know how to critically evaluate my work and suggest improvements
Computational Thinking	• know how to create algorithms for my programming projects • know how to decompose projects (such as an animation) into steps to create an algorithm • know how to identify patterns in an algorithm	• know how to write more precise algorithms for use when programming • know how to use simple selection and repetition in algorithms • know how to use logical reasoning to detect and correct errors in programs	• know how to solve problems by decomposing them into smaller parts • know how to use selection in algorithms • know how to use logical reasoning to explain how a variety of algorithms work • know how to evaluate the effectiveness of algorithms	• know how to decompose a design or code to focus on specific parts • know how to recognise and make use of patterns in my design and code • know how to critically evaluate my work and suggest improvements
Data Handling	• know how to create my own sorting diagram and complete a data handling activity with it using images and text. • know how to start to input simple data into a spreadsheet.	• know how to create my own online multiple choice questionnaire. • know how to input data into a spreadsheet and export the data in a variety of ways: charts, bar charts, pie charts.	• know how to create and publish my own online questionnaire and analyse the results. • know how to use simple formulae to solve calculations including =sum and other statistical functions.	• know how to write spreadsheet formula to solve more challenging maths problems.

		• understand how data is collected.	• know how to edit and format different cells in a spreadsheet.	
Information Technology	• know how to use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g, and use right fingers for h/j/k/l • know how to edit the style and effect of my text and images to make my document more engaging and eye-catching. E.g. borders and shadows • know how to use cut, copy and paste to quickly duplicate and organise text.	• know how to combine digital images from different sources, objects and text to make a final piece of a variety of tasks: posters, documents, eBooks, scripts, leaflets • know how to confidently and regularly use text shortcuts such as cut, copy and paste and delete to organise text • know how to use font sizes appropriately for audience and purpose. Use spell check and thesaurus including through Siri and other AI technology.	• know how to apply other useful effects to my documents such as hyperlinks. • know how to import sounds to accompany and enhance the text in my document. • know how to organise and reorganise text on screen to suit a purpose	• know how to confidently choose the best application to demonstrate my learning. • know how to format text to suit a purpose • know how to publish my documents online regularly and discuss the audience and purpose of my content.
Digital Literacy	• find information by moving around a web page using hyperlinks and the back button • confidently type web addresses into a web browser • question the reliability of information I found online • create bookmarks/favourites and use them to access websites • print web pages and copy and paste information into other applications • describe how I use technology at school and at home • judge my own and other peoples work and talk about how they could be made better	• understand that a computer network means connected computers • understand that you can use the internet for activities other than web browsing • confidently enter URLs into the address bar of a browser • know that not all information online is reliable and that it needs to be checked	• use search technology to find things out • suggest a number of activities you can use the internet for (e.g. online gaming, voice • over internet, email etc) • cross-check information provided on one website against multiple alternative sources • create digital content for specific purposes	• communicate and collaborate using technology and online services • create web content using basic HTML • know that internet search engines use algorithms to find web content (e.g. web crawling) • know that search engines are organised in order of popularity • use search technology and clear search terms to view web pages and obtain information and data • use a number of internet services (e.g. email, voice over internet etc) • create digital content for specific purposes and audiences • use feedback to improve digital content

Assessment				
	Year 3	**Year 4**	**Year 5**	**Year 6**
Autumn	Children will be able to improve number of words typed per minute. Children will be able to create a short piece of information text about the Stone Age, in my own words, including an image and editing the style and effect of my text to make my document more engaging and eye-catching.	Children will be able to search and sort a database that I have created to answer a question. Children will be able to design a solution to an algorithm so that the fewest ice-cream vans are used according to rules.	Children will be able to use features of graphical modelling software to develop a 3D model; move/scale/resize objects. Children will be able to use iteration (repeats and loops), variables and conditional statements (e.g. when…do…) to create a virtual world in Kodu.	Children will be able to plan and program a computer game by sequencing conditional statements and develop strategies to test and debug the program. Children will be able to design their own spreadsheet for a specific purpose using functions that include AVERAGE, MIN and MAX.
Spring	Children will be able to create an informative presentation about healthy eating; including a hyperlink to another slide, slide transitions, record audio onto a slide and insert audio and video files (where possible), only using credible websites to find the information. Children will be able to create a database to find the best holiday destination for different holiday makers.	Children will be able to develop a collaborative storytelling project using sequence, selection and repetition in Scratch. Children will be able to write a program that displays a timer based on their chosen seconds/minute(s) on the Micro:bit after pressing button A and to state key functions in the program editor (e.g. loops).	Children will be able to use variables, sequence, selection, conditions and iteration to create a game in Scratch. Children will be able to enter a formula in to a spreadsheet to perform a calculation and create a graph to show results; change some of the data and discuss effects on results.	Children will be able to create an app that includes images, buttons and sound. Children will be able to et out content on a web page using basic HTML.
Summer	Children will be able to move a sprite around a screen using turns and repetitions to create an animation about Ancient Egypt. Children will be able to design and produce a computer simulation or adventure game using patterns and rules.	Children will be able to design and add backgrounds to an animated scene of sequenced, digital images. Children will be able to open, create, send and forward an email; checking the accuracy and reliability of the information.	Children will be able to use simple encryption methods to encode and decode messages with a key. Children will be able to edit HTML code to change the text appearing on a web page; change an image on a website; and remix a web page to make my own which has images and text.	Children will be able to use variables and program the rules necessary to progress in a game that has more than one level.