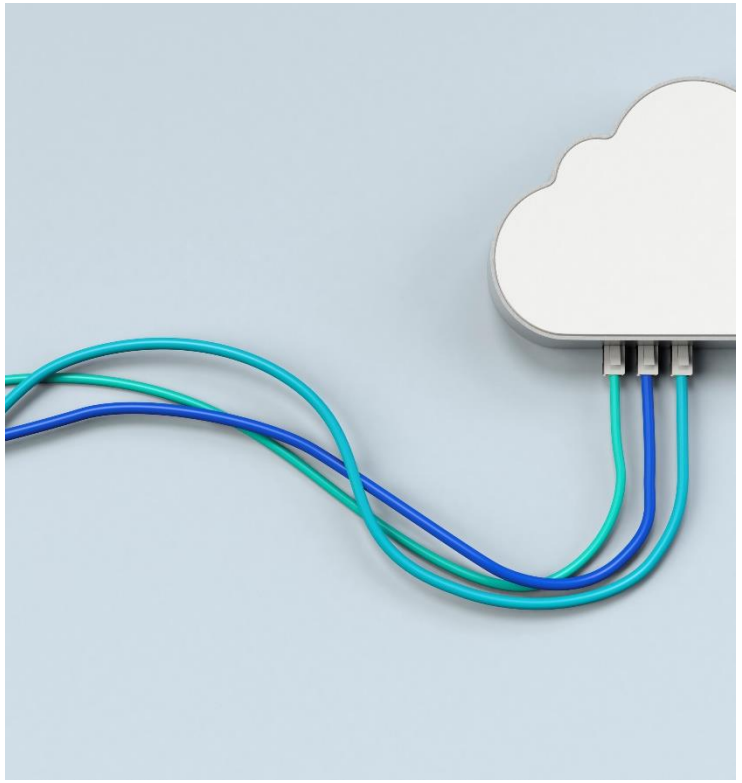
OUR LADY AND ST. HUBERT'S PRIMARY

Computing Knowledge Progression

Mastering technology to empower learning and solve problems (Adapted from NCCE)



At Our Lady and St. Hubert's, home, school and parish work together, knowing that God is with us in all we do.

OUR LADY AND ST HUBERT'S CATHOLIC PRIMARY SCHOOL

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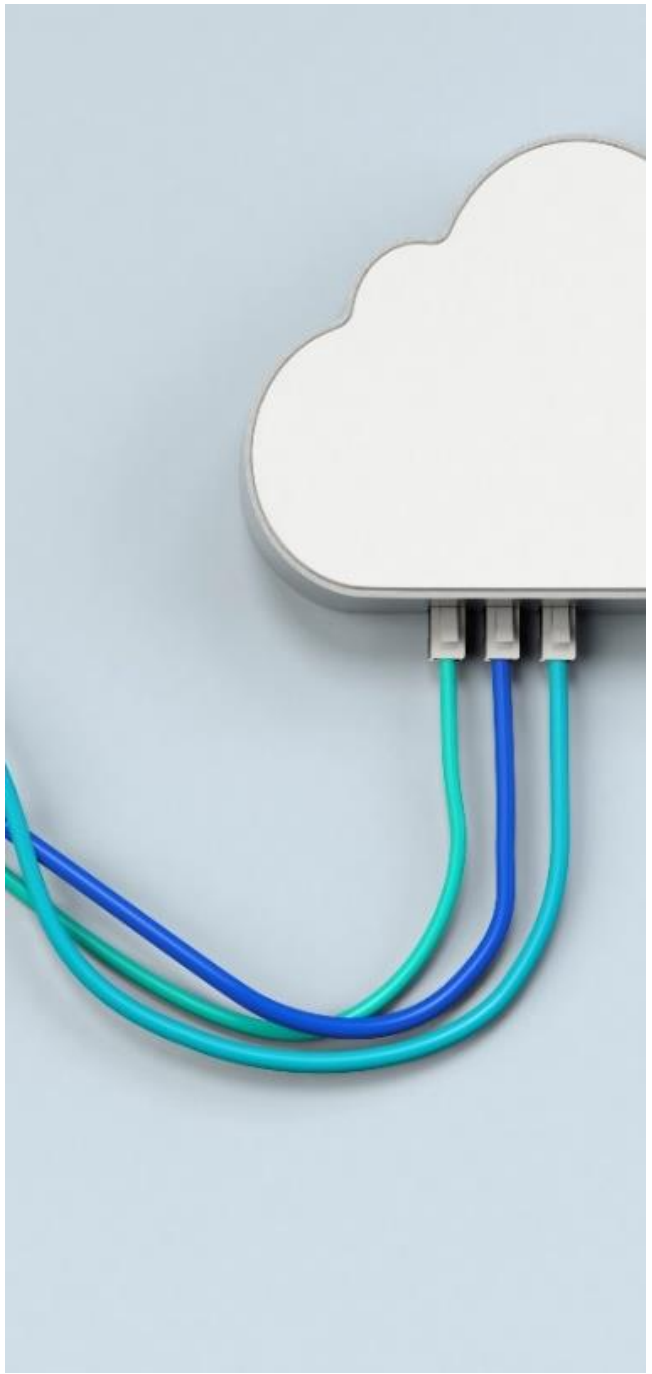

