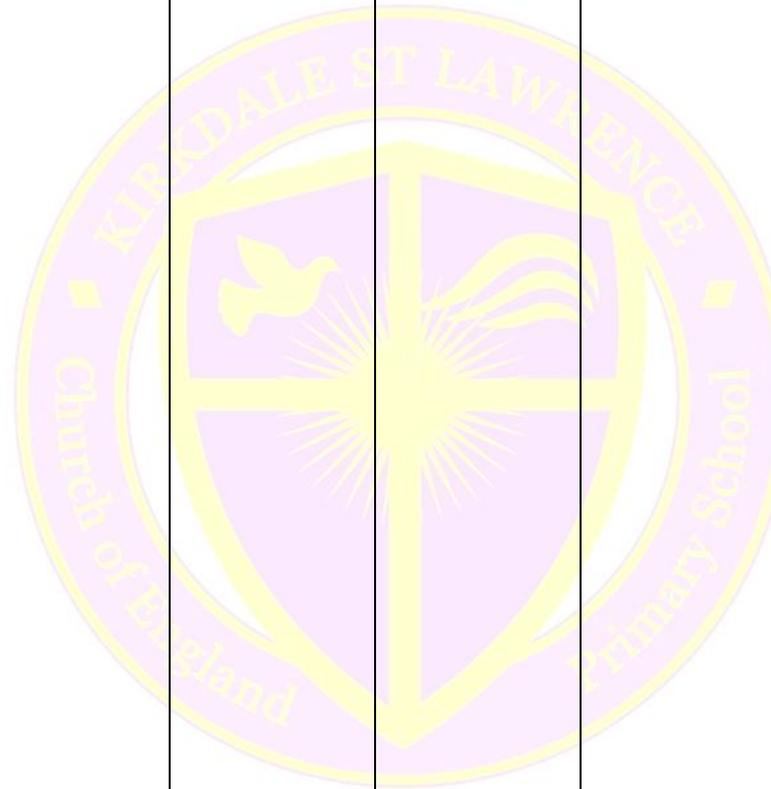## Long Term Plan
Computing

Year Group	National Curriculum Attainment Targets	Autumn		Spring		Summer		Theme Week/ Enhanced Curriculum
		Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	
1	Children understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Children to create and debug simple programs. Children use logical reasoning to predict the behaviour of simple programs. Children use technology purposefully to organise, store, manipulate and retrieve digital content. Children recognise uses of information technology beyond school.	**Lego Builders** Children will learn about simple algorithms and write their own programs.	K – to know that computers need precise instructions K – to know that computers can do nothing unless a program is running. S – to write a set of instructions for a given task. S – to edit and refine instructions to make them precise. U – to begin to understand that computers need instructions (programs) to work. U – to write more precise instructions containing only	**Programming a Beebot** Children will learn the basic commands of programming a Beebot.	K – to know that computers can do nothing without a program. K – to use their knowledge of simple programs to predict what might happen S – to write a simple program for a Beebot. S – to run, check and amend (debug) programs U – to be able to edit their program for a new goal. (ie amend instructions to get to a new place based on what they have already) U – to predict	**Internet Explorers** Children will learn about the internet and keeping themselves safe online.	K – to know that the internet contains lots of information and how to safely search for it. K – to know how where to go for help if they are concerned about something online. S – to find content from the web using a web browser. U – to begin to understand how to keep themselves safe online. U – to begin to recognise signs of making themselves vulnerable online.	Hour of Code E-Safety Week

				key commands.		where the Beetbot will end up when shown a set of instructions.		
	Children use technology safely, respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other technologies.							
		Card Designers Children will learn to use word/publisher by designing a card for a given occasion.	K – to use prior knowledge of cards to create a card for a given purpose. K – to log-on successfully and save in an appropriate place. S – to open, close and save documents in the correct place. S – to insert, edit and re-size text and images. U – to create a greetings card suitable for a given purpose.	**Virtual Trucking**	K – to know that computers need precise instructions. K – to know that all software executed on a digital device is programmed. S – S – U – U –	**Simulators** Children will use a series of simulations to show them that computers can be used to represent real and imaginary situations.	K – to know that digital content can be represented in many forms. K – to know why simulations are used and why they are useful to us. S – to explore what will happen when different choices are made. S – to predict what will happen (What if…?) and change conditions to suite a given outcome.	

