ALL SAINTS CE JUNIOR ACADEMY
LONG TERM SUBJECT OVERVIEW
COMPUTING 2022-23

National Curriculum	Strand	Term 1			
		Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs#	**Computer science** • Algorithms and programming • Data • Systems- knowledge of input, process and output	Stepping through Space Pupils will learn to write a computer program where different pieces of code execute in a particular sequence. Snail vs spider Pupils will learn to create a program that uses sequences for two different objects moving on the screen. Alien space race Pupils will learn to write code that uses a timer to create a sequence of events. Traffic lights Pupils will learn to write code that uses a timer to create a sequence of traffic lights turning on and off.	Pop game Pupils will learn to understand how a variable can be used to keep track of the score in a game. Catch the coconuts! Pupils will learn to use variables to keep track of the score in a game that uses conditional events. Healthy eating Pupils will learn to use a variable to keep track of the score in a game that uses conditional events. Tablet till Pupils will learn how to use multiple different variables and to set the value of a variable. Pirate gold Pupils will learn to use a variable to keep track of the score in a	Pupils will learn to set values in code to control the speed of an object. Pupils will learn to use object properties (speed, heading and angle) to create a driving simulation. Pupils will learn to create a sailing game where a boat's position on the screen is controlled by making changes to its co-ordinates. Pupils will learn to write code including if statements to make an object rotate, and combine this with conditional events to make a game.	Curriculum use

			game where the score increases, decreases or resets when different conditions are met.		
understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	**Digital Literacy and E-safety** • Digital artefacts • Computing Contexts- how computers can be used purposefully both locally and globally.	Pupils will learn to explain their 'identity'		Pupils will learn to explain identities online can be copied, modified or altered.	
select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Information Technology** • Mechanics - the knowledge pupils need to use devices effectively • Searching/ selecting information- knowledge of how to search for information effectively. What is reliable?				

Exceeding the National Curriculum	Vocabulary ORACY	Code, sequence, timer, events, order, start, stop • I liked / I disliked... • I think that... • I made this model because... • The purpose of my product is ... • In my opinion, I feel that I can improve this by... • I believe this program is (good / bad) because .... • I found the process / skill of ... the most challenging because...	Variable, conditional, value • Based on my design criteria, I believe ... • I believe this was ambitious because... • You could improve this product by...maybe you could try... • I used the process / skill of .... because ... • I can transfer the skill of... to ... • The problems I faced were.... I overcame these by...	Simulation, control, position, co-ordinates, rotate • I believe the strengths / weaknesses are evident in the... • Based on the design brief I have been presented with.... • In my opinion, the success of this product was... However, ... • Possible improvements may include... • This product has met / has not met the brief because ... • Alternatively, I believe the product would be more suited to...	Variables, debug, values, analogue, interactive • I have come to the conclusion that... • The evidence / facts lead to... • The computer aided design helped me to... • To create my product, it was essential to understand... • When I began to critique my product, I found that... • The functional properties, which I am proud of, are...
	Suitable Suggested Texts	'A Coder Like Me' by Dr Shini Somara (Author), Nadja Sarell (Illustrator)		'In the Key of Code' by Aimee Lucido (Author)	'Agent Asha: Mission Shark Bytes' Paperback by Sophie Deen (Author), Anjan Sarkar (Illustrator)
	Enhancements and enrichment	Anti-bullying Week Home-school agreement Class Charter and acceptable use of IT equipment	Anti-bullying Week	Anti-bullying Week	Anti-bullying Week

