KING STREET PRIMARY SCHOOL
COMPUTING OVERVIEW 2023-24

Through following a progressive sequence of learning, children are able to:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	In Reception, children will learn to become coders and programmers by… • Having an awareness of different technologies in and out of school • Having an awareness of the cause and effect of technology • Having an awareness of digital storage of information – photography, digital writing and research information • Having an awareness of inputs and outputs of devices • Using technology to express creatively and constructively					
Reception	Children will learn to use the functions on a CD player, use the iPad/Tablet as a camera/scan a QR code, access an app on a tablet e.g. Bug Club Phonics, playing a game on the IWB, simple coding/programming – using Doc robot/Code-a-pillar/Mind robot. HTTPS://WWW.BAREFOOTCOMPUTING.ORG/EARLYYEARS					
	BAREFOOT BUSY BODIES **Curriculum Links:** PSHE, English, Science **Concepts & Approaches:** Algorithms, Decomposition, Debugging, Logic, Patterns, Abstraction Provides four activities that help children discover how bodies move and grow. Using the resources provided they explore and learn about parts of the body, growth and movement. Simple algorithms are created and adapted to form a routine of movements.	AWESOME AUTUMN **Curriculum Links:** Early Years **Concepts & Approaches:** Creating, Pattern, Logic, Algorithms, Decomposition, Collaborating Three Autumn themed activities which see the children explore patterns in Garlands Galore, create a leaf labyrinth and make Pumpkin Soup using computational thinking skills.	WINTER WARMERS **Curriculum Links:** Early Years **Concepts & Approaches:** Algorithms, Creating, Collaboration, Decomposition, Tinkering, Persevering Snowmen scarves and patterns, creating igloos and bird feeders- all take centre stage in our three winter themed activities.	SPRINGTIME **Curriculum Links:** Early Years **Concepts & Approaches:** Abstraction, Tinkering, Creating, Collaborating, Algorithms, Persevering, Decomposition Three Spring themed activities see the children make a Rabbit run, create Junk scarecrows and explore sequencing whilst planting seeds.	BOATS AHOY **Curriculum Links:** Science, Maths, English, D&T **Concepts & Approaches:** Algorithms, Decomposition, Creating, Tinkering, Logic, Patterns, Abstraction, Collaborating Takes children on a journey of discovery as they investigate boats. Four activities make up this set of resources. Includes different uses of boats, floating and sinking predictions, creating a good boat through exploring designs and role play.	SUMMER FUN **Curriculum Links:** Science, Maths, English, D&T **Concepts & Approaches:** Tinkering, Persevering, Patterns, Logic, Decomposition, Debugging, Collaborating, Algorithms Children explore their surroundings and get creative, take a journey and make a map, and discover seaside tangrams, in these three fun activities.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Digital Literacy	Information Technology			Computer Science	
Year 1	**Technology around us** Children will know how to use technology responsibly Children will develop an understanding of technology and how it can help them. Children will learn how to become more familiar with the different components of a computer by developing their keyboard and mouse skills, and start to consider how to use technology responsibly	**Digital Painting** Children will use digital devices to create art work Children will learn how to explore the world of digital art and its exciting range of creative tools, create their own paintings, while getting inspiration from a range of other artists, consider their preferences when painting with, and without, the use of digital devices.	**Digital Writing** Children will use a computer to write text Children will learn how to understand the various aspects of using a computer to create and change text, familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, consider the differences between using a computer and writing on paper to create text.	**Grouping Data** Children will answer questions about a set of data Children will learn how to use labels to put objects into groups, and label the groups, demonstrate that they can count a small number of objects, before and after the objects are grouped, begin to demonstrate their ability to sort objects into different groups, based on the properties they choose, use their ability to sort objects into different groups to answer questions about data.	**Moving a robot** Children will plan a simple program of commands Children will learn how to explore using individual commands, both with other learners and as part of a computer program, identify what each floor robot command does and use that knowledge to start predicting the outcome of programs, begin to understand algorithms.	**Introduction to animation** Children will use an algorithm to create a program Children will learn how to begin to use on-screen programming through ScratchJr, explore the way a project looks by investigating sprites and backgrounds, use programming blocks to use, modify, and create programs, begin to understand algorithms.
Year 2	**IT around us** Children will know how to use IT safely Children will learn how to use information technology (IT) for good, identify IT in the home, IT benefits society in places such as shops, libraries and hospitals, use technology responsibly and how to make smart choices when using it.	**Digital photography** Children will take and edit photos Children will learn how to recognise that different devices can be used to capture photographs, capture, edit and improve photos, recognise that images they see may not be real.	**Making music** Children will create digital music Children will learn how to explore how music can make them think and feel, make patterns and use those patterns to make music with both percussion instruments and digital tools, create different rhythms and tunes, using the movement of animals for inspiration,	**Pictograms** Children will present information using a computer Children will learn how to collect data, begin to understand what data means and how this can be collected in the form of a tally chart, learn the term 'attribute' and use this to help them organise data, present data in the form of pictograms and block	**Robot algorithms** Children will program a robot Children will learn how to understand instructions in sequences and the use of logical reasoning to predict outcomes, use given commands in different orders to investigate how the order affects the outcome, develop artwork and test it for use in a program,	**Introduction to quizzes** Children will design and create a program Children will begin to understand that sequences of commands have an outcome. Children will learn how to make predictions based on their learning, use and modify designs to create their own quiz questions in ScratchJr and realise these designs in

