Oakfield Primary School Progression of Knowledge in Computing

Year group	E-Safety	Technology in our lives	Programming	Multimedia	Handling data
Nursery	To begin to know how to use computers and devices safely.	To begin to know how to operate simple equipment e/g/ turn on CD player, use remote control. To begin to know how to interact with technological toys such as by pressing parts or lifting flaps to achieve sounds, movements or new images. To begin know that information can be retrieved from computers.			
Reception	To begin to know how to use computers and devices safely.	To begin to know how to complete a simple program on a computer. To begin to know how to use ICT hardware to interact with age appropriate software. To begin to know and recognise a range of technology is used in places like home and schools. To begin to know how to select and use technology for particular purposes.			
Year 1	To know how to use technology safely and respectfully, keeping personal information private.	<ins>Computer systems and networks</ins> To know and recognise common uses of information technology out of school. To know and understand some ways technology can help us. To know some of the different	<ins>Programming a robot</ins> To know and understand what algorithms are. To know how algorithms are implemented as programs on digital devices. To know that programs	<ins>Digital painting</ins> To know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.	<ins>Grouping data</ins> To know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.

components of a computer such as keyboard and mouse.
To begin to know how to use a keyboard and a mouse.
To begin to know there are correct uses for technology and how to use them responsibly.

operate by following precise and clear instructions.
To know the term debug.
To know how to create and debug simple programs.
To know how to use logical reasoning to predict the behaviour of simple programs.
To know and recognise common uses of information technology out of school.
To know what a command is.
To know how to explore using and following simple commands such as stop and go in real life.
To know how to explore using and following simple commands such as stop and go as part of a computer programme.
To know what a floor robot is (e.g. Beebot).
To know what each floor robot command does.
To know what each floor robot command does.
To know how to use

To begin to know about the variety of tools used for digital painting.
Digital writing
To know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content.
To know how to use technology safely and respectfully, keeping personal information private.
To know how to develop their understanding of some of the various aspects of using a computer in order to create and manipulate texts.
To begin to know the difference between using a computer to create texts and writing texts on paper.

To know what copyri[ght] is.
To know the terms [of] copyright and ownership.
To know that work t[hey] create belongs to th[em.]
To know how to nam[e] their work so that others know it belon[gs] to them.
To begin to know the meaning of the term[s] data in relation to computing (i.e. data [can] be images).
To begin to know an[d] understand how to assign data (images) with different labels [in] order to demonstrat[e] computers are able [to] group and present d[ata.]

			knowledge to start predicting the outcome of programme. To begin to know the early stages of programme design through the introduction of algorithms. **Introduction to animation** To know what a project is. To know how to explore how a project looks. To know how to investigate computer software (sprites). To know the way a project looks by investigating different backgrounds. To know how to use programming blocks. To know how to use programming blocks to use, modify and create programs.		
Year 2	To know that rules can help keep us safe and healthy in and beyond the home when using technology. To know how to use technology safety and respectfully keeping personal information	**Computing systems and networks – IT around us** To know and be able to recognise common uses of information technology beyond school. To know that rules can help keep us safe and healthy in and beyond the home when using technology. To know about and look at	**Robot algorithms** To know how algorithms are implemented as programs on digital devices. To know that programs operate by following precise and clear instructions.	**Digital photography/ Making music** To know how to use technology purposefully. To know how to use technology purposefully to create, organise, store,	**Pictograms** To know how to use technology purposef to create, organise, store, manipulate an retrieve digital cont To know and identify where to go for help and support when th

private. To know and identify where to go for help and support when they have concerns about content, or contact on the internet or other online technologies.	information technology at school and beyond, in settings such as shops, hospitals and libraries. To begin to know how information technology improves our world. To know how to use information technology responsibly.	To know how to create and debug simple programs. To know how to use logical reasoning to predict the behaviour of simple programs. To know how to use technology safely and respectfully, keeping personal information private. To know and identify where to go for help and support when they have concerns about content, or contact on the internet or other online technologies. To know and have some understanding of instructions in sequences and the use of logical reasoning to predict outcomes. To know how to use given commands in different orders to investigate how the order effects the outcome. To begin to know about design in programming. To know how to develop	manipulate and retrieve digital content. To know that some images are not real (fake). To know that different devices can be used to capture photographs. To begin to know how to edit and improve photos that they have captured. To know how to use this knowledge to recognise that images they see may not be real. To know that work they create belongs to them. To know what it means to concentrate. To know how to listen to a variety of pieces of music with concentration. To know how to say how music can make them think and feel. To know the terms digitally and non-digitally.	have concerns about content, or contact the internet or othe online technologies. To begin to understa what data means and how this can be collected in the for a tally chart. To begin to know the term attribute and use this to organise data. To know what a pictogram is and present data in the form of a pictogram To know what a bloc diagram is and prese data in the form of block diagram. To know how to use data presented to answer questions.