National Curriculum	Strand	Term 2			
		Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs# understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	**Computer science** • Algorithms and programming • Data • Systems- knowledge of input, process and output	Space maze Pupils will learn to use 'hit events' to program a space maze game in which an object reacts to particular conditions. Self-driving car Pupils will learn to use conditional hit events to control the movement of a car on the screen. Hungry snake Pupils will learn to make a simple game that uses conditional hit events to check if one object has hit another. Pufferfish pop Pupils will learn to program a simple game where conditional events are used to check whether objects have collided.	Bugs in the garden Pupils will learn to use a loop to do something repeatedly in a program. Driving me loopy Pupils will learn to write code that uses nested loops to create a car-driving program. Pupils will learn to designs simple algorithms using loops and selection, i.e. if statements. (AL) Astronaut orbit Pupils will learn to write the code to program a rocket to orbit round the spinning Moon, using the concepts of loops, regular or infinite repetition, and 'if statement' blocks. Hot air balloon show Pupils will learn to use loops, a variable and if statements to create an animated scene of hot air balloons performing a repeating pattern in	Pupils will learn to use object properties (speed, heading and angle) to create a driving simulation. Pupils will learn to write code for a game that uses random numbers to move objects in different directions.	Pupils will learn to describe ways in which media can shape ideas about gender. Pupils will learn to can keep asking to get help when needed. Pupils will learn to understand my responsibilities online

			the sky.		
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Information Technology** • Digital artefacts • Computing Contexts- how computers can be used purposefully both locally and globally.	Pupils will learn to manipulate shapes and lines. Pupils will learn to create and debug algorithms that draw regular polygons.			Pupils will learn to describe some ways that build a positive reputation Pupils will learn to describe strategies for managing passwords
select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Digital Literacy** • Mechanics - the knowledge pupils need to use devices effectively • Searching/ selecting information- knowledge of how to search for information effectively. What is reliable?	This is covered and linked to E-Safety as below	This is covered and linked to E-Safety as below	This is covered and linked to E-Safety as below	Pupils will learn to explain the importance of self-regulating my apps
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	E-safety	Pupils will learn to know why I should be careful who I trust Pupils will learn to explain what bullying is	Pupils will learn to describe how information about me can be found online. Pupils will learn to judge a 'belief', an 'opinion' or a 'fact'.	Pupils will learn to explain when to use references	Pupils will learn to explain how impulsive communications cause problems Pupils will learn to apply strategies to evaluating digital content.

					Pupils will learn to describe ways apps and services can conflict privacy. Pupils will learn to explain the importance of self-regulating their use of technology. Pupils will learn to demonstrate how to make references
Exceeding the National Curriculum	Vocabulary	Programme, sequence, manipulate, debug, algorithm	Loops, algorithms, animation, align	Properties, simulation, code, random, data handling	Media, responsibilities, positive reputation, self-regulating
	Suitable Suggested Texts		'Grace Hopper: Queen of Computer Code: Volume 1 (People Who Shaped Our World)' by Laurie Wallmark (Author), illustrated by Katy Wu (Author), Katy Wu (Illustrator)		'Once Upon an Algorithm: How Stories Explain Computing' by Martin Erwig (Author)
	Enhancements and enrichment				

National Curriculum	Strand	Term 3			
		Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs# understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	**Computer science** • Algorithms and programming • Data • Systems- knowledge of input, process and output		Curriculum use		Pupils will learn to shape-shift. To write code that prompts the user to input the value of a variable, and use this to create an interactive block chart. Pop challenge To use their knowledge of variables to make a balloon pop game that gets harder as users score more points. Toy shop till To write the code for a shopping till using variables to store and calculate values. Stopwatch Pupils will learn to create a stopwatch with stop, start, and reset buttons, and both digital and analogue displays.
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Information Technology** • Digital artefacts • Computing Contexts- how computers	Pupils will learn to draw with different shapes and lines. Pupils will learn to order and group objects. Pupils will learn to		Pupils will know how to get help online. Pupils will enter data and formulae into a spreadsheet.	

