Over St. John's CE Primary School

'Let your light shine before others.' Matthew 5:16

Progression of Knowledge and Skills in Computing

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing systems and Networks Information Technology Computer Science Digital Literacy	Skills Use different digital devices. Use a mouse, touchscreen or appropriate access device to target and select options on screen. Recognise a selection of digital devices. Recognise the basic parts of a computer, e.g. mouse, screen, keyboard. Select a digital device to fulfil a specific task, e.g. to take a photo. Knowledge In our classroom we have digital devices – computer, tablets, floor robots, camera, walkie talkie, cd player. To move things around or click on things on a computer screen you can use a mouse. If it has a touchscreen you can use your fingers. A computer/laptop has a screen, keyboard and a mouse. Some computers/laptops have a touchscreen. To take a photograph I can use a camera. Vocabulary digital device, computer, tablet, laptop, touchscreen, floor robot, mouse, keyboard, screen.	Skills Identify technology. Identify a computer and its main parts. Use a mouse in different ways. Use a keyboard to type. Use the keyboard to edit text. Create rules for using technology safely - *See e-safety progression*. Knowledge Technology is the name for man-made things that help us. Digital technology is things like computers, traffic lights, laptops, and iPads. Desktop computers need to be put on a table or desk. Laptop computers are portable – they can be moved to different places. The screen (or monitor) displays what the computer is doing. The mouse lets you select and move objects (some computers have a trackpad instead). The keyboard lets you type letters and numbers. Vocabulary Technology, computer, trackpad, click, drag, shift, spacebar.	Skills Recognise the uses and features of information technology. Identify information technology in the school. Identify information technology beyond school. Explain how information technology helps us. Explain how to use information technology safely - *See e-safety progression.* Recognise that choices are made when using information technology. Knowledge Information technology (I.T.) includes computers and things that work with computers e.g. desktop computers, laptops, games consoles, smart phones, tablets, USB sticks, SMART boards and digital cameras. I.T. is used to: Control the tools and appliances that we use in the home, help us to communicate with one another and to entertain us. I.T. can be found in shops e.g. the barcode, barcode scanner and till all work together to scan your shopping items. I.T. can be found outside, e.g. traffic lights, buttons, and signals work together to tell you when to cross the road. Vocabulary Information technology (IT), computer, barcode, scanner/scan	Skills Explain how digital devices function. Identify input and output devices Recognise how digital devices can change the way we work. Explain how a computer network can be used to share information. Explore how digital devices can be connected. Recognise the physical components of a network. Knowledge Digital devices use processing (have a process where the device acts on the message). There is more than just an on-off function. Digital devices have an input, process, output (IPO) Input Devices: Keyboard, joystick, mouse, web cam, microphone, touch screen, track ball, digital camera. Output Devices: Screen/monitor, printer, headphones, projector, speaker, smartboard. Computer networks help us to communicate quickly and easily. They can join computers to shared devices e.g. a printer. Network devices - network switch, server and wireless access point. Vocabulary Digital device, input, output, process, program, connection, network, network switch, server, wireless access point (WAP)	Skills Describe how networks physically connect to other networks. Recognise how networked devices make up the internet. Outline how websites can be shared via the World Wide Web. Describe how content can be added and accessed on the World Wide Web. Recognise how the content of the WWW is created by people. Evaluate the consequences of unreliable content - *See e-safety progression.* Knowledge Networks connect different devices to one another, allowing for information sharing. The internet is a global network of networks. Routers connect networks together, send information around the internet and choose the quickest route for information. The internet is connected by lots of routers. The World Wide Web is part of the internet where we can visit websites and web pages. Vocabulary router, network security, router, web address, router, routing, route tracing, browser, World Wide Web, content, links, files, download, sharing, ownership, permission, accurate, honest, adverts	Skills Explain that computers can be connected together to form systems. Recognise the role of computer systems in our lives. Experiment with search engines. Describe how search engines select results. Explain how search results are ranked. Recognise why the order of results is important and to whom. Knowledge Computer systems are made up of inputs (something that sends a message to the device), processes (the way the device acts on the message) and outputs (something that is sent out by the device) e.g. a washing machine, a smart locker. A search engine is a program that finds websites & webpages based on key words entered by the user. Search engines 'crawl' websites for searchable information – they then store where it is found in a huge index. Search engines select information from this index when we type in key words. Search engines use algorithms to rank web pages. Web designers/content creators carefully plan to match the algorithms to try to get their web page to appear near the tops of search results. Vocabulary System, connection, digital, input, process, output, search engine, refine, index, crawler, bot, optimisation, links, content creator, ranking.	Skills Explain the importance of internet addresses. Recognise how data is transferred across the internet. Explain how sharing information online can help people to work together. Evaluate different ways of working together online. Recognise how we communicate using technology. Evaluate different methods of online communication. Knowledge All data transferred over the internet is broken down into packets. An IP (Internet Protocol) address directs a packet to its destination. Data is split into small packets to be sent. Once they reach their destination, they are reassembled into their original form. When people collaborate online, they both have to be working on the internet. There is no requirement for them to be on the same computer or the same network. Using someone else's work needs to be within the bounds of copyright and with the relevant permissions. Some communications are one-way (e.g. Youtube) whilst others are two-way (e.g. Skype). Some communications are to one person, whilst others are to many. Vocabulary Communication, protocol, data, address, Internet Protocol (IP) address, Domain Name Server (DNS), Packet, slide deck, reuse, remix, collaboration, public, private, one-way, two-way, one-to-one, one-to-many