Computing Curriculum Intent

At Our Lady and St Hubert's we want pupils to be *masters* of technology and not slaves to it. Technology is everywhere and will play a pivotal part in students' lives. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly, and safely. We want our pupils to be creators not consumers and our broad curriculum encompassing computer science, information technology and digital literacy reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology to model positive use. We recognise that the best prevention for many issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of technology. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum is balanced with the opportunity for pupils to apply their knowledge creatively, which will in turn, help our pupils become skilful computer scientists. We encourage staff to embed computing across the whole curriculum to make learning creative and accessible. We want our pupils to be fluent with a range of tools to best express their understanding and by Upper Key Stage 2, children will have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

Implementation of the Computing Curriculum

Our knowledge progression for computing is ambitious. We recognise that to achieve our intent for computing, this intent must be implemented using current academic research – research in both computing and cognition. Within the *Computing Curriculum*, every year group learns through units within the same four themes (Computer systems and networks, programming, data and information and creating media), which combine the ten strands of the *National Centre for Computing Education*'s taxonomy (See Below). To develop a rich and varied schema in our children's brains, our progression has been developed so that learning is sequential, allowing knowledge and skills to be built upon. Key learning objectives are delivered to pupils in small steps, avoiding *cognitive overload* – allowing knowledge to enter long-term memory more readily – therefore allowing **all** children to know more and remember more. We also recognise that over time, this knowledge can be lost – best shown by *'The Ebbinghaus Curve'* and therefore it is important to continually review and retrieve this knowledge. Our curriculum is structured to allow for *spaced learning* and continual retrieval of taught information – creating a *spiral curriculum.* This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.

Children will learn fundamental knowledge of various aspects of computing, revisiting and building their knowledge of key ideas and developing mastery by applying their learning in practical problem-solving contexts.
They will learn how different hardware and software can help them to learn and express their ideas, applying this growing understanding into their wider curriculum learning.
They will collaborate and share their learning using online tools, developing an awareness of how to behave respectfully and positively and keep themselves safe.
They will design, create and test programs and physical systems to solve real-world problems and express their creative ideas.

Curriculum Design

Within the *Computing Curriculum*, every year group learns through units within the same four themes (Computer systems and networks, programming, data and information and creating media), which combine the ten strands of the *National Centre for Computing Education's* taxonomy (See table below). All learning objectives have been mapped to the strands, which ensures that units build on each other from one year group to the next and therefore one key stage to the next.

Primary themes	Computing systems and networks	Programming	Data and information	Creating media
Taxonomy strands	Computer systems Computer networks	Programming Algorithms Design and development	Data and information	Creating media Design and development
	Effective use of tools			
	Impact of technology			
	Safety and security			

Knowledge Organisation (Taxonomy Strands)

The *Computing Curriculum* uses the National Centre for Computing Education's computing taxonomy to ensure comprehensive coverage of the subject. This has been developed through a thorough review of the KS1-4 computing programme of study, and the GCSE and A level computer science specifications across all awarding bodies. All learning outcomes can be described through a high-level taxonomy of ten strands, ordered alphabetically as follows:

Algorithms (AL)—Be able to comprehend, design, create and evaluate algorithms
Computer networks (NW) —Understand how networks can be used to retrieve and share information, and how they come with associated risks
Computer systems (CS)— Understand what a computer is, and how its constituent parts function together as a whole
Creating media (CM)— Select and create a range of media including text, images, sounds and video
Data and information (DI) —Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
Design and development (DD) —Understand the activities involved in planning, creating, and evaluating computing artefacts
Effective use of tools (ET) —Use software tools to support computing work
Impact of technology (IT) —Understand how individuals, systems, and society as a whole interact with computer systems

Programming (PG) —Create software to allow computers to solve problems
Safety and security (SS) —Understand risks when using technology, and how to protect individuals and systems

The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

Spiral Curriculum

The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years. *See also, Unit Summaries and National Curriculum Coverage.*

Pedagogy

Our pedagogical approach consists of 12 key principles underpinned by research: each principle has been shown to contribute to effective teaching and learning in computing and examples of their application can be found throughout the units of work at every key stage.

- ✓ Lead with concepts
  Support pupils in the acquisition of knowledge, through the use of key concepts, terms. and vocabulary, providing opportunities to build a shared and consistent understanding. Glossaries, concept maps and displays, along with regular recall and revision, can support this approach.
- ✓ Work together
  Programming and peer instruction, and also structured group tasks. Working together stimulates classroom dialogue, articulation of concepts, and development of shared understanding.
- ✓ Get hands-on
  Use physical computing and making activities that offer tactile and sensory experiences to enhance learning. Combining electronics and programming with arts and crafts (especially through exploratory projects) provides pupils with a creative, engaging context to explore and apply computing concepts.
- ✓ Unplug, unpack, repack
  Teach new concepts by first unpacking complex terms and ideas, exploring these ideas in unplugged and familiar contexts, then repacking this new understanding into the original concept. This approach. called 'semantic waves', can help pupils develop a secure understanding of complex concepts.
- ✓ Model everything
  Model processes or practices —everything from debugging code to binary number conversions — using techniques such as worked examples and live coding. Modelling is particularly beneficial to novices, providing scaffolding that can be gradually taken away.
- ✓ Foster program comprehension
  Use a variety of activities to consolidate knowledge and understanding of the function and structure of programs, including debugging, tracing, and Parson's problems. Regular comprehension activities will help secure understanding and build connections with new knowledge.

