



Sacred Heart Catholic Primary School

Key Knowledge Overview: Computing



EYFS Curriculum						
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Units 1-4 RS 1. Know how to speak in a group 2. Know how to play co-operatively 3. Know why they enjoy some activities more than others and make choices 4. Know how people show their feelings and talk about behaviour	Units 5-8 RS 1. Know how to move carefully around a space 2. Know how to co-ordinate large and small movements 3. Know that physical exercise contributes to being healthy 4. Know how to keep healthy and fit	Units 9-12 RS 1. Know how to listen carefully in different situations 2. Know how to follow several different instructions 3. Know how to express themselves clearly	Units 13-16 RS 1. Know how to demonstrate understanding about what they have read 2. Know how to write simple sentences 3. Know how to count up to 20	Units 17-20 RS 1. Know how to solve problems involving position and distance 2. Know how to talk about size and position 3. Know how to discuss past and present events in their own and others' lives 4. Know how to find similarities and differences between objects	Units 21-24 RS 1. Know that a range of technology is used for different purposes 2. Know that different materials and tools are used for different jobs 3. Know how to express own thoughts and feelings through music and stories

Year 1					
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
	Treasure Hunters 1. Know that a programmable toy can be controlled by inputting a sequence of instructions. 2. Know how to develop and record sequences of instructions as an algorithm. 3. Know how to program the toy to follow their algorithm. 4. Know how to debug their own programs 5. Know how to make predictions.	TV Chefs 1. Know how to break down a process into simple, clear steps, as in an algorithm. 2. Know how to use different features of a video camera. 3. Know how to capture moving images. 4. Know how to develop collaboration skills. 5. Know how to discuss their work and think about how it could be improved.	Painters 1. Know how to use the web safely to find ideas for an illustration. 2. Know how to select and use appropriate painting tools to create and change images on the computer. 3. Know how this use of ICT differs from using paint and paper. 4. Know how to create an illustration for a particular purpose. 5. Know how to save, retrieve and change their work. 6. Know how to reflect on their work and act on feedback received.	Collectors 1. Know how to find and use pictures on the web. 2. Know what to do if they encounter pictures that cause concern. 3. Know how to group images on the basis of a binary (yes/no) question. 4. Know how to organise images into more than two groups according to clear rules. 5. Know how to sort (order) images according to some criteria. 6. Know how to ask and answer binary (yes/no) questions about their images.	Celebrating 1. Know how to develop basic keyboard skills, through typing and formatting text. 2. Know how to develop basic mouse skills. 3. Know how to use the web to find and select images. 4. Know how to develop skills in storing and retrieving files. 5. Know how to combine text and images. 6. Know how to discuss their work and think about whether it could be improved.

Year 2					
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
	Astronauts 1.Know how algorithms work as sequences of instructions. 2.Know how to convert simple algorithms to programs. 3. Know how to make predictions about what a simple program will do. 4.Know how to spot and fix (debug) errors in their programs.	Game Testers 1.Know how to describe carefully what happens in computer games. 2.Know how to use logical reasoning to make predictions of what a program will do. 3.Know how to test these predictions. 4.Know how to think critically about computer games and their use. 5.Know how to use games safely and in balance with other activities.	Photographers 1.Know how to consider the technical and artistic merits of photographs. 2.Know how to use a digital camera or camera app. 3.Know how to take digital photographs. 4.Know how to review and reject or rate the images they take. 5.Know how to edit and enhance their photographs. Know how to select their best images to include in a shared portfolio.	Detectives 1.Know that email can be used to communicate. 2.Know how to develop skills in opening, composing and sending emails. 3.Know how to listen to audio files on the computer. 4. Know how to use appropriate language in emails. 5.Know how to develop skills in editing and formatting text in emails. 6.Know how to use Email safely.	Zoologists 1.Know how to sort and classify a group of items by answering questions. 2.Know how to collect data using tick charts or tally charts. 3.Know how to use simple charting software to produce pictograms and other basic charts. 4.Know how to take, edit and enhance photographs. 5.Know how to record information on a digital map

Year 3					
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
	Programmers 1.Know how to create an algorithm for an animated scene in the form of a storyboard. 2.Know how to write a program in Scratch to create the animation. 3.Know how to correct mistakes in their animation programs.	Bug Fixers 1.Know how to use a number of strategies for finding errors in programs. 2.Know how to find the most suitable strategies for problem solving. 3.Know how to improve their knowledge and understanding of Scratch. 4.Know how to recognise a number of common types of bug in software.	Vloggers 1.Know how to use a search engine to learn about a new topic. 2.Know how to plan, design and deliver an interesting and engaging presentation. 3.Know how to search for and evaluate online images. 4.Know how to create their own original images. 5.Know how to create a video slidecast of a narrated presentation. 6.Know how to use internet, the web and search engines.	Communicators 1.Know how a basic email works and use them safely. 2.Know how to send and receive emails. 3. Know how to work collaboratively with a remote partner. 4.Know how to use video conferencing.	Opinion Pollsters 1.Know how to use some elements of survey design. 2.Know why it is important to understand some ethical and legal aspects of online data collection. 3.Know how to use the web to facilitate data collection. 4.Know how to use charts to analyse data. 5.Know how to interpret results.

