



St. Cuthbert's Catholic Primary School

Computing: Long Term Overview



	AUTUMN TERM	SPRING TERM	SUMMER TERM
Y1	Information Technology/ Computer Science - Basic Skills CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know the importance of usernames and passwords to log on. - To perform basic internet searches, clicking on a search result. - To develop basic laptop skills such as selecting, dragging and dropping with increasing accuracy. - To apply key typing skills, improving fluency and accuracy. - To apply phoneme and grapheme correspondence when typing. Information Technology - Word Processing (Using Word and other apps) CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To use the keyboard to add text, understanding basic functions, space, enter etc. - To format text, changing the font and size etc. - To produce a piece of digital writing linked to topics/ books etc. - To compare and contrast two different Word Processing apps. - To insert an image into their work from the internet.	Computer Science - Programming & Debugging CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know a set of instructions can control a sprite on-screen. - To know what is meant by debugging, demonstrating an understanding when fixing bugs. - To identify repetition/ patterns in sequences and how a loop is used to control repetition. - To know how to use websites such as Scratch Online to create simple programs. - To have knowledge of 2D shapes when programing the creation of shapes. Digital Literacy - Producing Digital Media CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how to use a camera on a digital device. - To have awareness of how to take a good photograph. - To know how to zoom and crop pictures on a digital device. - To know how images can be arranged on screen to create a collage. - To use keywords to select pictures online. - To know how avatars are used online.	Information Technology – Digital Painting CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To make marks on the screen with tools they have used. - To use shape and line tools effectively. - To create their own artwork based on the works of famous artists. - To use various digital painting techniques with independence. Computer Science – Programming, Coding & Robotics CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know that a set of instructions can be called an algorithm. - To know instructions should be clear, concise and unambiguous. - To predict what will happen when a button is pressed. - To understand how robots are used in business and industry.
	Key Vocabulary Basic Skills	Key Vocabulary Programming & Debugging Algorithm, debug, input, loops, output, sequence	Key Vocabulary Digital Painting Paint programme, tool, paintbrush, erase, fill, undo



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	Keyboard, trackpad, enter, drag and drop, login shut down Word Processing Keyboard, keys, letter, caps lock, shift, backspace	Producing Digital Media Colour, font, image, import, photograph, text,	Programming & Robotics BeeBot, forward, backwards, right, left, turn, program, algorithm, clear
Y2	Computer Science- Programming & Debugging (Scratch Online) CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know what is meant by a sprite. - To know that sets of instructions are called algorithms. - To create algorithms that control onscreen sprites. - To know how animations can be created using costumes, repetition and control. - To understand the debugging process. Information Technology - Word Processing CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To use the keyboard and / or a word bank to add text. - To understand some of the basic functions on a keyboard including backspace, capslock and enter. - To show awareness of types of types of sentences. - To begin to format text in terms of font colour, style and size. - To produce a piece of text linked to a topic. - To insert an image linked to a theme.	Computer Science– Coding and Algorithms CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To understand algorithms are sets of instructions that solve problems. - To explain what “debugging” means and can debug an algorithm with independence. - To explore repetition, developing an understating of what is it. - To apply their knowledge and understanding of repetition across different apps and websites. - To begin to think computationally. Information Technology - Presenting Information CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - Know how to report inappropriate content or contact online. - Use a variety of software to manipulate and present digital content in different ways with increasing independence. - Save and open files on the device they use from a specific file location.	Information Technology – Modifying Text and Images CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To improve competence with the keyboard and know the correct hand position and the location and function of different keys. - To use the shift key to display secondary characters including capital letters and punctuation. - To understand the appearance of text can reflect its importance, changing fonts and sizes. - To apply word processing skills to create a presentation for a specific purpose. Information Technology – What is a Computer? CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know what computers are and which devices need them to function. - To understand that computers come in different forms and can be used for different purposes in our everyday lives - To identify and name common components of computers. - To identify inputs and outputs. - To apply knowledge of inputs and outputs for a specific task.



