



Knowledge and Skills Progression

Subject area: **Computing**

We are following the Teach Computing Curriculum which is structured to meet the objectives of the National Curriculum.

National Curriculum Statements							
Key Stage 1 1.1 understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions 1.2 create and debug simple programs 1.3 use logical reasoning to predict the behaviour of simple programs 1.4 use technology purposefully to create, organise, store, manipulate and retrieve digital content 1.5 recognise common uses of information technology beyond school 1.6 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.		Key Stage 2 2.1 design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts 2.2 use sequence, selection, and repetition in programs; work with variables and various forms of input and output 2.3 use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 2.4 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 2.5 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 2.6 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 2.7 use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact					
Knowledge and Skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing systems & Networks What is a computer, how do it's constituent parts function together as a whole. Understand how networks can be used to	The new Early Years Foundation Stage curriculum came into force in September 2021, and the 'Technology' strand has now been removed from 'Understanding the World'. However, we live in a technological world and there is no escape from the	Most children will: Identify technology Identify a computer and its main parts Use a mouse in different ways Use a keyboard to type on a computer Use the keyboard to edit text Create rules for using technology responsibly	Most children will: Recognise the uses and features of information technology Identify the uses of information technology in the school Identify information technology beyond school Explain how information technology helps us	Most children will: 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	Most children will: 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 (WWW) Describe how content can be added and accessed on the World Wide Web (WWW)	Most children will: Explain that computers can be connected together to form systems Recognise the role of computer systems in our lives Recognise how information is transferred over the internet Explain how sharing information online lets people in different	Most children will: Identify how to use a search engine Describe how search engines select results Explain how search results are ranked Recognise why the order of results is important, and to whom Recognise how we communicate using technology Evaluate different

retrieve and share information and come with associated risks	reality that technology is integrated into the lives of young children. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer literacy and all-important e-safety. Computing and technology are still vitally important subjects to deliver to EYFS children to ensure they enter Year 1 with a strong foundation of knowledge and skill. We do this by:		Explain how to use information technology safely Recognise that choices are made when using information technology	Recognise the physical components of a network	Recognise how the content of the WWW is created by people Evaluate the consequences of unreliable content	places work together Contribute to a shared project online Evaluate different ways of working together online	methods of online communication
Creating Media Select and create a range of media including text, images, sounds and video.	<ul style="list-style-type: none"> • Allowing children to use ICT as a means to record and develop their play and thinking, switching fluidly between first-hand and on-screen experiences. • Promoting and developing problem solving skills and 'Computational Thinking' 	<p>Most children will:</p> <p>Digital painting: 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</p> <p>Digital writing: 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 typing on a computer to writing on paper</p>	<p>Most children will:</p> <p>Digital photography: Use a digital device to take a photograph Make choices when taking a photograph Describe what makes a good photograph Decide how photographs can be improved Use tools to change an image Recognise that photos can be changed</p> <p>Making Music: Say how music can make us feel Identify that there are patterns in music Show how music is made from a series of notes Show how music is made from a series of notes Create music for a purpose Review and refine our computer work</p>	<p>Most children will:</p> <p>Animation: Explain that animation is a sequence of drawings or photographs Relate animated movement with a sequence of images Plan an animation Identify the need to work consistently and carefully Review and improve an animation Evaluate the impact of adding other media to an animation</p> <p>Desktop Publishing: 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 To consider the benefits of desktop publishing</p>	<p>Most children will:</p> <p>Audio Editing: Identify that sound can be digitally recorded. Use a digital device to record sound Explain that a digital recording is stored as a file Explain that audio can be changed through editing Show that different types of audio can be combined and played together Evaluate editing choices made</p> <p>Photo Editing: Explain that digital images can be changed Change the composition of an image Describe how images can be changed for different uses Make good choices when selecting different tools Recognise that not all images are real Evaluate how changes can improve an image</p>	<p>Most children will:</p> <p>Vector Drawing: 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 Evaluate a vector drawing</p> <p>Video editing: 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</p>	<p>Most children will:</p> <p>3D Modelling: Use a computer to create and manipulate three-dimensional (3D) digital objects Compare working digitally with 2D and 3D graphics Construct a digital 3D model of a physical object Identify that physical objects can be broken down into a collection of 3D shapes Design a digital model by combining 3D objects Develop and improve a digital 3D model</p> <p>Web page creation: 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</p>