	Hatchmere	Sandymere	Delamere	Oakmere	Linmere	Blakemere
Creating Media Information Technology Digital Literacy	Skills Use technology to explore and access digital content. Operate a digital device with support to fulfil a task. Create simple digital content, e.g. digital art. Choose media to convey information, e.g. image for a poster. Knowledge When reading a story/ebook on a computer/tablet you have to use the controls to turn the page. On the touchscreen tv you can use your fingers to write and draw. You can do this on a tablet too. You can use tools in a paint app to change the colour of what you are drawing/writing. Vocabulary ebook, paint app, drag, click, tap, select, tools	Skills Describe what different freehand tools do. Use the shape tool and the line tools. Make careful choices when painting a digital picture. Explain why I chose the tools I used. Use a computer on my own to paint a picture. Compare painting a picture on a computer and on paper. Use a computer to write. Add and remove text on a computer. Identify that the look of text can be changed on a computer. Make careful choices when changing text. Explain why I used the tools that I chose. Compare writing on a computer with writing on paper. Knowledge When we use paint programs, we can use tools to create different effects e.g. simple tools - pencil tool, eraser tool, paintbrush tool, undo tool. More complex tools – fill tool, line tool, shape, tool, spray-paint tool. We can make choices about the size of lines/shapes that we draw. We can add text to our painting by clicking on the text icon. We can select different colours for our artwork. You can choose where to write by moving the cursor (the arrow) over the page. When you click a flashing line will appear. This is the text cursor. It allows you to type in letters. The toolbar is a set of icons and buttons that can be used to edit/change the writing – bold, italics, underline, font, size, colour. You save your work by clicking on the save icon. Writing digitally has the benefit that it is neat and tidy, and it can be easily edited. Keys on a keyboard: Caps key for capital letters. Space bar for leaving spaces. Backspace key removes the letter on the left of the cursor. Enter key moves everything after the text cursor down one line. Arrow keys can move the text cursor.	Skills Use a digital device to take a photograph. Make choices when taking a photograph. Describe what makes a good photograph. Decide what makes a good photograph. Decide how photographs can be improved. Use tools to change an image. Recognise that photos can be changed. Say how music can make us feel. Identify that there are patterns in music. Experiment with sound using a computer. Use a computer to create a musical pattern. Create music for a purpose. Review and refine computer work. Knowledge Photography - making a picture using a camera. How to take a photograph: Hold the device firmly with both hands. Point the camera at the subject. Look at the viewing screen. Move the device to get the shot that you want. Press the capture button. Photographs can be edited using an editing program. You can use tools to change colours, brightness, contrast and to add/remove features from the photo. People might change a photograph to make it look as though it is real, but in fact it is edited. We can use digital devices to help us to create, edit and listen to music. In Chrome Music Lab you can: make different musical notes by clicking on the different squares, the higher up you click, the higher the pitch; click on the shapes below the notes to add in percussion, e.g. drums and symbols; change the instruments that make the sounds; change the tempo, making it faster or slower. Vocabulary Device, capture, image, digital, landscape, portrait, field of view, narrow, wide, format, framing, focal point, subject matter, flash, focus, background, foreground, editing, filter, changed, real.	