			U – to understand how to format images and text within word/publisher.				U – to change conditions to produce a given outcome and explain their choices. U – to explain why simulations are used and why they are useful.	

		Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	
2	Children understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.

Children to create and debug simple programs.

Children use logical reasoning to predict the behaviour of simple programs.

Children use technology purposefully to organise, store, manipulate and retrieve digital content.

Children recognise uses of information technology beyond school.

Children use technology safely, respectfully, keeping personal information private; | **How to Train your Robot**

Children will write algorithms and then program their human robot around obstacle courses. | K – to know what an algorithm is and express simple algorithms with symbols.

K – to know that a computer needs precise instructions.

S – to write a simple set of algorithms for their robot.

S – to edit and refine algorithm by adding loops and selections (ie if statements)

U – to understand that loop and selections make programs more precise.

U – to write a program for the human robot and explain the code written to a friend. | **Programming Blocks**

Children learn how to write simple programs using Scratch Junior. | K – to learn how to create a simple program using Scratch Junior.

K – to begin to learn to code using Scratch Junior and understand the function of the coding blocks.

S – to learn the basic commands in Scratch Junior.

S – to create their own Scratch program.

U – to use their knowledge of logical reasoning to predict the behavior of the program. (Explain what is going to happen from the code)

U – To explain how they created their program (justify lines of code) | **Digital Artists**

Children to create 'pop' inspired digital images. | K – to use prior knowledge of an artist to create work in a similar style on a computer.

K – to develop their knowledge of a digital drawing package.

S – to learn how to use a digital art package

S – to create work in a given style

U – to explain how they created their own digital art using correct vocabulary.

U – to evaluate own and peers work. Offer opinions on what was successful and what they could change to make it better. | Hour of Code

E-Safety Week |

		Beebot Maze Explorers	K – to know that computers need precise instructions	We are Journalists	K – to use their prior knowledge of newspapers to help them design a suitable layout.	Information Collectors	K – to learn how to create a favourite folder and the uses of having one.	
	identify where to go for help and support when they have concerns about content or contact on the internet or other technologies.	Children will build on skills learned in Year 1 for Beebots and move onto writing programs for them on screen.	K – to build on prior knowledge of Beebot commands to solve increasingly complicated mazes.

S – learn basic controls to program the Beebot. Multiple commands before testing.

S – learn to create their own Beebot maze for a friend to solve.

U – to be able to use logical reasoning to predict and explain outcomes.

U – to write increasingly complex commands. More than one step before they test. | Children will use word/publisher to create a newsletter or newspaper report. | K – to use their prior knowledge of word/publisher to amend text and images.

S – to learn how to change text; font, size, position, etc.

S – to learn how to insert images; changing size and position.

U – to create a 'published' piece of work for a suitable audience. To be able to explain and justify choices. | | K – to learn awareness for the quality of digital content.

S – to create a favourite folder for a given topic of work. Add to and delete.

S – to learn how to search the internet safely and check for reliability of information.

U – to create a sub-folder in favorites to add websites for a given topic.

U – to explain which websites might be more reliable than others. (ie explaining .gov over a .com) | |

		Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	
3	Children to design, write and debug programs that accomplish specific goals, and solve problems by decomposing them into smaller parts

Children to use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Children to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children to select, use and combine a variety of software 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.

Children to use technology safely, respectfully and responsibly. | **Space Mission** | K –

K –

S –

S –

U –

U – | **Human Crane**

Children will learn to write algorithms by creating sets of instructions for a Human Crane. | K – to know that programs run by following precise instructions.

K – to know what an algorithm and express simple algorithms with symbols.

S – to write algorithms with loops and statements.

S – to run, check and change programs.

U – to design simple algorithms using loops and selection.

U – to find and correct errors in a given program. (debugging) | **Monster Database**

Children will learn what a database is and why we use them. They will then create their own. | K – to know what a database is and what they are used for.

K – to learn how to add information to a database and search for a given set of information.

S – to search and sort information within a given database.

S – to create their own database and produce their own searches.

U – to explain how to search for a given piece of information.