- ✓ Create projects
  Use project-based learning activities to provide pupils with the opportunity to apply and consolidate their knowledge and understanding. Design is an important, often overlooked aspect of computing. Pupils can consider how to develop an artefact for a particular user or function, and evaluate it against a set of criteria.
- ✓ Add variety
  Provide activities with different levels of direction, scaffolding, and support that promote learning, ranging from highly structured to move exploratory tasks. Adapting your instructions to suit different objectives will help keep all pupils engaged and encourage greater independence.
- ✓ Challenge misconceptions
  Use formative questioning to uncover misconceptions and adapt teaching to address them as they occur. Awareness of common misconceptions alongside discussion, concept mapping, peer instruction, or simple quizzes can help identify areas of confusion.
- ✓ Make concrete
  Bring abstract concepts to life with real-world, contextual examples, and a focus on interdependencies with other curriculum subjects. This can be achieved through the use of unplugged activities, proposing analogies.
- ✓ Structure lessons
  Use supportive frameworks when planning lessons, such as PRIMM (Predict, Run, Investigate, Modify, Make) and Use-Modify-Create. These frameworks are based on research and ensure that differentiation can be built in at various stages of the lesson.
- ✓ Read and explore code first
  When teaching programming. focus first on code 'reading' activities, before code writing. With both block-based and text-based programming, encourage pupils to review and interpret blocks of code Research has shown that being able to read. trace, and explain code augments pupils' ability to write code.

For the reasons identified above, we teach computing on a regular basis. We know that children engage more- and retain more- when they can make connections and links between their learning, so teachers will ensure that, where appropriate, computing lessons will be linked to half-termly themes and computing skills are applied where appropriate – *interleaving* concepts to develop schema. *Interleaving* is a **method of teaching where students learn concepts in different ways at different times**. For example, children may create presentations (including aspects such as voice overs and animations) to demonstrate their understanding in geography, history or science.

Underpinning our lessons will be our 6Cs - *'21st Century skills for effective learning'*, which will help to shape the lessons planned by our teachers, building on skills such as; communication, resilience, collaboration, critical thinking, creative problem solving and living as an active global citizen – all skills that can be demonstrated through our computing progression.

Impact of the Computing Curriculum

Students will become confident users of technology, understanding how digital tools can empower them to work more effectively. They will be able to select and combine applications to help them realise their creative visions. They will become creators and not consumers.

Students will be able to solve real-world problems, thinking about problems logically and designing, realising and testing solutions to these.

Students will be able to navigate confidently online, knowing how to find and scrutinise information, share and collaborate, and protect themselves and others. Finding the right balance with technology is key to an effective education and a healthy lifestyle. We feel the way we implement computing helps children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond.

Unit Summaries and National Curriculum Coverage

EYFS

	Computing Systems and networks	Creating Media	Programming A	Data and Information	Creating media	Programming B
Reception	**Little Computers** Understanding what a computer is, its parts and what it can be used for.	**Art Attack** Making simple pictures using a program	**Junior Explorers** Exploring directional language	**Introduction to data** Sorting objects and recording	**Fantastic Tales** Making a simple animation through sequencing	**A is for Algorithm** Following and giving simple instructions

Key Stage 1

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	**Technology around us** Recognising technology in school and using it responsibly.	**Digital painting** Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	**Moving a robot** Writing short algorithms and programs for floor robots, and predicting program outcomes.	**Grouping data** Exploring object labels, then using them to sort and group objects by properties.	**Digital writing** Using a computer to create and format text, before comparing to writing non-digitally.	**Programming animations** Designing and programming the movement of a character on screen to tell stories.
Year 2	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond.	**Digital photography** Capturing and changing digital photographs for different purposes.	**Robot algorithms** Creating and debugging programs, and using logical reasoning to make predictions.	**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer.	**Digital music** Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

National Curriculum Coverage — Years 1 and 2	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	2.4 Pictograms	2.5 Digital music	2.6 Programming quizzes
Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.			✓			✓			✓			✓
Create and debug simple programs			✓			✓			✓			✓
Use logical reasoning to predict the behaviour of simple programs			✓			✓			✓			✓
Use technology purposefully to create, organise, store, manipulate, and retrieve digital content	✓	✓		✓	✓		✓	✓		✓	✓	✓
Recognise common uses of information technology beyond school	✓		✓				✓	✓				
Use technology safely and respectfully, keeping personal information private; identify on the internet or other online technologies	✓			✓	✓		✓	✓	✓	✓		

Lower Key Stage 2

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 3	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	**Stop-frame animation** Capturing and editing digital still images to produce a stop frame animation that tells a story	**Sequencing sounds** Creating sequences in a block-based programming language to make music.	**Branching databases** Building and using branching databases to group objects using yes/no questions.	**Desktop publishing** Creating documents and modifying text, images and page layouts for a specific purpose.	**Events and actions in programs** Writing algorithms and programs that use a range of events to trigger sequences of actions.
Year 4	**The internet** Recognising that the internet is a network of networks including the WWW, and why we should evaluate online content.	**Audio production** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Repetition in shapes** Using a text-based programming language to explore count-controlled loops when drawing shapes.	**Data logging** Recognising how and why data is collected over time, before using data loggers to carry out an investigation,	**Photo editing** Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled,	**Repetition in games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game.