Skills Recognise how text and images convey information. Recognise that text and layout can be edited. Choose appropriate page settings. Add content to a desktop publishing publication. Consider how different layouts can suit different purposes. Consider the benefits of desktop publishing. Identify that sound can be recorded. Explain that audio recordings can be edited. Recognise the different parts of creating a podcast project. Apply audio editing skills independently. Combine audio to enhance a podcast. Evaluate the use of effective audio. Knowledge Desktop publishing is when we create documents using page layout software. When desktop publishing, we consider how we can lay out a page in the most interesting, eye-catching, and appropriate ways, to suit our purpose and audience. The toolbar is the set of icons and buttons that that we can use to create and edit our work. Tools: templates, styles, insert, text boxes, bold, italics, underline, size, colour, font. The process of recording and listening to sound requires input devices (e.g. a microphone) and output devices (e.g. a speaker). Podcasts are a type of spoken word audio file, that can be downloaded by listeners. Features of podcasts include: Sounds: Voices, jingles, background music, sound effects Information: Presenters' names, name of podcast, introduction, main section, conclusion. Audacity is one example of an audio editing tool. The sound is shown as a waveform. You can edit the audio in different ways e.g. changing the volume, adding a fade in or out, removing pauses/mistakes, trim the recording. Vocabulary	Skills Explain what makes a video effective. Identify digital devices that can record video. Capture video using a range of techniques. Create a storyboard. Identify that video can be improved through reshooting and editing. Consider the impact of the choices made when making and sharing a video. Identify that drawing tools can be used to produce different outcomes. Create a vector drawing by combining shapes. Use tools to achieve a desired effect. Recognise that vector drawings consist of layers. Group objects to make them easier to work with. Apply learning. Knowledge Devices for recording video – iPads, tablets, smartphones, camcorders, webcam, cameras. Different techniques for recording a video are: static camera, zooming, pan and tilt. To make a video effective you need to consider lighting, use of music/sound effects, use of colour and consider the use of a green screen to create different settings. Windows Movie Maker is one example of a video editing tool. You can edit a video using trim tool, split, move or delete sections, add special effects such as animations and transitions. You can also include text in captions. Vector drawings are computer graphic images that are made using 2-D shapes. Vector drawings use lines and shapes to create bigger and more detailed images. When creating vector drawings the shapes overlap so you have to start with the objects that are furthest away. Important techniques to make accurate images are duplicate, enlarge/reduce, rotate, zoom, grouping, layering, alignment guides. Vocabulary Video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, AV (audiovisual), videographer, video techniques, zoom, pan, tilt, angle, content, export, trim/clip, title screen,	Skills Review an existing website and consider its structure Plan the features of a web page. Consider the ownership and use of images (copyright) Recognise the need to preview pages. Outline the need for a navigation path. Recognise the implications of linking to content owned by other people. Recognise that you can work in 3D on a computer. Identify that digital 3D objects can be modified. Recognise that objects can be combined in a 3D model. Create a 3D model for a given purpose. Plan a 3D model. Create a digital 3D model. Knowledge Websites are a collection of webpages about the same topic. They can be found using browsers. They include navigation paths. Navigation Pathways are also known as breadcrumb trails. Hyperlinks allow different pages to be linked together. You should only use images that are copyright-free. Many images are owned by people/ companies and cannot just be reused. 3D modelling involves using computer software to create 3D shapes, in order to produce models of real-world objects. IT allows us to view designs from different angles and experiment with various designs. 3D modelling is used in many industries, e.g. in interior design, architecture and making video games. 'Tinkercad' is one example of software that we can use to create 3D Models. In Tinkercad, the square panes on the workspace help us to distances and dimensions accurately. Objects can be resized by dragging the handles. The ViewCube Allows us to switch the view of the model. Vocabulary Website, web page, browser, media, Hypertext Markup Language (HTML), layout, header, media, purpose, copyright, fair use, evaluate, preview, device, breadcrumb, trail, navigation, hyperlink, subpage, implication, external link, embed