			share their creations, and compare creating music digitally and non-digitally.	diagrams, use the data presented to answer questions.	design algorithms, test those algorithms as programs and debug them.	ScratchJr using blocks of code, evaluate their work and make improvements to their programming projects.
Year 3	**Connecting computers** Children will recognise the components of a computer network Children will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. Children will learn how to compare digital and non-digital devices, understand computer networks that include network infrastructure devices like routers and switches.	**Desktop publishing** Children will use desktop publishing to create media Children will learn how to use the terms 'text' and 'images' and understand that they can be used to communicate messages, use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents, the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover, add text and images to create their own pieces of work using desktop publishing software, evaluate a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	**Sequence in music** Children will program a music sequence Children will learn how to sequence in programming through Scratch, use the programming environment, understand a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences, make a representation of a piano, apply stages of program design.	**Branching databases** Children will create a branching database Children will develop their understanding of what a branching database is. Children will learn how to create a branching database, understand what attributes are and how to use them to sort groups of objects by using yes/no questions, create physical and on-screen branching databases, evaluate the effectiveness of branching databases and will decide what types of data should be presented as a branching database.	**Animation** Children will create an animation Children will learn how to use a range of techniques to create a stop frame animation using tablets, apply those skills to create a story-based animation, add other types of media to their animation, such as music and text.	**Events and actions** Children will design and create a maze Children will learn how to explore the links between events and actions, whilst consolidating prior learning relating to sequencing, move a sprite in four directions (up, down, left and right), explore movement within the context of a maze, using design to choose an appropriately sized sprite, use programming extensions, through the use of pen blocks, draw lines with sprites and change the size and colour of lines, design and code their own maze tracing program.
Year 4	**The Internet**	**Repetition in shapes**	**Data logging**	**Photo editing**	**Repetition in games**	**Audio editing**