			artwork and test it for use in a program. To know how to design algorithms and then test the algorithms as programs and debug them. **Introduction to quizzes** To begin to know that sequences of commands have an outcome and make predictions based on their learning. To know how to use and modify designs to create their own quiz questions in a program and realise these designs in a program using blocks of code.	To know the difference between creating music digitally and non-digitally. To know and explore patterns in music. To know how to purposefully create music.	
Year 3	To know how to use technology safely, respectfully and responsibly.	**Computing systems and networks – connecting computers** To know about and understand computing networks including the internet. To know how networks can provide multiple services such as the world wide web and the opportunities they offer for communication and collaboration. To begin to know and have an understanding of the terms inputs, processes and outputs in relation to digital devices.	**Sequencing music / events** To know how to design, write and debug programmes that accomplish specific goals including controlling physical systems such as using a program to navigate round a digital or physical maze. To know how to solve problems by decomposing them into smaller parts.	**Animation/ desktop publishing** To know how to select, use and combine a variety of software (including internet services). To know how to select, use and combine a variety of software on a range of different devices to design a range of programmes, systems and content.	**Branching database** To know how to sele use and combine a variety of software (including internet services). To know how to sele use and combine a variety of software range of different devices to design a range of programme systems and content To know how to inclu

		To know how to compare digital and non-digital devices. To begin to know that different digital devices can be linked together to form a network such as wireless access points and switches. To know the benefits of connecting devices in a network.	To know how to use sequence, selecting, and repetition in programmes. To know how to work with various forms of variables including input and output. To know how to use logical reasoning to explain how some simple algorithms work. To detect and correct errors algorithms and programmes. To know how 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 programmes, systems and content that accomplish given goals including collecting, analysing and presenting data and information. To know how to explore the concept of sequencing in programming. To begin to know how to select motion sound and event blocks to create their own programmes featuring sequences.	To know how to include, collect, analyse, evaluate and present data and information in a variety of different ways on a range of digital devices. To know how to use a range of techniques to create a stop frame animation using tablets. To know how to apply those skills to create a story based animation. To know how to add other types of media to their animation such as music and text. To know the terms text and images and understand that they can be used to communicate messages. To know how to use desktop publishing software. To know how to carefully consider choices of font size, colour and type to edit and improve pre made documents.	collect, analyse, evaluate and present data and information a variety of differen ways on a range of digital devices. To know how to use technology safely, respectfully and responsibly. To know what a branching database To know how to crea branching database. To begin to know and understand what attributes are. To know how to use attributes to sort groups of objects by using yes, no questio To know how to crea physical and on scree data bases. To know how to evalu the effectiveness of branching database. To know what types data should be presented as a branching database.

			To know how to apply stages of programme design. To know how to explore the links between events and actions while consolidating prior learning relating to sequencing. To know what a sprite is in relation to computing. To know how to move a sprite in 4 directions (up, down, left, right). To know how to explore movement within the context of a maze using design to choose an appropriately sized sprite. To know how to use software tools to draw lines with sprite and change the colour and size of lines. To know how to design and code their own maze tracing programme.	To begin to know the terms templates, orientation and placeholders. To begin to know and understand how these and support them in making their own. To know how to add text and images to create their own pieces of work using desktop publishing software. To know about the purpose of different page layouts and evaluate these. To know why desktop publishing is used in the real world.	
Year 4	To know how to use technology respectfully, safely and responsibly. To know the difference between acceptable and unacceptable behaviour.	**Computing systems and networks- the internet** To know what a computing network is. To know and understand computing networks including the internet.	**Repetition in shapes and repetition in games** To know how to design, write and debug programmes that accomplish specific goals	**Audio and photo editing** To know how to select, use and combine a variety of software (including internet	**Data logging** To know what the te input means. To know how to work with a variety of for of input.