		<u>Vocabulary</u> Paint program, tool, erase, fill, undo, shape tools, line tool, fill tool, undo tool, brush style. Word processor, keys, text cursor, toolbar, bold, italic, underline, undo, font.	Music, pattern, rhythm, pulse, pitch, tempo, notes, instrument.	Desktop publishing, images, style, template, orientation, placeholder, copy, paste, layout, purpose, Audio, input, output, podcast, waveform	end credits, timeline, transitions, retake/reshoot, special effects. Grouping, resize handles, alignment guides, layers.		Resizing, lift, rotate, duplicate, dimensions.

	Hatchmere	**Sandymere**	**Delamere**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Data and Information Computer Science Information Technology Digital Literacy	<u>Skills</u> Access content in a range of formats, e.g. image, video, audio. Answer basic questions about information displayed in images e.g. more or less. <u>Knowledge</u> On the tablet/computer, I know which games/apps to use to look at pictures, watch a video or listen to music. These games/app show me information to help my learning. Using a touch screen makes it easy to count, sort and group	<u>Skills</u> Label objects. Identify that objects can be counted. Describe objects in different ways. Count objects with the same properties. Compare groups of objects. Answer questions about groups of objects. <u>Knowledge</u> Objects have different properties (features) that we can choose to label them by e.g. size, color, shape.	<u>Skills</u> Recognise that we can count and compare objects using tally charts. Recognise that objects can be represented as pictures Create a pictogram. Select objects by attribute and make comparisons. Recognise that people can be described by attributes. Explain that we can present information using a computer. <u>Knowledge</u> Tallying helps us to record as we count.	<u>Skills</u> Create questions with yes/no answers. Identify the attributes needed to collect data about an object. Create a branching database. Explain why it is helpful for a database to be well structured. Plan the structure of a branching database. Independently create an identification tool. <u>Knowledge</u> Questions that require yes and no answers can be useful for	<u>Skills</u> Explain that data gathered over time can be used to answer questions. Recognise how a computer can help us analyse data. Identify the data needed to answer questions. <u>Knowledge</u> Data gathered over time can be used to answer important questions. Before collecting data, we need to carefully consider which questions we are trying to answer.	<u>Skills</u> Use a form to record information. Compare paper and computer-based databases. Outline how grouping and then sorting data allows us to answer questions. Explain that tools can be used to select specific data. Explain that computer programs can be used to compare data visually. Use a real-world database to answer questions.	<u>Skills</u> Create a data set in a spreadsheet. Build a data set in a spreadsheet. Explain that formulas can be used to produce calculated data. Apply formulas to data. Create a spreadsheet to plan an event. Choose suitable ways to present data. <u>Knowledge</u> A spreadsheet is a computer application that allows users to organise, analyse and store data in a table. Programs such as