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	Key Vocabulary Programming & Debugging Sequence, selection, repetition, algorithm, programming, debugging Word Processing Keyboard, keys, letter, caps lock, shift, backspace	Key Vocabulary Coding & Algorithms Algorithm, debugging, output, programing, repeat, sequence Presenting Information Audience, filter, font, online, security, simulation	Key Vocabulary Modifying Images Text bold, italic, keyboard, enter, shift, backspace, What is a Computer? Computer, input, invention, motherboard, output, processor
Y3	Computer Science - Programming & Animation (Scratch Online) CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how control, repetition and costumes can be used to create an animation/ game. - To know what an algorithm is. - To explore a range of different situations that require different programs. - To know what debugging is, using with independence. - To know how keys can be programmed to perform functions up, down, left and right.	Digital Literacy - Communicating Safely Online CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know that devices can be used to communicate in various ways. - To know the risks associated with digital communications such as sms, email, social media, video chat etc. - To know how to create a secure password. - To know what steps to take to report content. - To know the risks of connecting to public wifi. - To know there are laws in place as a consequence to poor choices.	Information Technology - PowerPoints & Google Slides CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how apps/ software can be used to share information. - To know how to use individual slides to share content. - To organize their content appropriate for the text type/ genre. - To know how to use animations and transitions within their presentations. - To save and load from the school network.
	Computer Science – Prediction & Debugging CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how an algorithm is implemented using a sequence of precise instructions. - To predict the outcome of a program. - To explore different outcomes. - To know various forms of input. - To debug with purpose and understanding.	Digital Literacy - Producing Content Online CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To understand the basics of publishing content including graphic design. - To understand the motivations of publishing content. - To know there are risks associated with publishing content online. - To use secure logins and passwords for their accounts. - To explore various ways of making their content visually appealing, giving it impact (Marketing to a particular audience)	Information Technology – Inside A Computer CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To understand the basic fundamentals of hoe a computer works. - To know the internet is a global network of Computers linked. - To identify main components of computers. - To perform internet searches with improved efficiency.
	Key Vocabulary	Key Vocabulary	Key Vocabulary



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	Scratch Online Sequence, selection, repetition, algorithm, programming, debugging, costumes, tinker Prediction & Debugging Programming, debugging, computational thinking, algorithm, repetition, script, sequence	Communicating Safety Online Online communication, cyberbullying, phishing, social media, passwords, Creating Digital Music Audio, composition, copyright, digital, pitch, sample, sequencing, software	PowerPoint & Google Slides Audience, slides, template, theme, font, formatting, animation, transition Inside a computer Hard drive, motherboard, microprocessor, memory, network, router, hub, WiFi
Y4	Computer Science – Repetition & Loops CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how an algorithm is implemented using a sequence of precise, unambiguous instructions. - To know the outcome of a program. - To decompose programs into smaller parts (computational thinking) - To understand repeat loops and their limitations. - To explore repetition in programming across a range of websites and apps and for a range of purposes. Computer Science/ Information Technology - HTML CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how their own writing is organized in different ways and for different audiences. - To know what HTML is and how it is used to create websites. - To know how a webpage is organized. - To use HTML tags to organize their writing/ text. - To use a stylesheet to change colour options, picture sizes etc. - To know what a web address/ URL is and which sites are 'secure'.	Information Technology – Pixel Art CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To use paint tools and cell highlighters to create pixel art with control and accuracy. - To know the importance and benefits of collaboration to achieve and outcome. - To know the value and impact of peer evaluation, providing constructive feedback. - To show confidence when exploring new media to extend what they can achieve. Computer Science – Branching Databases CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know the different ways data can be organised. - To demonstrate the different ways data can be converted into information. - To make branching databases. - To collect data and identify where it could be inaccurate. - To plan, create and search a database. - Select the best way to present data to a specific audience.	Information Technology/ Digital Literacy – Smarter Searching & Online Safety CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know that the internet is a huge network of Computers - To show awareness of keywords when searching the internet. - To use strategies to verify the accuracy and reliability of information, distinguishing between fact and opinion. - To apply web search skills to find a range of information quickly and to be discerning and question the reliability of sources. - To recognise what is acceptable and unacceptable behaviour when using technology and online services. - To know the impact of sharing content without consent. Computer Science- Developing a Game with Loops CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how an algorithm is implemented using a sequence of precise, unambiguous instructions. - To predict the outcome of a program. - To know how repetition is used and why. - To know various forms of input. - To know how conditionals, help computers make decisions. (True or False) - To know how variables are used by the computer to store and retrieve data when needed.
	Key Vocabulary	Key Vocabulary	Key Vocabulary



