Federation of St. Cuthbert's and St. Sebastian's Catholic Primary Schools

COMPUTING : CURRICULUM : LONG TERM PLAN

	AUTUMN TERM	SPRING TERM	SUMMER TERM
Y1	**Information Technology/ Computer Science - Basic Skills** *Core Knowledge & Skills:* ○ *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.* ○ *To know that websites/ apps have options that create different effects.* ○ *To apply phoneme and grapheme correspondence when typing.* ○ *To know a simple sequence of instructions can control a sprite on-screen.* **Information Technology - Word Processing** *Core Knowledge & Skills:* ○ *To know information is collected, including photos, videos and sound by digital devices.* ○ *To know how websites/ apps can be used to create, store and edit digital content.* ○ *To know and use the keyboard or a word bank on a device to enter text into a program.* ○ *To save information in a specific place and retrieve it again.* ○ *To know how we can change what text looks like on-screen to improve what it looks like.* ***PREVENT: D1: Staying Safe / D2: Internet***	**Computer Science - Programming & Debugging** *Core Knowledge & Skills:* ○ *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 Knowledge & Skills:* ○ *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.* ***PREVENT: D1: Staying Safe / D2: Internet***	**Information Technology - Data Collection & Representation** *Core Knowledge & Skills:* ○ *To know data can be collected on a digital device.* ○ *To interpret data displayed in charts.* ○ *To create their own pictogram linked to a curriculum topic.* ○ *To know data can be displayed in different ways.* **Computer Science - Programming & Robotics** *Core Knowledge & Skills:* ○ *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.* ***PREVENT: D1: Staying Safe / D2: Internet***
Y2	**Computer Science - Programming & Debugging** *Core Knowledge & Skills:* ○ *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 Knowledge & Skills:* ○ *To know information is collected, including photos, videos and sound by digital devices.*	**Computer Science - Programming & Debugging** *Core Knowledge & Skills:* ○ *To understanding how and when to use repetition in programming.* ○ *To begin to think computationally.* ○ *To describe 2D shapes and their properties, exploring them with programming.* ○ *To use debugging with independence.* **Information Technology - Presenting Information** *Core Knowledge & Skills:* ○ *Know how to report inappropriate content or contact online.* ○ *Use a variety of software to manipulate and present digital*	**Information Technology - Introducing Databases** *Core Knowledge & Skills:* ○ *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 that data can be sorted and displayed in various ways.* ○ *To begin to understand the need to keep data private.* **Information Technology - All About Computers** *Core Knowledge & Skills:* ○ *To know what a Computer is.* ○ *To know the difference between Inputs and Outputs.*

	○ *To know how websites/ apps can be used to create, store and edit digital content.* ○ *To know and use the keyboard or a word bank on a device to enter text into a program.* ○ *To use Y2 spelling and grammar features in their publications.* ○ *To save information in a specific place and retrieve it again.* ***PREVENT: D1: Staying Safe / D2: Internet***	*content in different ways with increasing independence.* ○ *Save and open files on the device they use from a specific file location.* ***PREVENT: D1: Staying Safe / D2: Internet***	○ *To know that Computers share common components that make them work.* ○ *To know how useful technology is in school and at home.* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet***
Y3	**Computer Science - Programming & Animation** *Core Knowledge & Skills:* ○ *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.* **Computer Science - Debugging & Repetition** *Core Knowledge & Skills:* ○ *To know how an algorithm is implemented using a sequence of precise 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)* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet***	**Digital Literacy - Communicating Safely Online** *Core Knowledge & Skills:* ○ *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.* **Digital Literacy - Producing Online Content** *Core Knowledge & Skills:* ○ *To understand the basics of publishing content.* ○ *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.* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet***	**Information Technology - PowerPoints & Google Slides** *Core Knowledge & Skills:* ○ *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.* **Information Technology - How Things Work (Including Networks)** *Core Knowledge & Skills:* ○ *To understand the basic fundamentals of how a network works.* ○ *To know the internet is a global network of Computers linked.* ○ *To identify main components of a Home Network.* ○ *To understand what is meant by a strong password.* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet***
Y4	**Computer Science - Developing a Game** *Core Knowledge & Skills:* ○ *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 times tables to create simple maths challenges.* **Computer Science/ Information Technology - HTML** *Core Knowledge & Skills:* ○ *To know how their own writing is organized in different ways and for different audiences.*	**Computer Science / Information Technology - Producing Digital Music** *Core Knowledge & Skills:* ○ *To know basic elements of music. Rhythm, melody, beat, etc.* ○ *To know what is meant by copyright.* ○ *To explore various apps and websites to create a range of compositions, reflecting upon and refining their work.* ○ *To apply their knowledge and understanding of programming and debugging.* **Computer Science / Information Technology - Creating Digital Toys** *Core Knowledge & Skills:* ○ *To know how an algorithm is implemented using a sequence of precise, unambiguous instructions.*	**Digital Literacy - Networks** *Core Knowledge & Skills:* ○ *To know that the internet is a huge network of Computers* ○ *To show awareness of their own home network as part of the internet.* ○ *To be aware of cyber security in public places.* ○ *To understand different types of networks, WAN and LAN.* ○ *To recognise what is acceptable and unacceptable behaviour when using technology and online services.* ○ *To understand how effective a strong password is and what a strong password looks like.* **Computer Science - Repetition** *Core Knowledge & Skills:* ○ *To know how an algorithm is implemented using a sequence of precise, unambiguous instructions.* ○ *To know the outcome of a program.*