To know how to recognise acceptable and unacceptable behaviour on different devices and networks. To know a range of ways to report concerns about content and contact.	To know how computers as part of a network can provide multiple services such as the world wide web. To know the opportunities that networks can offer for communication and collaboration. To know and understand what the word secure means and know that computers and networks must be kept secure. To know that the world wide web is part of the internet. To know how to explore the world wide web for themselves. To know what content means. To know who owns content on the world wide web. To know what they can access, add and create on the world wider web. To know how to evaluate online content. To know the terms, honest, accurate and reliable. To know how to evaluate online content to decide how honest, accurate or reliable it is and understand the consequences of false information.	including controlling physical systems such as using a program to navigate round a digital or physical maze. To know how to solve problems by decomposing them into smaller parts. To know how to use sequence, selecting, and repetition in programmes. To know how to work with various forms of variables including input and output. To know how to use logical reasoning to explain how some simple algorithms work. To detect and correct errors algorithms and programmes. To know how 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 programmes, systems and content that accomplish given goals including collecting, analysing and presenting data and information.	services) on a range of digital devices to design and create a range of programmes. To know how to collect, analyse, evaluate and present data and information. To know how to use technology respectfully, safely and responsibly. To know the difference between acceptable and unacceptable behaviour. To know how to recognise acceptable and unacceptable behaviour on different devices and networks. To know a range of ways to report concerns about content and contact. To know a range of devices capable of recording digital audio. To know how to identify on a device the input device (microphone) and	To know how to sele use and combine a variety of software range of digital devi To know how to eval and present data an information. To know how and wh data is collected ove time. To know what a sens is. To know how to use input devices (senso to monitor the environment. To know how to colle data as well as acces data, captured over periods of time. To know how to interpret data point data sets and loggin intervals b using a computer to review analyse data. To know how to pose questions and then u data loggers to colle the data needed to answer those questi

			To know what a loop is within programming. To know how to identify repetition and loops within programming. To know how to create programmes by planning, modifying and testing commands to create shapes and patterns. To know how to use logo (text based programming language). To know the terms, count controlled and infinite loop and to know the difference between these. To know how to use their knowledge to modify existing animations and games using repetition. To know how to design a game which uses repetition, applying stages of programming design throughout.	output device (speaker or headphones) if available. To know the term copyright, implication and duplication. To know how to discuss the ownership of digital audio and the copyright implications of duplicating the work of others. To know what a podcast is. To know how to produce a podcast. To know how to edit their work on a podcast. To know how to add multiple tracks to a podcast and open and save the audio files. To know how to evaluate their work and give feedback to others. To know how digital images can be changed and edited. To know how digital images can be resaved and reused.

				To know the impact that editing images can have and know how to evaluate the effectiveness of their choices.	
Year 5	To know why copying someone else's work from the internet can cause problems and explain these. To know how to use technology respectfully, safely and responsibly.	**Computer systems and networks- sharing information** To know the term debug and what it means. To know what a physical system is. To know how to design, write and debug programs and can control or simulate physical systems. To know how to solve problems by decomposing them into smaller parts. To know and understand computing networks including the internet. To know how computers as part of a network can provide multiple services such as the world wide web. To know the opportunities that networks can offer for communication and collaboration. To know and understand what the word secure means and know that computers and networks must be kept secure. To know that the world wide web is part of the internet. To know how to explore the world wide web for themselves.	**Programming: selection in physical computing and selection in quizzes** To know the term debug and what it means. To know what a physical system is. To know how to design, write and debug programs and can control or simulate physical systems. To know how to solve problems by decomposing them into smaller parts. To know how to use sequence, selection, and repetition in programmes. To know what a variable is. To know how to work with variables in various forms of input and output. To know how to use logical reasoning to explain how simple algorithms work. To know how to detect	**Vector drawing and video editing** To know how to select, use and combine a variety of software (including internet services) on a range of digital devices to create a range of programmes, systems and content that can accomplish given goals including collecting, analysing, evaluating and presenting data and information. To know why copying someone else's work from the internet can cause problems and explain these. To know how to use the different drawing tools. To know how images are created in layers.	**Flat file databases** To know how to sele use and combine a variety of software range of digital devi To know how to eval and present data an information. To know what a flat database is. To know how a flat f database can be use organise data in records. To know how to use tools within a datab to order and answer questions about dat To know how to crat graphs and charts fr their data to solve problems. To know how to use real life database to answer a question an present their work t

		To know what content means. To know who owns content on the world wide web. To know what they can access, add and create on the world wider web. To know how to evaluate online content. To know the terms, honest, accurate and reliable. To know how to evaluate online content to decide how honest, accurate or reliable it is and understand the consequences of false information. To know when it is acceptable to use the work of others. To know examples of content that is permitted to be reused. To know how information is transferred between computed systems and devices. To know small scale systems as well as large scale systems. To know how to explain the input and output process and aspects of a variety of real world systems. To know how to create an online project in collaboration with other class members.	and correct errors in algorithms and programmes. To know how to use physical computing. To know how to use physical computing to explore the concept of selection in programming through the use of the crumble programming environment. To know what a micro controller is (crumble controller). To know how a micro controller connects and programmes components (including output devices, LED's and motors). To know what conditions are and to know that they are a key part of the decision making process for computers. To know how conditions control the flow of actions and how these can be used in algorithms and programmes through the use of an input device (push switch) and develop their understanding of	To know how to explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work. To know how 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 programmes. To know how to collect, analyse, evaluate and present data and information. To now the skills of capturing, editing and manipulating video. To know the uses of devices and software's and reflect on and assess their own progress in creating a video.	others.