	because I can touch the screen and move things around. <u>Vocabulary</u> sort, group, count, more, less, information	Objects can be described by their name labels and their properties. We can use labels and properties to tell computers what objects are and how to sort them. The same objects can be put into different groups, depending upon their properties. Computers can help us by allowing us to put different objects into groups. Computers can be programmed to count the amounts in each group. <u>Vocabulary</u> Object, label, group, search, image,property, value, data, less, most, fewest, the same, similar	Tally charts are used to collect data about the number in each group quickly. A pictogram is a chart that uses pictures to display data. Attributes are used to describe objects. We can use attributes to group and compare things. Computer programs such as *j2data* can help us to create pictograms and block diagrams. Clicking the + and – icons add and subtract pictures from our diagram. <u>Vocabulary</u> Chart, tally chart, pictogram, block diagram, compare, attribute, conclusion.	helping us to find out the attributes of different objects. Sometimes, we need to split objects into more than two groups, and so one yes or no question alone is not enough. We may ask multiple yes or no questions. A branching database is a way of classifying a group of objects. For a branching database to be effective your questions need to separate different objects based on their attributes. You should also carefully consider the order that you ask questions. <u>Vocabulary</u> attribute, database, branching database, search, yes/no question, multiple groups	When scientists collect data, they usually store it so that it can be analysed at any time. The data can also be shared so that other scientists can use it. It is important to interpret your data carefully. You can then write a report detailing what your conclusions are. Computers can record data automatically, meaning that someone does not need to sit waiting for a long period of time. <u>Vocabulary</u> Data logger, logging, data point, interval, analyse, data set, import, export, review, conclusion.	<u>Knowledge</u> A database is a collection of organised data that is easily stored and used. Paper databases require the creator to manually write in individual records, and to sort the records in an appropriate order. Many computer programs allow us to create databases, e.g. *Microsoft Excel.* Computer databases have become more popular than paper databases, as data can be easily and quickly added or removed, sorted, filtered, edited, or viewed at any time We can find the data that we need by using the 'search', 'filter' and 'sort' functions. Data can be shown visually, by using graphs and charts. <u>Vocabulary</u> Database, record, field, sort, order, group, criteria, value, graph, chart, axis, compare, filter.	Microsoft Excel and Google Docs help users to make spreadsheets. Data headings allow data to be stored in a meaningful way. A formula can tell a computer which mathematical operation to use for a calculation. It also tells the computer which data to use. Formatting makes a spreadsheet easier to read. Format in a spreadsheet is the appearance or presentation of text, objects or images. Spreadsheets are most commonly used for organising and presenting finances, for example budgets and finance reports. <u>Vocabulary</u> Spreadsheet, data set, data heading, cells, format, formula

	Hatchmere	**Sandymere**	**Delamere**	**Oakmere**	**<u>Linmere</u>**	**Blakemere**
Programming Computer Science Digital Literacy	<u>Skills</u> Explore technology. Repeat an action with technology to trigger a specific outcome. Recognise the success or failure of an action. Follow simple instructions to control a digital device. Recognise that we control computers. Input a short sequence of instructions to control a device. <u>Knowledge</u> Computers don't have a brain and can only follow instructions that we give them. We can tinker with (explore) computers to find out what they do.	<u>Skills</u> Explain what a given command will do. Act out a given word. Combine forwards and backwards commands to make a sequence. Combine four direction commands to make sequences. Plan a simple program. Find more than one solution to a problem. Choose a command for a given purpose. Show that a series of commands can be joined together. Identify the effect of changing a value. Explain that each sprite has its own instructions.	<u>Skills</u> Describe a series of instructions as a sequence. Explain what happens when we change the order of instructions. Use logical reasoning to predict the outcome of a program Explain that programming projects can have code and artwork. Design an algorithm. Create and debug a program that I have written. Explain that a sequence of commands has a start. Explain that a sequence of commands has an outcome. Create a program using a given design. Change a given design.	<u>Skills</u> Explore a new programming environment. Identify that commands have an outcome. Explain that a program has a start. Recognise that a sequence of commands can have an order. Change the appearance of a project. Create a project from a task description. Explain how a sprite moves in an existing project. Create a program to move a sprite in four directions. Adapt a program to a new context. Develop my program by adding features.	<u>Skills</u> Identify that accuracy in programming is important. Create a program in a text-based language. Explain what 'repeat' means. Modify a count-controlled loop to produce a given outcome. Decompose a program into small steps. Create a program that uses count-controlled loops to produce a given outcome. Explain how selection is used in computer programs. Relate that a conditional statement connects a condition to an outcome. Explain how selection directs the flow of a program.	<u>Skills</u> Define a 'variable' as something that is changeable.. Explain why a variable is used in a program Choose how to improve a game by using variables. Design a project that builds on a given example. Use my design to create a project. Evaluate my project. Create a program to run on a controllable device. Explain that selection can control the flow of a program Update a variable with a user input. Use an conditional statement to compare a variable to a value.