National Curriculum Coverage – Years 3 and 4	3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	3.4 Branching databases	3.5 Desktop publishing	3.6 Events and actions in programs	4.1 The internet	4.2 Audio production	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts			✓			✓			✓			✓
use sequence, selection, and repetition in programs; work with variables and various forms of input and output	✓		✓			✓			✓	✓		✓
use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			✓			✓			✓			✓
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	✓						✓					
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content					✓		✓	✓			✓	
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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		✓		✓			✓	✓			✓	

Upper Key Stage 2

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 5	**Systems and searching** Recognising IT systems in the world and how some can enable searching on the internet.	**Video production** Planning, capturing, and editing video to produce a short film.	**Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.	**Flat-file databases** Using a database to order data and create charts to answer questions.	**Introduction to vector graphics** Creating images in a drawing program by using layers and groups of objects.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.
Year 6	**Communication and collaboration** Exploring how data is transferred by working collaboratively online.	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics and navigation.	**Variables in games** Exploring variables when designing and coding a game.	**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data.	**3D modelling** Planning, developing, and evaluation 3D computer models of physical objects.	**Sensing movement** Designing and coding a project that captures inputs from physical devices.

National Curriculum Coverage – Years 5 and 6	5.1 systems and searching	5.2 Video production	5.3 Selection in physical computing	5.4 Flat-file database	5.5 Introduction to vector graphics	5,6 Selection in quizzes	6.1 Communication and collaboration	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing movement
design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts			✓			✓	✓		✓			✓
use sequence, selection, and repetition in programs; work with variables and various forms of input and output			✓			✓			✓			✓
use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			✓			✓			✓			✓
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	✓						✓					
use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content		✓		✓				✓				
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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	✓	✓						✓	✓		✓	