<p>Data & Information How is data stored, organised and used to represent real world artefacts and scenarios.</p>	<p>(tinkering, creating, collaborating, persevering, logic, pattern, abstraction, algorithms and decomposition).</p> <ul style="list-style-type: none"> • Developing communication and language skills such as listening, attention and thoughtful questioning. • Teaching a well-planned cross curricular Computing curriculum from a range of source, that improves subject skills across all seven areas of learning. <p>Computing in Reception doesn't mean typing out a Word document or creating a code. In fact, teaching technology in the Early Years doesn't have to involve computer work at all. In the autumn and spring terms, our Computing scheme for the EYFS is centred around play-based, unplugged (no computer) activities.</p>	<p>Most children will: 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.</p>	<p>Most children will: 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</p>	<p>Most children will: Create questions with yes/no answers Identify the object attributes needed to collect relevant data Create a branching database Explain why it is helpful for a database to be well structured Identify objects using a branching database Compare the information shown in a pictogram with a branching database</p>	<p>Most children will: Explain that data gathered over time can be used to answer questions. Use a digital device to collect data automatically Explain that a data logger collects 'data points' from sensors over time Use data collected over a long duration to find information Identify the data needed to answer questions. Use collected data to answer questions.</p>	<p>Most children will: 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 Apply knowledge of a database to ask and answer real-world questions</p>	<p>Most children will: Identify questions which can be answered using data Explain that objects can be described using data Explain that formulas can be used to produce calculated data Apply formulas to data, including duplicating Create a spreadsheet to plan an event Choose suitable ways to present data</p>
<p>Programming Creating software to allow computers to solve problems</p>		<p>Most children will: Moving a robot: 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 Introduction to animation: Choose a command for a given purpose Show that a series of commands can be joined together Identify the effect of changing a value</p>	<p>Most children will: Robot algorithms: 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 (series of commands) Explain that programming projects can have code and artwork Design an algorithm Create and debug a program that they have written An introduction to quizzes: Explain that a sequence of</p>	<p>Most children will: Sequence in music: 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 Events & actions: Explain how a sprite moves in an existing project</p>	<p>Most children will: Repetition in shapes: 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 task into small steps Create a program that uses count-controlled loops to produce a given outcome Repetition in games: Develop the use of count-controlled loops in a different</p>	<p>Most children will: Selection in physical computing: Control a simple circuit connected to a computer Write a program that includes count-controlled loops Explain that a loop can stop when a condition is met Explain that a loop can be used to repeatedly check whether a condition has been met Design a physical project that includes selection Create a program that controls a physical computing project.</p>	<p>Most children will: Variables in games: 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 a design to create a project Evaluate a project. Sensing: Create a program to run on a controllable device Explain that selection can control the flow of a program Update a variable with</p>

	<p>that focus on building children's listening and attention skills, curiosity, creativity and problem solving. Technology in the Early Years can mean: taking a photograph with a camera or tablet, searching for information on the internet, playing games on the interactive whiteboard, exploring an old typewriter or other mechanical toys, using a Beebot, watching a video clip, listening to music, etc. Allowing children the opportunity to explore technology in this child-led way, means that not only will they develop a familiarity with equipment and vocabulary but they will have a strong start in Key Stage 1 Computing and all that it demands. In the summer term the children will start to use the computer suite and become more familiar with logging onto the computer and accessing some of the programs and apps available.</p>	<p>Explain that each sprite has its own instructions Design the parts of a project Use an algorithm to create a program</p>	<p>commands has a start Explain that a sequence of commands has an outcome Create a program using a given design Change a given design Create a program using their own design Decide how a project can be improved</p>	<p>Create a program to move a sprite in four directions Adapt a program to a new context Develop a program by adding features Identify and fix bugs in a program Design and create a maze-based challenge</p>	<p>programming environment Explain that in programming there are infinite loops and count controlled loops Develop a design that includes two or more loops which run at the same time Modify an infinite loop in a given program Design a project that includes repetition Create a project that includes repetition</p>	<p>Selection in quizzes: 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 Design a program which uses selection Create a program which uses selection Evaluate my program</p>	<p>a user input Use a conditional statement to compare a variable to a value Design a project that uses inputs and outputs on a controllable device Develop a program to use inputs and outputs on a controllable device</p>
<p>Digital Awareness</p> <p>*For differentiated</p>	<p>Most children will: Ask an adult when they want to use devices. Be careful with</p>	<p>Most children will: Talk about what personal information is Tell an adult when</p>	<p>Most children will: Talk about what sort of things they need to tell an adult about Know that people may</p>	<p>Most children will: Talk about what makes a secure password and why they are important</p>	<p>Most children will: Choose a secure password Talk about ways to protect themselves</p>	<p>Most children will: Protect passwords and other personal information Explain the best ways</p>	<p>Most children will: Protect passwords and other personal information Explain the</p>