U – to use the correct vocabulary/ technical terms for databases. | Hour of Code

E-Safety Week |

			Comic Creator	K – to use their prior knowledge of comics to help them design a suitable layout.	**Introduction to Scratch**	K – to learn the correct vocabulary for programming.	**Presenting my Ideas**	K – to know that digital content can be represented in many forms and that data can be structured into tables.	
			Children to create a comic book based upon a current topic.	K – to create and edit storyboards for a given purpose.	Children will learn the basic commands in Scratch to get their sprite to tell a joke, to dance and create an Etch-a-sketch.	K – to build on their current knowledge of Scratch to write more efficient programs. (loops, etc)	Children will learn presentational software to create a presentation for a given audience or topic.	K – to build upon prior knowledge of editing to combine mixed media for a given purpose.	
				S – to learn how to create a comic book in a digital format.		S – to design and write programs to accomplish specific goals.		S – to lean to use presentational software.	
				S – to edit layout, text and images for a given purpose.		S – to become confident using loops and statements within scratch.		S – to learn to combine text, images, videos and sounds for a given audience.	
				U – to justify their choices of font and format.		U – to identify errors in in algorithms and programs.		U – to explain and justify their choices in their presentation.	
				U – to produce a comic for a given audience.		U – to use their knowledge of sequences and repetition to write precise algorithms and programs.		U – to produce a piece of work that combines different mediums for a given audience.	

		Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	
4	Children to design, write and debug programs that accomplish specific goals, and solve problems by decomposing them into smaller parts.

Children to use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Children to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children to 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.

Children to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable | **Lighting the Path**

Children will write algorithms for Light-Bot to solve puzzles. Children will then create their own puzzles and solutions for friends to solve. | K – to build on their knowledge of algorithms and solve Light-Bot puzzles.

K – to learn how and when to create loops and sub-programs.

S – to learn to write algorithms for Light-Bot.

S – to learn how to create loops and sub-programs.

U – to create their own mazes based upon previous solutions.

U – to debug their algorithms independently and explain how they did it. | **Music Maker or Quiz Master**

Children will build on their knowledge of Scratch to create programs which use conditions and responses. | K – to know and use the correct vocabulary for programming.

K – to use prior knowledge to semantic errors to debug.

S – to declare and assign variables.

S – to use arithmetic operators in programs,

U – to create a working program (quiz) for a friend.

U – to explain the code they used to program their quiz. | **Leaflets**

Children will build on their publishing knowledge to create a brochure or leaflet for a given purpose. | K – to build on their knowledge of leaflets and brochures to plan a document for a given purpose.

K – to build upon their knowledge of editing to insert and format text and images.

S – to position and alter images and text within the document.

S – to choose appropriate images and text for a given audience.

U – to create a professional looking document with show and understanding of formatting features.

U – to create a document for a given audience or purpose. | Hour of Code

E-Safety Week |

	behaviour; identify a range of ways to report concerns about content and contact.	**Garage Band** Children will learn to use music software to create a piece of music for a given audience.	K – to understand how music and images are linked and can be represented. K – to create moods with instruments. S – to learn how to create music with Garage Band. S – to edit and manipulate the sounds on Garage Band. (ie, stretch sounds, cut sounds, etc) U – to evaluate a piece of music for a given purpose and offer suggestions. U – to create an idiots guide to using the software with screenshots.	**Code Kingdoms** Children will learn the basics of designing and making their own computer game.	K – K – S – S – U – U –	**Cyber Cops** Children will learn about online safety and how to keep themselves safe online.	K – to understand the dangers of being online. K – to know who and where to go for help if they are concerned about something online. S – to undertake 'cyber café' activities focusing each week on a new aspect of keeping themselves safe. U – to create an outcome to warn others about online safety. U – to discuss the dangers they face online and how they can protect themselves.	

		Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	
5	Children to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

Children to use sequence, selection, and repetition in programs; work with variables and various forms of input and output

Children to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Children to 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

Children to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital | **Interactive Adventures**

Children will learn create an interactive adventure using PowerPoint. | K – to build upon prior knowledge of editing to combine mixed media for a given purpose.

K – to use their knowledge of links and hyperlinks to create an interactive book,

S – to learn hyperlinks in PowerPoint.

S – to learn to combine text, images, videos and sounds for a given audience.