Theme Progression

Computer Systems and Networks

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
EYFS	Little Computers	computer, screen, mouse, delete	To understand what a computer is and what they can be used for.	- I can identify different types of computers (e.g., desktop, laptop, tablet, smartphone). - I can point out basic parts of a computer (screen, keyboard, mouse). - I can name at least three different uses for computers - I can give an example of how they or their family use a computer at home or in school.										
			To identify uses of ICT and ways of finding information	- I can point out ICT devices in their environment (e.g., classroom, home). - I can describe different ways ICT devices are used (e.g., making calls, taking pictures, watching videos). - I can show interest in using ICT devices for various activities (e.g., educational games, creative projects). - I can explain a favourite activity they do using an ICT device (e.g., drawing on a tablet, watching educational videos).										
			To explore the tools used to enter text.	- I can identify and press individual keys on the keyboard, especially letters, numbers, and the spacebar. - I can recognise and press the correct letter keys. - I can type their name or simple words using the keyboard. - I can use the backspace or delete key to correct mistakes.										
			To improve mouse control	- I can hold the mouse correctly, using a comfortable and effective grip. - I can perform a single click to select items on the screen. - I can perform a double-click to open files or applications - I can click and drag objects on the screen.										
			To produce a digital drawing	- I can turn on the digital device with minimal assistance. - I can open the drawing application or program - I can identify and select basic drawing tools within the application (e.g., pencil, brush, eraser) - I can choose different colours to use in my drawing. - I can draw basic shapes (circles, squares) and lines. - I can save my work.										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
			To retrieve, open and print a digital file.	- I can open my saved work from the previous lesson. - I can select the correct file by clicking or tapping on it. - I can navigate to the print option within the program. - I can initiate the print command and understand that this sends the file to the printer to be printed out										
Year 1	Technology Around Us Learning Graph	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	-To identify technology	- I can explain how these technology examples help us - I can explain technology as something that helps us - I can locate examples of technology in the classroom										
			-To identify a computer and its main parts	- I can name the main parts of a computer - I can switch on and log into a computer - I can use a mouse to click and drag										
			-To use a mouse in different ways	- I can click and drag to make objects on a screen - I can use a mouse to create a picture - I can use a mouse to open a program										
			-To use a keyboard to type on a computer	- I can save my work to a file - I can say what a keyboard is for - I can type my name on a computer										
			-To use the keyboard to edit text	- I can delete letters - I can open my work from a file - I can use the arrow keys to move the cursor										
			-To create rules for using technology responsibly	- I can discuss how we benefit from these rules - I can give examples of some of these rules - I can identify rules to keep us safe and healthy when we are using technology in and beyond the home										
Year 2	IT around us Learning Graph	Information technology (IT), computer, barcode, scanner/scan	-To recognise the uses and features of information technology	- I can describe some uses of computers - I can identify examples of computers - I can identify that a computer is a part of IT										
			-To identify the uses of information technology in the school	- I can identify examples of IT - I can identify that some IT can be used in more than one way - I can sort school IT by what it's used for										
			-To identify information technology beyond school	- I can find examples of information technology - I can sort IT by where it is found - I can talk about uses of information technology										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
			-To explain how information technology helps us	- I can demonstrate how IT devices work together - I can recognise common types of technology - I can say why we use IT										
			-To explain how to use information technology safely	- I can list different uses of information technology - I can say how rules can help keep me safe - I can talk about different rules for using IT										
			-To recognise that choices are made when using information technology	- I can explain the need to use IT in different ways - I can identify the choices that I make when using IT - I can use IT for different types of activities										
Year 3	Connecting Computers Learning Graph	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	-To explain how digital devices function	-I can explain that digital devices accept inputs - I can explain that digital devices produce outputs - I can follow a process										
			-To identify input and output devices	-I can classify input and output devices - I can describe a simple process - I can design a digital device										
			-To recognise how digital devices can change the way we work	-I can explain how I use digital devices for different activities - I can recognise similarities between using digital devices and non-digital tools - I can suggest differences between using digital devices and non-digital tools										
			-To explain how a computer network can be used to share information	-I can discuss why we need a network switch - I can explain how messages are passed through multiple connections - I can recognise different connections										
			-To explore how digital devices can be connected	-I can demonstrate how information can be passed between devices - I can explain the role of a switch, server, and wireless access point in a network - I can recognise that a computer network is made up of a number of devices										
			-To recognise the physical components of a network	-I can identify how devices in a network are connected together - I can identify networked devices around me - I can identify the benefits of computer networks										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
Year 4	The Internet Learning Graph	internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	-To describe how networks physically connect to other networks	-I can demonstrate how information is shared across the internet - I can describe the internet as a network of networks - I can discuss why a network needs protecting										
			-To recognise how networked devices make up the internet	-I can describe networked devices and how they connect - I can explain that the internet is used to provide many services - I can recognise that the World Wide Web contains websites and web pages										
			-To outline how websites can be shared via the World Wide Web (WWW)	-I can describe how to access websites on the WWW - I can describe where websites are stored when uploaded to the WWW - I can explain the types of media that can be shared on the WWW										
			-To describe how content can be added and accessed on the World Wide Web (WWW)	-I can explain that internet services can be used to create content online - I can explain what media can be found on websites - I can recognise that I can add content to the WWW										
			-To recognise how the content of the WWW is created by people	-I can explain that there are rules to protect content - I can explain that websites and their content are created by people - I can suggest who owns the content on websites										
			-To evaluate the consequences of unreliable content	-I can explain that not everything on the World Wide Web is true - I can explain why I need to think carefully before I share or reshare content - I can explain why some information I find online may not be honest, accurate, or legal										
Year 5	Systems and Searching Learning Graph	system, connection, digital, input, process, storage, output, search,	-To explain that computers can be connected together to form systems	-I can describe that a computer system features inputs, processes, and outputs - I can explain that computer systems communicate with other devices - I can explain that systems are built using a number of parts										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.	-To recognise the role of computer systems in our lives	-I can explain the benefits of a given computer system - I can identify tasks that are managed by computer systems - I can identify the human elements of a computer system										
			-To experiment with search engines	-I can compare results from different search engines - I can make use of a web search to find specific information - I can refine my web search										
			-To describe how search engines select results	-I can explain why we need tools to find things online - I can recognise the role of web crawlers in creating an index - I can relate a search term to the search engine's index										
			-To explain how search results are ranked	-I can explain that a search engine follows rules to rank results - I can give examples of criteria used by search engines to rank results - I can order a list by rank										
			-To recognise why the order of results is important, and to whom	-I can describe some of the ways that search results can be influenced - I can explain how search engines make money - I can recognise some of the limitations of search engines										
Year 6	Communication and Collaboration Learning Graph	communicatio n, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration,	-To explain the importance of internet addresses	-I can describe how computers use addresses to access websites - I can explain that internet devices have addresses - I can recognise that data is transferred using agreed methods										
			-To recognise how data is transferred across the internet	-I can explain that all data transferred over the internet is in packets - I can explain that data is transferred over networks in packets - I can identify and explain the main parts of a data packet										
			-To explain how sharing information online can help people to work together	-I can explain that the internet allows different media to be shared - I can recognise how to access shared files stored online - I can send information over the internet in different ways										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
	internet, public, private, oneway, two-way, one-to-one, one-to-many.	-To evaluate different ways of working together online	-I can explain how the internet enables effective collaboration - I can identify different ways of working together online - I can recognise that working together on the internet can be public or private										
		-To recognise how we communicate using technology	-I can choose methods of communication to suit particular purposes - I can explain the different ways in which people communicate - I can identify that there are a variety of ways to communicate over the internet										
		-To evaluate different methods of online communication	-I can compare different methods of communicating on the internet - I can decide when I should and should not share information online - I can explain that communication on the internet may not be private										