	Children will understand about the World Wide Web and unreliable content Children will learn how to apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure, understand that the World Wide Web is part of the internet, explore the World Wide Web for themselves to learn about who owns content and what they can access, add, and create, evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	Children will create a program that uses repetition Children will learn how to use repetition and loops within programming, create programs by planning, modifying, and testing commands to create shapes and patterns, use Logo, a text-based programming language.	Children will collect data to answer questions Children will consider how and why data is collected over time, consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Children will learn how to collect data as well as access data captured over long periods of time, look at data points, data sets, and logging intervals, use a computer to review and analyse data, pose questions and then use data loggers to automatically collect the data needed to answer those questions.	Children will edit photo images Children will learn how to change and edit digital images, how to resave and reuse digital images, consider the impact that editing images can have, and evaluate the effectiveness of their choices.	Children will create a game that uses repetition Children will learn how to explore the concept of repetition in programming using the Scratch environment, consider similarities between two environments, consider the difference between count-controlled and infinite loops, modify existing animations and games using repetition, design and create a game which uses repetition, applying stages of programming design throughout.	Children will create a Podcast Children will learn how to examine devices capable of recording digital audio, which will include identifying the input device (microphone) and output devices (speaker or headphones) if available, discuss the ownership of digital audio and the copyright implications of duplicating the work of others, in order to record audio themselves, use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files, evaluate their work and give feedback to their peers.
Year 5	**Sharing information** Children will contribute to a shared project online Children will develop their understanding of computer systems and how information is transferred between systems and devices, consider small-scale systems as well as large-scale systems. Children will learn how to explain the input, output, and process aspects	**Video editing** Children will create a short video Children will learn how to create short videos in groups, use topic-based language, develop the skills of capturing, editing, and manipulating video, investigate the use of devices and software, take their idea from conception to completion, use green	**Vector drawing** Children will create a vector drawing Children will learn how to use shapes to make up vector images, use the different drawing tools and how images are created in layers, explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work,	**Flat-file databases** Children will use a flat-file database to ask and answer questions Children will learn how to use a flat-file database in order to organise data in records, use tools within a database to order and answer questions about data, create graphs and charts from their data to help solve problems, use a	**Selection in physical computing** Children will create a controllable system which includes selection Children will learn how to use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment, use a microcontroller (Crumble	**Selection in quizzes** Children will create a quiz program which uses selection Children will develop their knowledge of selection by revisiting how conditions can be used in programs. Children will learn how the If… Then… Else structure can be used to select different outcomes depending on whether a condition is true or false,

	of a variety of different real-world systems, take part in a collaborative online project with other class members and develop their skills in working together online.	screen (if appropriate), reflect on and assess their progress in creating a video.	use either the Google Drawings app or other alternative pieces of software.	real-life database to answer a question, and present their work to others.	controller), connect and program components (including output devices e.g. LEDs and motors) through the application of their existing programming knowledge, use conditions as a means of controlling the flow of actions and make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the if, then structure).	represent this understanding in algorithms. Children will learn how to construct programs using the Scratch programming environment, use their knowledge of writing programs and using selection to control outcomes to design a quiz in response to a given task and implement it as a program.
Year 6	**Communication** Children will know how we communicate using technology Children will learn how to use the World Wide Web as a communication tool, find information on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, compare different search engines, investigate different methods of communication, before focusing on internet-based communication, evaluate which methods of internet communication to use for particular purposes.	**Web page creation** Children will create a webpage Children will learn how to create websites for a chosen purpose, identify what makes a good web page and use this information to design and evaluate their own website using Google Sites, pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.	**3D Modelling** Children will create a 3D model Children will develop their knowledge and understanding of using a computer to produce 3D models. Children will learn how to familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics, make accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders, examine the need to group 3D objects, then go on to plan, develop,	**Spreadsheets** Children will create a spreadsheet to plan an event Children will learn how to use spreadsheets, organise data into columns and rows to create their own data set, format data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data, apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them, use spreadsheets to plan an event and answer questions, create graphs and charts, and evaluate their results in comparison to questions asked.	**Variables in games** Children will use variables to design and create a game Children will explore the concept of variables in programming through games in Scratch. Children will learn how to use variables and relate them to real-world examples of values that can be set and changed, use variables to create a simulation of a scoreboard, use and follow the Use-Modify-Create model to experiment with variables in an existing project, then modify them, design and create their own project, apply their knowledge of variables and design to improve their game in Scratch.	**Sensing** Children will design and make a step counter Children will learn how to bring together elements of all the four programming constructs: sequence, repetition, selection and variables, use all of these constructs in a different, but still familiar environment whilst also utilising a physical device – the micro:bit, build in and test a simple programme in the programming environment, transfer this programme to a micro:bit, create new projects adding more depth each time.

			and evaluate their own 3D model of a photo frame.			

Core strands

Digital Literacy	Information Technology		Computer Science
Computing systems and networks	Creating media	Data and information	Programming