	can be used purposefully both locally and globally.	manipulate shapes and lines. Pupils will learn to recognise effective layout. Pupils will learn to combine text and images. Pupils will learn to lay out objects effectively.		Pupils will learn to order and present data based on calculations. Pupils will learn to add, edit and calculate data. Pupils will use a spreadsheet to solve problems. Pupils will learn to plan and calculate a spending budget.	
select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Digital Literacy** • Mechanics - the knowledge pupils need to use devices effectively • Searching/ selecting information- knowledge of how to search for information effectively. What is reliable?				
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	E-safety	Pupils will learn to explain using key phrases to search		Pupils will learn to explain why some information online may not be true.	Pupils will learn to can apply strategies to evaluating digital content.
Exceeding the National Curriculum	Vocabulary	Sequence,		Co-ordinates	Software,

		conditional, effective, debug			appropriate, crediting,
	Suitable Suggested Texts				
	Enhancements and enrichment	Internet safety day	Internet safety day	Internet safety day	Internet safety day

National Curriculum	Strand	Term 4			
		Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs# understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	**Computer science** • Algorithms and programming • Data • Systems- knowledge of input, process and output				Tags and text Pupils will learn to get started with HTML by adding paragraphs of text to a page. Adding images Pupils will learn to add images to a web page using HTML. Minibeasts Pupils will learn to create a web page using headings, paragraphs and images. Space page Pupils will learn to apply knowledge of

					HTML to create a web page using headings, paragraphs and images. Shapes page Pupils will learnt to apply knowledge of HTML to create a web page using headings, paragraphs and images. Food glorious Pupils will learn to create a simple web page about food using headings, paragraphs and images Changing colour Pupils will learn to change the colour of text using the colour property. Fonts and sizes Pupils will learn to change the size and font of text using the font-size and font-family properties. Background colours and patterns Pupils will learn to change the 'background', 'margin' and 'padding' properties of different parts of a web page.

					Dinosaurs online Pupils will learn to apply knowledge of HTML to make a web page using text, headings, images and styling.
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Information Technology** • Digital artefacts • Computing Contexts- how computers can be used purposefully both locally and globally.	Pupils will learn to create and debug an algorithm using the move, rotate and repeat commands. Pupils will learn to create and debug algorithms using penup and pendown. Pupils will learn to create and debug algorithms that draw regular polygons. Pupils will learn to create and debug algorithms that draw shapes. Pupils will learn to create and debug algorithms that draw regular polygons. Pupils will learn to create and debug algorithms to draw patterns.	Pupils will learn to use basic computer skills. Pupils will learn to change the case of text. Pupils will learn to align text. Pupils will learn to use bullets and numbering. WALT use the <ctrl> key. Pupils will learn to insert and format text boxes. Pupils will learn to recognise and remember where keys are on a computer keyboard Pupils will learn to know how to position my hands when typing on a keyboard		
select, use and combine a variety of software (including internet services) on	**Digital Literacy** • Mechanics -	Pupils will learn to describe how			

a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• the knowledge pupils need to use devices effectively • Searching/ selecting information- knowledge of how to search for information effectively. What is reliable?	information can be collected by devices.			
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	E-safety	Pupils will learn to explain ownership of work	Pupils will learn to describe ways online bullying can occur	Pupils will learn to explain how apps share their information Pupils will learn to explain when to use references Pupils will learn to explain why some information online may not be true. Pupils will learn to explain why some information online may not be true Pupils will learn to describe ways that information online can be used to make judgments.	Pupils will learn to keep asking to get help when needed. Pupils will learn to understand my responsibilities online

Exceeding the National Curriculum	Vocabulary	Collided, combine, devices	Multiple, fact, opinion,	range	HTML, conflict
	Suitable Suggested Texts		'Why are there different computer languages? (Computers and Coding)' by Steffi Cavell-Clarke (Author)		
	Enhancements and enrichment				

National Curriculum	Strand	Term 5			
		Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs# understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	**Computer science** • Algorithms and programming • Data • Systems- knowledge of input, process and output		Pupils will learn to understand that optical illusions can be used to make moving images In class. Children make a thaumotrope Pupils will learn to Understand that a set of still shots played in rapid succession can be used to form an animation Pupils will learn to Children to make flick books. Pupils will learn to Understand that a computer can be used to easily create a stop frame animation Pupils will learn to Evaluate and edit animations based on feedback from others Pupils will learn to Add backgrounds and credits to animations		