Creating Media

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
EYFS	Art Attack	paint, draw, digital art, favourite	To understand that art and pictures can be produced on a computer.	- I can identify what an artist is - I can identify and name basic drawing or painting software.										
			To click, draw and drag objects.	- I can identify and draw my favourite - I can identify and draw the place I would eat this food. - I can guess what others have drawn										
			To use a wider range of tools	- I can identify and draw my favourite toy. - I can draw myself playing with my favourite toy. - I can guess what others have drawn.										
			To click and drag to draw	- I can identify what a portrait is - I can draw my favourite friend. - I can guess what others have drawn.										
			To use a paint programme	- I can identify and draw my favourite colour. - I can draw 4 different shapes. - I can use my favourite colour to shade (4) - I can guess what others have drawn.										
			To discuss media use to create digital art.	- I can discuss the work I have created. - I can form a short simple script about my work.										
	Fantastic Tales	sequence, draw, paint, paintbrush, cut, animate, record, audio	To retell a story	- I can label different parts of a narrative book (author, illustrator, text, pictures, blurb). -I can identify what the story is about in my own words. -I can identify the main events that happen.										
			To identify and describe characters	- I can list the characters that appear in the story - I can describe different characters in the story. - I can act out different characters and use different voices when pretending to be them.										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
			To sequence events in chronological order	- I can retell a story in chronological order - I can sequence events. - I can identify where characters appear in the story.										
			To create story settings and characters.	- I can draw or paint different backgrounds. - I can draw or paint different settings.										
			To cut and prepare characters and backgrounds	- I can select different characters that I need and cut around it to remove the background. - I can select backgrounds and characters that are needed for the specific points in the story.										
			To resize, animate and record audio.	- I can retell my fantastic tale. - I can move character to create lifelike movements. - I can use a clear animated voice for different characters. - I can use sound effects.										
Year 1	Digital Painting Learning Graph	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	-To describe what different freehand tools do	-I can draw lines on a screen and explain which tools I used - I can make marks on a screen and explain which tools I used - I can use the paint tools to draw a picture										
			-To use the shape tool and the line tools	-I can make marks with the square and line tools - I can use the shape and line tools effectively - I can use the shape and line tools to recreate the work of an artist										
			-To make careful choices when painting a digital picture	-I can choose appropriate shapes - I can create a picture in the style of an artist - I can make appropriate colour choices										
			-To explain why I chose the tools I used	-I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why - I know that different paint tools do different jobs										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		-To use a computer on my own to paint a picture	-I can change the colour and brush sizes - I can make dots of colour on the page - I can use dots of colour to create a picture in the style of an artist on my own										
		-To compare painting a picture on a computer and on paper	-I can explain that pictures can be made in lots of different ways - I can say whether I prefer painting using a computer or using paper - I can spot the differences between painting on a computer and on paper										
Digital Writing Learning Graph	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing.	-To use a computer to write	-I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard										
		-To add and remove text on a computer	-I can enter text into a computer - I can use backspace to remove text - I can use letter, number, and space keys										
		-To identify that the look of text can be changed on a computer	-I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters										
		-To make careful choices when changing text	-I can change the font - I can select all of the text by clicking and dragging - I can select a word by double-clicking										
		-To explain why I used the tools that I chose	-I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use 'undo' to remove changes										
		-To compare typing on a computer to writing on paper	-I can explain the differences between typing and writing - I can make changes to text on a computer - I can say why I prefer typing or writing										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
Year 2	Making Music Learning Graph	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	-To say how music can make us feel	-I can describe music using adjectives - I can identify simple differences in pieces of music - I can say what I do and don't like about a piece of music										
			-To identify that there are patterns in music	-I can create a rhythm pattern - I can explain that music is created and played by humans - I can play an instrument following a rhythm pattern										
			-To experiment with sound using a computer	-I can connect images with sounds - I can relate an idea to a piece of music - I can use a computer to experiment with pitch										
			-To use a computer to create a musical pattern	-I can explain how my music can be played in different ways - I can identify that music is a sequence of notes - I can refine my musical pattern on a computer										
			-To create music for a purpose	-I can add a sequence of notes to my rhythm - I can create a rhythm which represents an animal I've chosen - I can create my animal's rhythm on a computer										
			-To review and refine our computer work	-I can explain how I changed my work - I can listen to music and describe how it makes me feel - I can review my work										
	Digital Photography Learning Graph	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject,	-To use a digital device to take a photograph	-I can explain what I did to capture a digital photo - I can recognise what devices can be used to take photographs - I can talk about how to take a photograph										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,	-To make choices when taking a photograph	-I can explain the process of taking a good photograph - I can explain why a photo looks better in portrait or landscape format - I can take photos in both landscape and portrait format										
			-To describe what makes a good photograph	-I can discuss how to take a good photograph - I can identify what is wrong with a photograph - I can improve a photograph by retaking it										
			-To decide how photographs can be improved	-I can experiment with different light sources - I can explain why a picture may be unclear - I can explore the effect that light has on a photo										
			-To use tools to change an image	-I can explain my choices - I can recognise that images can be changed - I can use a tool to achieve a desired effect										
			-To recognise that photos can be changed	-I can apply a range of photography skills to capture a photo - I can identify which photos are real and which have been changed - I can recognise which photos have been changed										
Year 3	Desktop Publishing Learning Graph	text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	-To recognise how text and images convey information	-I can explain the difference between text and images - I can identify the advantages and disadvantages of using text and images - I can recognise that text and images can communicate messages clearly										
			-To recognise that text and layout can be edited	-I can change font style, size, and colours for a given purpose - I can edit text - I can explain that text can be changed to communicate more clearly										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		-To choose appropriate page settings	-I can create a template for a particular purpose - I can define the term 'page orientation' - I can recognise placeholders and say why they are important										
		-To add content to a desktop publishing publication	-I can choose the best locations for my content - I can make changes to content after I've added it - I can paste text and images to create a magazine cover										
		-To consider how different layouts can suit different purposes	-I can choose a suitable layout for a given purpose - I can identify different layouts - I can match a layout to a purpose										
		-To consider the benefits of desktop publishing	-I can compare work made on desktop publishing to work created by hand - I can identify the uses of desktop publishing in the real world - I can say why desktop publishing might be helpful										
Stop-frame Animation Learning Graph	animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.	-To explain that animation is a sequence of drawings or photographs	-I can create an effective flip book—style animation - I can draw a sequence of pictures - I can explain how an animation/flip book works										
		-To relate animated movement with a sequence of images	-I can create an effective stop-frame animation - I can explain why little changes are needed for each frame - I can predict what an animation will look like										