<p>learning outcomes, please also refer to our separate Online safety curriculum from Project Evolve which is linked to Education for a Connected World.</p> <p>Safety & Security Understanding risks when using technology and how to protect individuals and systems</p>	<p>technology devices. Know that they can say 'no', 'stop' to somebody who makes them feel sad, embarrassed or upset. Explain some ways which the technology can be used to communicate.</p>	<p>they see something unexpected or worrying online Recognise that there may be people online who can make me feel sad, embarrassed or upset Explain why it is important to be kind and considerate online</p>	<p>not tell the truth online and may not be who they say they are Explain how people's identity online can be different to their identity in real life Explain steps to communicate safely with people they don't know well Talk about digital footprint Give examples of what online bullying might look like</p>	<p>Know basic methods to stay safe online such as not sharing personal information Talk about age appropriateness of games and websites Explain how online identity can be copied or altered Talk about the differences between online and real life relationships Identify some online locations where bullying might take place Talk about in-app purchases</p>	<p>online Talk about the safety features of games, apps and websites Talk about the need to talk to an adult about downloading files and games Comment positively and respectfully online Explain how to block and report abusive users of technology Talk about how apps may share personal information</p>	<p>to protect themselves online, including reporting concerns to an adult Know that anything posted online can be seen, used and may affect others Talk about the dangers of spending too much time online Talk about the importance of choosing age appropriate content and how to do this Talk about why they need to protect their devices Talk about the dangers of online relationships and how we avoid those dangers Describe how to capture evidence of online bullying e.g. screenshots Describe how criminals use techniques such as phishing to obtain money or information</p>	<p>consequences of sharing personal information online Support friends to protect themselves and make good choices online Explain the consequences of spending too much time online Explain the consequences of not communicating kindly and respectfully Know how to protect their devices from harm on the internet Describe ways in which media can shape ideas about gender Describe how they can support others who may be having difficulties online Explain what app permissions are Demonstrate how to make reference to and acknowledge sources I have used from the internet</p>
<p>Generic skills & Effective Use of tools Use software tools to support computing work</p>	<p>Most children will: be aware that pressing buttons will make a device respond eg remote control toy use the mouse and the keyboard to explore programs be aware that moving the mouse moves the pointer on the screen be aware of the effect of pressing the mouse</p>	<p>Most children will: be able to print work using the Print icon use both hands on the keyboard load programs with support know that work can be saved and retrieved save work with support retrieve work with support</p>	<p>Most children will: use appropriate ICT vocabulary load programs independently save work independently retrieve work independently plan what they are going to do make simple modifications to their</p>	<p>Most children will: be aware that work can be saved in different places eg network, cloud, PenDrive be aware of folders and, with support, create and name new folders print work using the drop down menu use Print Preview</p>	<p>Most children will: with support, be able to choose an appropriate program to perform a task plan what they are going to do and evaluate the results understand that work can be saved in different places eg network, cloud, PenDrive</p>	<p>Most children will: be able to choose an appropriate program to perform a task be able to combine and refine information from various sources. interpret and question the plausibility of information. have experience of a range of ICT equipment and</p>	<p>Most children will: be able to choose and combine the use of appropriate ICT tools to complete a task be able to critical evaluate the fitness for purpose of work as it progresses have experience of a range of ICT equipment and software</p>

	buttons have experience of a range of ICT equipment and software talk about what they are doing with ICT use appropriate ICT vocabulary	have experience of a range of ICT equipment and software talk about what they are doing with ICT	work (edit) practise keyboard skills using both hands, try to use more than two fingers, and try to use the thumb on the spacebar. have experience of a range of ICT equipment and software describe their work and how they have used ICT	make changes to their work (edit) select items and use cut, copy and paste as necessary have experience of a range of ICT equipment and software describe their work and how they have used ICT annotate their work samples using prompts use appropriate ICT vocabulary	understand the use of folders and be able to create and name new folders understand and use the hierarchical file system consolidate keyboard skills -possibly using typing tutor software have experience of a range of ICT equipment and software describe their work and explain how and why they have used ICT annotate their work samples using prompts use appropriate ICT vocabulary	software describe and discuss their work and explain how and why they have used ICT annotate their work samples using prompt questions use appropriate ICT vocabulary	describe and discuss their work and explain how and why they have used ICT annotate their work samples using prompt questions use appropriate ICT vocabulary
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Vocabulary	EYFS / Key Stage 1		Key Stage 2			
			Lower KS2		Upper KS2	
	Instruction Code Debug Robot Monitor Internet Mouse Keyboard Monitor Tablet eSafety	Algorithm Navigate Program Save Open Folder Website Code Input/Output Edit Digital image	Algorithm Program Code Debug Sequence Loop Variable Test Data Branching Database Search	Scratch Programming Coding Debugging Algorithm Sequences Loops Variable Testing Sensor Search engine Cloud Data and database Software	Software Hardware Component Network Sharing File management Representation Data base Systems Digital Vector drawing Device Virus Sensors Security Input /output Control Controlled loop variable	Selection 3D graphics User account Deploy Text editor Code specifics Interact Virus Spread sheet