	○ *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'.* ***PREVENT: D1: Staying Safe / D2: Internet / D3: Social Media / D5: Social Media Pressures***	○ *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 toys and apps to create their own versions.* ***PREVENT: D1: Staying Safe / D2: Internet / D3: Social Media / D5: Social Media Pressures / E1: Power of the Press***	○ *To decompose programs into smaller parts (computational thinking)* ○ *To explore repetition in programming across a range of websites and apps and for a range of purposes.* ***PREVENT: D1: Staying Safe / D2: Internet / D3: Social Media / D5: Social Media Pressures***
Y5	**Computer Science - Programming a Game** *Core Knowledge & Skills:* ○ *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 Knowledge & Skills:* ○ *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.* ***PREVENT: D1: Staying Safe / D2: Internet / D3: Social Media / D5: Social Media Pressures***	**Information Technology - Creating Digital Art** *Core Knowledge & Skills:* ○ *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.* **Information Technology - Creating Databases** *Core Knowledge & Skills:* ○ *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 create a 'table'.* ○ *To sort data and display data in various ways.* ***PREVENT: D1: Staying Safe / D2: Internet / D3: Social Media / D5: Social Media Pressures***	**Information Technology - Spreadsheets** *Core Knowledge & Skills:* ○ *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 Knowledge & Skills:* ○ *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.* ***PREVENT: D1: Staying Safe / D2: Internet / D3: Social Media / D5: Social Media Pressures***
Y6	**Information Technology - Creating a Mobile App** *Core Knowledge & Skills:* ○ *To know what an app is, how to use an app and the different types of apps available.* ○ *To use an app creator to create an app based upon a curriculum theme and for a specific audience.* ○ *To know how information texts are organized.* ○ *To know how to copy an image address and use it in the app.* ○ *To know how to critically evaluate an app and give their reasoning.*	**Computer Science - Computational Thinking** *Core Knowledge & Skills:* ○ *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 understand what a prime number is.* ○ *To know what Highest Common Facts are.* ○ *To debug with confidence and fluency.*	**Information Technology - How Data Is Stored** *Core Knowledge & Skills:* ○ *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.*

	Computer Science - Text-Based Programming *Core Knowledge & Skills:* ○ *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, games, quizzes etc.* ○ *To know what syntax and indentation errors are and how to fix them.* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet / D3: Social Media***	**Information Technology - Creating Spreadsheets** *Core Knowledge & Skills:* ○ *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.* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet / D3: Social Media***	**Computer Science - Programming & Debugging** *Core Knowledge & Skills:* ○ *Understand the importance of planning, testing and correcting algorithms.* ○ *Demonstrate a range of different strategies to solve a problem including: abstraction, decomposition, logic & evaluation.* ○ *Understand why sequence & patterns are important when creating simple algorithms that are part of a more complex program.* ○ *Gives reasoning for each step within algorithms and applying them to a program.* ○ *Use a variable to increase programming possibilities.* ○ *Use a variables and operators (e.g. < = >)* ○ *Evaluate the effectiveness and efficiency of an algorithm while continually testing the programming of that program.* ○ *Use logical reasoning to predict and debug more complex programs including: selection, variables and operators.* ***PREVENT: C6: Global community / D1: staying safe / D2: Internet / D3: Social Media***