			selection by using the if, when else structure. To know how to use the scratch programming environment to implement the first section of their algorithm as a programme. To know how the outcomes may change the programme for subsequent users. To know how they can make use of setup to provide all users with the same experience.		
Year 6	To know how to use technology respectfully, safely and responsibly. To know a range of ways to report content and contact. To know strategies for keeping my personal information private. To know why copying someone else's work from the internet can cause problems and explain these.	**Computer systems and networks- communication** To know the term debug and what it means. To know what a physical system is. To know how to design, write and debug programs and can control or simulate physical systems. To know how to solve problems by decomposing them into smaller parts. To know and understand computing networks including the internet. To know how computers as part of a network can provide multiple services such as the world wide web.	**Programming: variables in games.** **Sensing** To know the term debug and what it means. To know what a physical system is. To know how to design, write and debug programs and can control or simulate physical systems. To know how to solve problems by decomposing them into smaller parts. To know how to use	**3D modelling and webpage creation** To know how to select, use and combine a variety of software (including internet services) on a range of digital devices to create a range of programmes, systems and content that can accomplish given goals including collecting, analysing, evaluating and presenting data	**Spreadsheets** To know how to sele use and combine a variety of software range of digital devi To know how to eval and present data an information. To know how to sear for information with wide range of technologies (social media, image sites, videos sites). To know how to use

		To know the opportunities that networks can offer for communication and collaboration.	sequence, selection, and repetition in programmes.	and information.	different search technologies.
		To know and understand what the word secure means and know that computers and networks must be kept secure.	To know what a variable is.	To know why copying someone else's work from the internet can cause problems and explain these.	To know and evaluate digital content and explain how to make choices from search results.
		To know that the world wide web is part of the internet.	To know how to work with variables in various forms of input and output.	To know a range of ways to report content and contact.	To know how to orga data into columns an rows to create their own data set.
		To know how to explore the world wide web for themselves.	To know how to use logical reasoning to explain how simple algorithms work.	To know strategies for keeping my personal information private.	To know the importo of formatting data t support calculations,
		To know what content means.	To know how to detect and correct errors in algorithms and programmes.	To know what a 3D model is.	To know what a forn is.
		To know who owns content on the world wide web.	To know what variables are.	To know how to use a computer to produce 3D models.	To begin to know how apply formulas that
		To know what they can access, add and create on the world wider web.	To know how variables, relate to real world examples or values that we can accept of change.	To know what a graphic is.	include a range of ce and apply formulas t multiple cells by duplicating them.
		To know how to evaluate online content.	To know how to use variables to create a simulation of a score board.	To know how to work in a 3D shape including combining 3D objects to make a use and examining the differences between working digitally with 2D and 3D graphics.	To know how these a be used to produce calculated data.
		To know the terms, honest, accurate and reliable.	To know how to experiment with variables in an existing project.	To know how to make accurate 3D models of physical objects such as a pencil holder which includes using 3D objects as	To know how to use spread sheets to pla event and answer questions.
		To know how to evaluate online content to decide how honest, accurate or reliable it is and understand the consequences of false information.	To know how to modify them, then create their own project.		To know how to crea graphs and charts an evaluate their result comparison to quest
		To know when it is acceptable to use the work of others.	To know how to apply their knowledge of variables and design to		
		To know examples of content that is permitted to be reused.			
		To know about the world wide web as a communication tool.			
		To know how we find information on the world wide web.			

		To know what a search engine is. To know how search engines work (including how they select and rank results. To know what influence is searching and to know a range of different search engines. To know different methods of communication before focusing on internet based communication. To know and evaluate which methods of internet communication are sued for particular purposes.	improve their game in scratch. To know how to use a simple programme to build in and test in the programming environment before transferring it to their micro: bit.	placeholders. To know why we groups 3D objects and to know how to plan, develop and evaluate their own 3D model of a photo frame. To know what a webpage is. To know what makes a good webpage. To know how to use this information to design and evaluate their own websites using google sites. To know copyright and fair use of media, the aesthetics of the sites and the navigation paths.	asked.