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	Repetition & Loops in Scratch Sequence, repetition, algorithm, programming, debugging, variable, conditional, operators HTML HTML, tags, body, head, paragraph, links, images	Pixel Art Spreadsheet, Rows, columns, algebra, formula, pixel, binary, Branching Databases Branching database, database, organize, data, closed question	Smarter Searching & Online Safety Keyword, search engine, image, website, sharing, personal data Developing a Game with Repeating Loops Sequence, selection, repetition, input, algorithm, programming, debugging, computational thinking, tinker
Y5	Computer Science - Programming with Variables CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how an algorithm is implemented using a sequence of precise, unambiguous instructions. - To know the outcome of a program. - To explore different outcomes. - To know various forms of input. - To know how conditionals, help computers make decisions. (True or False) - To know how variables are used by the computer to store and retrieve data when needed. - To apply their knowledge and understanding of programming to create a variety of games. Information Technology - Communicating Information Securely CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To understand the need for private information to be encrypted. - To understand why in conflicts of the past, information was send encrypted. - To know what encryption and decryption are. - To encrypt and decrypt messages in simple ciphers.	Information Technology - Creating Digital Art CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know what tessellation is. - To know how shapes can be arranged to create a pleasing design. - To explore ways of creating tessellated patterns. - To use text based programming language to create digital artwork. - To program and debug various examples of digital art. Computer Science/ Information Technology - Creating Databases CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know what data is. - To understand that a database is a collection of data. - To know that data is organized into records and fields. - To know how to search databases for information. - To sort data and display data in various ways.	Computer Science/ Information Technology – Spreadsheets CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how to enter and organise data quickly and appropriately. - Use 'Formula' to perform calculations. - Interpret and present the data they collect. - To spot and fix errors within a spreadsheet. Information Technology - 3D Modelling CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know what CAD is and how it is used by architects to create structures including homes. - To use CAD tools to create various structures. - To explore and combine carious design tools for successful outcomes.
	Key Vocabulary HTML	Key Vocabulary Creating Digital Art	Key Vocabulary Spreadsheets



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	HTML, tags, body, head, paragraph, links, images Communicating Information securely Binary code, cipher, decrypt, encrypt, Morse Code, password, security, Semaphore	Internet, package, password, patter, safety, security, software, tessellation Creating Databases Database, information, record, field, retrieval, search, keywords, ascending, descending	Calculate, cell, column, formula(e), model, row, spreadsheet, sum, table Coding with Micro:Bits Algorithm, sequence, input, output, sensor, variable, repetition (Loop), debug,
Y6	Information Technology – Spreadsheets CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To enter and organise data quickly, appropriately and with purpose. - Use a range of different 'Formula' to perform calculations. - Interpret and present the data they collect in different ways. - To spot and fix errors within a spreadsheet. - To use a Spreadsheet for different purposes. Computer Science - Text-Based Programming CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know what Python programming is and its uses across the computing industry. - To apply their existing knowledge and understanding of programming commands/ features to create a variety of outcomes. - To know what syntax and indentation errors are and how to fix them (Debugging).	Computer Science – Programming a Game CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To show an understanding of Computational Thinking, demonstrating that they can use its approaches to solve various problems. - To use all the programming commands, features and functions they have used throughout their computing journey to create/remix programs with different outcomes. - To debug with confidence and fluency. Information Technology - HTML (Creating a Website) CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know the basic structures common to websites. - To know and use HTML to create and structure content. - To use Google Sites to present content in attractive, dynamic ways. - To use different web page elements for paragraphs, images and navigation.	Information Technology - How Data Is Stored CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - To know how data is transmitted across a network. - To know what WAN, LAN and PAN networks are. - To understand what an IP is and how it's used. - To know how networks, use the Internet to send and receive data. - To know what components are needed to make a network including their own home and school. Information Technology - Social Media & Being Safe Online CORE LEARNING (KNOWLEDGE & SKILLS) By the end of this unit, children will: - Explain Internet services they need to use for different purposes. - Manage their conduct and contact appropriately and safely when using technology and online services. - Be digitally discerning when evaluating the effectiveness of their own work and the work of others. - Combine a range of media, recognizing the contribution of each to achieve a particular outcome. - Use a range of strategies to increase the accuracy of keyword searches.
	Key Vocabulary Spreadsheets	Key Vocabulary HTML – Creating a website	Key Vocabulary How Data is Stored and Transmitted



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	Cell, column, row, formulae, graph, chart, spreadsheet, reference, grid, merge, auto sum Text-Based programming Error, print, procedure, python, repetition, selection, syntax, variable	HTML, headings, text, images, layout, website, source code, tags Programming a Game Algorithm, abstraction, decomposition, logic, sequence, variable, input, output, debug, operators, loops	Data, Hardware, input, network, service, binary, protocol, internet, packet Social Media & Being Safe Online Social Media, PEGI, Network, In-app, permissions, Ratings, Forum
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