	To tell a floor robot what to do I have to press the buttons. I can tell a smart speaker what to do by speaking to it. To tell a tablet/computer what to do I have to click/tap on the screen. <u>Vocabulary</u> instructions, floor robot, tinker, action	Design the parts of a project. Use my algorithm to create a program. <u>Knowledge</u> Programming is when we make a set of instructions for computers to follow. We can program the Bee-bot by pressing the direction buttons (in order) that we want it to move in, followed by GO. The arrows move the Bee-bot in different directions. The GO button makes the Bee-bot start its program. The X button makes the Bee-bot delete the program and make a new program. Switching the Bee-bot off and on again also deletes the program. Sprites: Scratch Jr. uses characters called sprites. The main sprite is a cat called Scratch. Programming blocks: Clicking the blue moving block in the programming area makes the sprite move. Start blocks are yellow and end blocks are red. An algorithm is a set of instructions for performing a task. Designing an algorithm can help us to make the sprite do the things that we want it to do. Programming is when we move the blocks into the position (based on our algorithm design). Our programming codes the sprite to perform the actions. <u>Vocabulary</u> Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, route, program. ScratchJr, sprite, programming area, start block, end block, algorithm,	Create a program using my own design. Decide how my project can be improved. <u>Knowledge</u> It is important that our instructions to the floor robot are clear. If our sequence of instructions is in the wrong order, has anything missing, or has anything additional, the floor robot will end up in a different place. We need to plan and design our algorithms so that the robot follows the given route. Debugging is finding and fixing errors in our algorithms and programs. These errors can include:-- Sequence errors: An instruction in the sequence is wrong or in the wrong place. -Keying errors: Typing in the wrong code. -Logical errors: Mistakes in plan/thinking A sequence is a pattern or process in which one thing follows another. In Scratch Jr. we can stack blocks together side by side in order to create sequences. We can change the number at the bottom of some blocks to alter distance or size. A sequence of commands will have an outcome (make something happen). You can move the blocks around in the sequence so that things happen in a different order. <u>Vocabulary</u> Instruction, sequence, clear, algorithm, program, order, commands, prediction, design, route, debugging. Command, run, blocks, actions, modify, match, features, evaluate	Identify and fix bugs in a program. Design and create a maze-based challenge. <u>Knowledge</u> Scratch is a website/ app that lets us code our own stories, games and animations. There are 3 main areas in Scratch: The block palette, code area and stage with sprite. In Scratch, blocks can stack vertically on top of one another to create sequences. Event blocks are used to start sequences. You can change the appearance of the project by using attributes (code, costumes, sounds) and backdrops. Several sprites, each following connected sound sequences, can create music. We can use event blocks (coloured yellow) to make different events happen. They are needed for every project. Action blocks include 'Motion' blocks (coloured blue), 'Sound' blocks (pink) and 'Looks' blocks (purple). They make the sprite move, make sounds and change appearance when the event is triggered. If my algorithm does not work correctly the first time, I need to remember to debug it. <u>Vocabulary</u> Scratch, programming, code, sprite, costume, stage, backdrop, motion, point in direction, go to, event, task, run the code, order, note, chord, bug, debug Extension block, pen down/up, action, test, errors (sequence, keying and logical)	Design a program which uses selection. Create a program which uses selection. Evaluate my program. <u>Knowledge</u> Logo is a text-based program that we can use in order to create shapes and patterns. Instead of typing in the code to create each individual shape, we can save time by repeating a sequence of instructions. We use the 'repeat' function. The number following repeat is the number of times to repeat the code, and the code to be repeated is in square brackets, e.g. repeat 4 [FD 100 LT 90]. This is an example of a count-controlled loop. To make shapes, we need to know the angles of corners of different shapes. Scratch is a program that we can to code our own quizzes. We can input questions using the 'ask' command blocks. We can use selections and conditions in order to ensure that there are different outcomes depending upon a user's response. The 'If-then' command block helps us to create conditions. The 'If-then-else' command block helps us to write programs that have selections with two outcomes. The 'forever' block means that the command will happen continually. <u>Vocabulary</u> Program, turtle, commands, code, snippet, logo commands, pattern, repetition, count-controlled loop, value, decompose, procedure Selection, condition, outcomes, conditional statement	Design a project that uses inputs and outputs on a controllable device. Develop a program to use inputs and outputs on a controllable device. <u>Knowledge</u> A variable is something that is changeable. A variable can be set and changed throughout the running of a program. Scratch is one app in which we can explore variables. Variables should always have a value and an appropriate name. We use variables to store information that might change and can be used later in our program. Micro:bits are small computers that perform different actions based on programs written in computer software. Micro:bits have and LED light display, buttons, sensors and many input/output features that we can program. Programmes are then downloaded to the micro:bit. Micro:bit will only run code that has been downloaded, If code is changed in the editor it will need to be downloaded again. <u>Vocabulary</u> Variable, trial Micro-bit, input, process, output, LED, sensor, condition, if… then… else, variable, random, sequence, code.