Year 4					
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
	Software Developers 1. Know how to develop an educational computer game using selection and repetition. 2. Know and be able to use variables. 3. Know how to debug computer programs. 4. Know how to recognise the importance of user interface design, including consideration of input and output.	Toy Designers 1. Know how to design and make an on-screen prototype of a computer-controlled toy. 2. Know and be able to use different forms of input and output (such as sensors, switches, motors, lights and speakers). 3. Know how to link different forms of input and output. 4. Know how to design, write and debug the control and monitoring program for their toy.	Musicians 1. Know how to use one or more programs to edit music. 2. Know how to create and develop a musical composition, refining their ideas through reflection and discussion. 3. Know how to develop collaboration skills. 4. Know how their composition can enhance work in other media.	HTML Editors 1. Know and understand some technical aspects of how the internet makes the web possible. 2. Know how to use HTML tags for elementary mark up. 3. Know how to use hyperlinks to connect ideas and sources. 4. Know how to code up a simple web page with useful content. 5. Know and understand some of the risks involved in using the internet.	Co-authors 1. Know the conventions for collaborative online work, particularly in wikis. 2. Know their responsibilities when editing other people's work. 3. Know how to use Wikipedia, including potential problems associated with its use. 4. Know how to research information on the web. 5. Know how to write for a target audience using a wiki tool. 6. Know the importance of proofreading skills and use them.

Year 5					
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
	Game Developers 1.Know how to create original artwork and sound for a game. 2.Know how to design and create a computer program for a computer game, which uses sequence, selection, repetition and variables. 3.Know how to detect and correct errors in their computer game. 4.Know how to use iterative development techniques (making and testing a series of small changes) to improve their game.	Cryptographers 1.Know how to use semaphore and Morse code. 2.Know and understand the need for private information to be encrypted. 3.Know how to encrypt and decrypt messages in simple ciphers. 4.Know how to use complex passwords and to keep them secure. 5.Know how encryption works on the web.	Artists 1.Know how to develop links between geometry and art. 2.Know how to use tools and techniques of a vector graphics package. 3.Know how to use turtle graphics. 4.Know how to experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers. 5.Know how to develop computer-generated art, in particular fractal-based landscapes.	Bloggers 1.Know how to use blogs as a medium and a genre of writing. 2.Know how to create a sequence of blog posts on a theme. 3.Know how to incorporate additional media. 4.Know how to comment sensitively on the posts of others. 5.Know how to develop a critical, reflective view of a range of media, including text.	Architects 1.Know how to understand the work of architects, designers and engineers working in 3D. 2.Know how to use a simple CAD (computer aided design) tool. 3.Know how to develop spatial awareness by exploring and experimenting with a 3D virtual environment. 4.Know the importance of developing greater aesthetic awareness.

Year 6					
Unit	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
	Computational Thinkers 1. Know how to reason logically about algorithms. 2. Know how some key algorithms can be expressed as programs. 3. Know that some algorithms are more efficient than others for the same problem. 4. Know common algorithms for sorting and searching. 5. Know and appreciate algorithmic approaches to problems in mathematics.	Advertisers 1. Know how to think critically about how video is used to promote a cause. 2. Know how to storyboard an effective advert for a cause. 3. Know how to work collaboratively to shoot suitable original footage and source additional content, acknowledging intellectual property rights. 4. Know how to work collaboratively to edit the assembled content to make an effective advert.	Network Technicians 1. Know that computer networks transmit and receive information digitally. 2. Know the basic hardware needed for computer networks to work. 3. Know the key features of internet communication protocols. 4. Know how domain names are converted to numerical IP addresses.	Travel Writers 1. Know how to research a location online using a range of resources appropriately. 2. Know how to safely use mobile technology, including GPS. 3. Know how to capture images, audio and video while on location. 4. Know how to showcase shared media content through a mapping layer.	Publishers 1. Know how to manage or contribute to large collaborative projects, facilitated using online tools. 2. Know how to write and review content. 3. Know how to source digital media while demonstrating safe, respectful and responsible use. 4. Know how to design and produce a high-quality print document.