		-To plan an animation	-I can break down a story into settings, characters and events - I can create a storyboard										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				- I can describe an animation that is achievable on screen										
			-To identify the need to work consistently and carefully	-I can evaluate the quality of my animation - I can review a sequence of frames to check my work - I can use onion skinning to help me make small changes between frames										
			-To review and improve an animation	-I can evaluate another learner's animation - I can explain ways to make my animation better - I can improve my animation based on feedback										
			-To evaluate the impact of adding other media to an animation	-I can add other media to my animation - I can evaluate my final film - I can explain why I added other media to my animation										
Year 4	Audio Production Learning Graph	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback	-To identify that sound can be recorded	-I can explain that the person who records the sound can say who is allowed to use it - I can identify the input and output devices used to record and play sound - I can use a computer to record audio										
			-To explain that audio recordings can be edited	-I can discuss what sounds can be added to a podcast - I can inspect the soundwave view to know where to trim my recording - I can re-record my voice to improve my recording										
			-To recognise the different parts of creating a podcast project	-I can explain how sounds can be combined to make a podcast more engaging - I can plan appropriate content for a podcast - I can save my project so the different parts remain editable										
			-To apply audio editing skills independently	-I can improve my voice recordings - I can record content following my plan - I can review the quality of my recordings										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		-To combine audio to enhance my podcast project	-I can arrange multiple sounds to create the effect I want - I can explain the difference between saving a project and exporting an audio file - I can open my project to continue working on it										
		-To evaluate the effective use of audio	-I can choose appropriate edits to improve my podcast - I can listen to an audio recording to identify its strengths - I can suggest improvements to an audio recording										
Photo Editing Learning Graph	image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.	-To explain that the composition of digital images can be changed	-I can explain why I might crop an image - I can improve an image by rotating it - I can use photo editing software to crop an image										
		-To explain that colours can be changed in digital images	-I can experiment with different colour effects - I can explain that different colour effects make you think and feel different things - I can explain why I chose certain colour effects										
		-To explain how cloning can be used in photo editing	-I can add to the composition of an image by cloning - I can identify how a photo edit can be improved - I can remove parts of an image using cloning										
		-To explain that images can be combined	-I can experiment with tools to select and copy part of an image - I can explain why photos might be edited - I can use a range of tools to copy between images										
		-To combine images for a purpose	-I can choose suitable images for my project - I can create a project that is a combination										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				of other images - I can describe the image I want to create										
			-To evaluate how changes can improve an image	-I can combine text and my image to complete the project - I can review images against a given criteria - I can use feedback to guide making changes										
Year 5	Introduction to Vector Graphics Learning Graph	vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	-To identify that drawing tools can be used to produce different outcomes	-I can discuss how vector drawings are different from paper-based drawings - I can experiment with the shape and line tools - I can recognise that vector drawings are made using shapes										
			-To create a vector drawing by combining shapes	-I can explain that each element added to a vector drawing is an object - I can identify the shapes used to make a vector drawing - I can move, resize, and rotate objects I have duplicated										
			-To use tools to achieve a desired effect	-I can explain how alignment grids and resize handles can be used to improve consistency - I can modify objects to create a new image - I can use the zoom tool to help me add detail to my drawings										
			-To recognise that vector drawings consist of layers	-I can change the order of layers in a vector drawing - I can identify that each added object creates a new layer in the drawing - I can use layering to create an image										
			-To group objects to make them easier to work with	-I can copy part of a drawing by duplicating several objects - I can recognise when I need to group and ungroup objects - I can reuse a group of objects to further develop my vector drawing										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		-To apply what I have learned about vector drawings	-I can compare vector drawings to freehand paint drawings - I can create a vector drawing for a specific purpose - I can reflect on the skills I have used and why I have used them										
Video Production Learning Graph	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.	-To explain what makes a video effective	-I can compare features in different videos - I can explain that video is a visual media format - I can identify features of videos										
		-To identify digital devices that can record video	-I can experiment with different camera angles - I can identify and find features on a digital video recording device - I can make use of a microphone										
		-To capture video using a range of techniques	-I can capture video using a range of filming techniques - I can review how effective my video is - I can suggest filming techniques for a given purpose										
		-To create a storyboard	-I can create and save video content - I can decide which filming techniques I will use - I can outline the scenes of my video										
		-To identify that video can be improved through reshooting and editing	-I can explain how to improve a video by reshooting and editing - I can select the correct tools to make edits to my video - I can store, retrieve, and export my recording to a computer										
		-To consider the impact of the choices made when making and sharing a video	-I can evaluate my video and share my opinions - I can make edits to my video and improve the final outcome - I can recognise that my choices when										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				making a video will impact on the quality of the final outcome										
Year 6	Webpage Creation Learning Graph	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed.	-To review an existing website and consider its structure	-I can discuss the different types of media used on websites - I can explore a website - I know that websites are written in HTML										
			-To plan the features of a web page	-I can draw a web page layout that suits my purpose - I can recognise the common features of a web page - I can suggest media to include on my page										
			-To consider the ownership and use of images (copyright)	-I can describe what is meant by the term 'fair use' - I can find copyright-free images - I can say why I should use copyright-free images										
			-To recognise the need to preview pages	-I can add content to my own web page - I can evaluate what my web page looks like on different devices and suggest/make edits - I can preview what my web page looks like										
			-To outline the need for a navigation path	-I can describe why navigation paths are useful - I can explain what a navigation path is - I can make multiple web pages and link them using hyperlinks										
			-To recognise the implications of linking to content owned by other people	-I can create hyperlinks to link to other people's work - I can evaluate the user experience of a website - I can explain the implication of linking to content owned by others										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
3D Modelling Learning Graph	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.	-To recognise that you can work in three dimensions on a computer	-I can add 3D shapes to a project - I can move 3D shapes relative to one another - I can view 3D shapes from different perspectives										
		-To identify that digital 3D objects can be modified	-I can lift/lower 3D objects - I can recolour a 3D object - I can resize an object in three dimensions										
		-To recognise that objects can be combined in a 3D model	-I can duplicate 3D objects - I can group 3D objects - I can rotate objects in three dimensions										
		-To create a 3D model for a given purpose	-I can accurately size 3D objects - I can combine a number of 3D objects - I can show that placeholders can create holes in 3D objects										
		-To plan my own 3D model	-I can analyse a 3D model - I can choose objects to use in a 3D model - I can combine objects in a design										
		-To create my own digital 3D model	-I can construct a 3D model based on a design - I can explain how my 3D model could be improved - I can modify my 3D model to improve it										