Statutory Guidance

EYFS curriculum ELG Goals	Personal, Social and Emotional Development	Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly. An ability to follow instructions. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly. Work and play cooperatively and take turns with others. *(Computing Systems and Networks, E-safety, programming computing strands)*
	Physical Development	Use a range of small tools.

		Begin to show accuracy and care when drawing. *(Computing systems and Networks, Creating Media and programming computing strands)*
	Expressive Arts and Design	Safely use and explore a variety of tools. Share their creations, explaining the process they have used *(Computing systems and networks, Creating Media computing strand)*
	Communication and Language	Make comments about what they have heard and ask questions to clarify their understanding. Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. Offer explanations for why things might happen, making use of recently introduced vocabulary. *(Links to all computing strands - Computing Systems and Networks, Programming, Data and Information, Creating Media, E-safety)*

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Key Stage 1 National Curriculum	Pupils should be taught to: understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. *(Computing strands link - Programming)* create and debug simple programs. *(Computing strands link - Programming)* use logical reasoning to predict the behaviour of simple programs. *(Computing strands link - Programming)* use technology purposefully to create, organise, store, manipulate and retrieve digital content. *(Computing strands link - Computing Systems and Networks, Data and Information, Creating Media)* recognise common uses of information technology beyond school. *(Computing strands link - Computing Systems and Networks)* use technology safely and 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 online technologies. *(Computing strands link – E-safety)*
Key Stage 2 National Curriculum	Pupils should be taught to: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. *(Computing strands link - Programming)* use sequence, selection, and repetition in programs; work with variables and various forms of input and output. *(Computing strands link - Programming)* use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. *(Computing strands link - Programming)* 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. *(Computing strands link - Computing Systems and Networks)* use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. *(Computing strands link - Computing Systems and Networks, E-safety)* 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. *(Computing strands link –programming, Creating Media, Data and Information)* use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. *(Computing strands link – E-safety)*