			Pupils will learn to Refine and Screen animations		
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Information Technology** • Digital artefacts • Computing Contexts- how computers can be used purposefully both locally and globally.	Pupils will learn to lay out objects effectively. Pupils will learn to create and debug algorithms to draw patterns.			Pupils will learn to use software to create my own sounds by recording, editing and playing. Pupils will learn to use software to create my own sounds by recording, editing and playing. Pupils will learn to combine audio effects to create an original radio jingle. Pupils will learn to trim and order audio effects to create a radio broadcast Pupils will learn to present and evaluate audio content.
select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**Digital Literacy** • Mechanics - the knowledge pupils need to use devices effectively • Searching/ selecting information- knowledge of how to search for information	Pupils will learn to explain using key phrases to search	Pupils will learn to explain Artificial intelligence		

	effectively. What is reliable?				
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	E-safety	Pupils will learn to explain my 'identity' Pupils will learn to know why I should be careful who I trust Pupils will learn to explain what bullying is Pupils will learn to explain ownership of work Pupils will learn to judge a 'belief', an 'opinion' or a 'fact'.	Pupils will learn to know the dangers of app purchases Pupils will learn to explain the importance of a strong password. Pupils will learn to consider copyright when searching online Pupils will learn to become aware of screen addiction	Pupils will learn to explain how apps share their information Pupils will learn to explain when to use references Pupils will learn to explain why some information online may not be true. Pupils will learn to explain why some information online may not be true Pupils will learn to describe ways that information online can be used to make judgments.	Pupils will learn to describe some ways that build a positive reputation
Exceeding the National Curriculum	Vocabulary	Phrases, identity, bullying, fact, belief, opinion,	Infinite, motion animation, format, identities,	Technology, community, risk,	Analogue, broadcast, import
	Suitable Suggested Texts	'Troll Stinks!: Jeanne Willis (Online Safety Picture Books)' by Jeanne Willis (Author), Tony Ross (Illustrator)		'I Swapped My Brother On The Internet' by Jo Simmons (Author), Nathan Reed (Illustrator)	
	Enhancements and				

	enrichment				

National Curriculum	Strand	Term 6			
		Year 3	Year 4	Year 5	Year 6
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs# understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	**Computer science** • Algorithms and programming • Data • Systems- knowledge of input, process and output	Curriculum use	Microbits – Pupils will learn to explain what the micro:bit's components do Pupils will learn to sequence code within the micro:bit MakeCode editor Pupils will learn to design and code images using the micro:bit's LEDs Pupils will learn to use repetition within the micro:bit MakeCode editor Pupils will learn to design and code an animation using the micro:bit's LEDs Pupils will learn to evaluate their work and suggest improvements Pupils will learn to know and understand what algorithms are Pupils will learn to	Curriculum use	

			write algorithms with clear instructions Pupils will learn to test and debug algorithms		
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Information Technology** • Digital artefacts • Computing Contexts- how computers can be used purposefully both locally and globally.		Pupils will learn to explain Artificial intelligence		Pupils will learn to appropriate software and other tools effectively to write a film script. Pupils will learn to locate and check appropriate digital content, and provide accurate crediting of sources. Pupils will learn to use digital recording devices to film and import into video editing software. Pupils will learn to plan, conduct and import video interviews as part of a short film. Pupils will learn to use video editing software to create a short film. Pupils will learn to use video editing software to turn a film project into a finished movie and present it.
select, use and combine a variety of software (including internet services) on	**Digital Literacy** • Mechanics -				

a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	• the knowledge pupils need to use devices effectively • Searching/ selecting information- knowledge of how to search for information effectively. What is reliable?				
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	E-safety				Pupils will learn to describe strategies for managing passwords
Exceeding the National Curriculum	Vocabulary				
	Suitable Suggested Texts				
	Enhancements and enrichment				