U – to explain and justify their choices in their interactive book.

U – to produce a piece of work that combines different mediums and multiple outcomes. | **Spreadsheets**

Children will learn what a spreadsheet is and how and when to use them. | K – to know why we use spreadsheets and understand what they are used for in everyday life.

K – to build a knowledge of how to create spreadsheets.

S – to identify key elements in a spreadsheet and be able to reference cells.

S – to enter formula into a spreadsheet.

U – to explain how a spreadsheet model allows for the exploration of possible outcomes.

U – to create their own spreadsheet costing for a party. (using formula and fill tool) | **True or False**

Children will learn to evaluate websites for bias and validity. | K – to have an knowledge of websites and how to assess them for validity.

K – to use their knowledge to make sound judgments of a site for bias.

S – to learn ways to finding out if a site is reliable (.gov, etc)

S – to carry out web searches to collect digital content from reliable sources.

U – to understand that anyone can contribute to the internet.

U – to explain how to safely search the internet and check for validity and bais. | Hour of Code

E-Safety Week |

content	Coding Kingdoms	K –	Games Maker	K – to know and use the correct vocabulary for programming.	Digital Director	K – to gain a knowledge of editing and creating a movie.	
Children to 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 Children to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Children will build on their knowledge to create a usable game with levels aimed at primary school children.	K – S – S – U – U –	Children will build on their knowledge to develop a basic maze game in Scratch.	K – to use prior knowledge to semantic errors to debug. S – to declare and assign variables. S – to use arithmetic operators in programs, U – to create a working program (game) in Scratch. U – to explain the code they used to program their game.	Children will learn how to plan, record and edit a piece of film.	K – to make judgments about digital content and the audience for which it is intended. S – to learn to use movie editing software to edit film. S – to learn to use movie editing software to add text and sound. U – to create a movie with sound and text and be able to explain how they made it. U – to make appropriate improvements based upon feedback.	

		Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	Topic to be covered	Knowledge, skills and understanding objectives	
6	Children to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

Children to use sequence, selection, and repetition in programs; work with variables and various forms of input and output

Children to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Children to 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

Children to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital | **Networking Experts**

Children will learn what the internet is and how it works. | K – to know the difference between the internet and internet service.

K – to know how to effectively search the internet. (Boolean operators)

S – to learn how to search using Boolean operators.

S – to learn how a network works.

U – to be able to explain how the internet works in terms of networks.

U – to successfully search using Boolean operators for a given topic. They can explain how they widen or narrow a search. | **We are Photographers**

Children will learn how to take photographs correctly. They will learn how to edit and manipulate images. | K – to build on prior knowledge of recording images to take photographs correctly.

K – to make judgments about digital content and the audience for which it is intended.

S – to learn to use picture editing software.

S – to learn to use editing software to add text and effects.

U – to create an e-book with images and text and be able to explain how they made it.

U – to make appropriate improvements based upon feedback. | **Year Book Publisher**

Children will build on their publishing knowledge to create a yearbook to celebrate their time in Year 6 or at KSL. | K – to build on prior knowledge of recording images to take photographs correctly.

K – to apply knowledge of combing text and images.

S – to edit and manipulate pictures.

S – to learn to combine different digital mediums to create Year Book.

U – to create an Year book with images and text and be able to explain how they made it.

U – to make appropriate improvements based upon feedback | Hour of Code

E-Safety Week |

	content Children to 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 Children to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Bloggers** Children will learn what a blog is. They will create and contribute to one another's blogs.	K – to gain an understanding of what a blog is and how to create one. K – S – S – U – U –	**Comic Creators** Children will build on their prior knowledge of Comic Life and create a more detailed and complete comic for a given genre.	K – to use their prior knowledge of comics to create a storyboard. K – to create a comic for a given purpose. S – to create a comic book in a digital format. S – to edit layout, text and images for a given purpose. U – to justify their choices of font and format. U – to produce a comic for a given audience.	**Code Kingdom Master** Children will create their own game within Code Kingdoms and create a full marketing package to go with the lunch of their new game.	K – K – S – S – U – U –	

E-safety will be taught continuously throughout the year and through the curriculum. We will also have an e-safety week in February, were each afternoon the children will undertake an age appropriate tasks to help re-enforce how to keep safe online.