Programming

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
EYFS	Junior Explorers	directions, forwards, backwards, left, right, bee-bot, programme, instruction, sequence	To be familiar with directional language	I can name directional language I can use familiar terms (forwards, backwards, left, right) I can explain how forwards and backwards are different to up and down.										
			To recognise, use and understand directional language	I can explain **What way is ↑** **What way is ↓** **What way is ←** **What way is →** I can recognise and match the word with the symbol.										
			To explore sequencing	I can give direction in a certain order. I can direct my partner using the correct terminology.										
			To program a floor robot	I can understand that a Bee-Bot needs instructions or commands. I can complete a programme of single instructions. I can clear previous programs before starting a new program.										
			To recognise that a set of instruction creates a program	I can understand and follow simple instructions. I can arrange a set of instructions in the correct order to achieve a desired outcome. I can create a sequence of instructions to direct a programmable toy										
			To program a Beebot and annotate the programme using symbols.	I can use programmable toys (e.g., Bee-Bot) to follow my instructions. I can use symbols (e.g., arrows for direction, numbers for steps) to represent each instruction in my sequence.										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				I can draw a simple representation of my program using the symbols to show the sequence of instructions they used.										
	A is for Algorithm	Instructions, follow, prediction, algorithm	To follow instructions	I can understand how to listen carefully and why listening is important. I can give simple instructions.										
			To follow instructions	I can follow instructions as part of practical activities and games. I can understand different types of instructions.										
			To learn to give simple instructions	I can learn to give simple instructions.										
			To learn that an algorithm is a set of instructions to carry out a task.	I can follow instructions and learn to debug when things go wrong. I can learn to give simple instructions I can understand that an algorithm needs to be in a specific order.										
			To predict outcomes of an algorithm	I can make predictions.										
Year 1	Moving a Robot Learning Graph	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	-To explain what a given command will do	-I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device										
			-To act out a given word	-I can follow an instruction - I can give directions - I can recall words that can be acted out										
			-To combine forwards and backwards commands to make a sequence	-I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
		-To combine four direction commands to make sequences	-I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome of a sequence involving up to four commands										
		-To plan a simple program	-I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do										
		-To find more than one solution to a problem	-I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place										
Programming Animations Learning Graph	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.	-To choose a command for a given purpose	-I can compare different programming tools - I can find which commands to move a sprite - I can use commands to move a sprite										
		-To show that a series of commands can be joined together	-I can run my program - I can use a Start block in a program - I can use more than one block by joining them together										
		-To identify the effect of changing a value	-I can change the value - I can find blocks that have numbers - I can say what happens when I change a value										
		-To explain that each sprite has its own instructions	-I can add blocks to each of my sprites - I can delete a sprite - I can show that a project can include more than one sprite										
		-To design the parts of a project	-I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move										
		-To use my algorithm to create a program	-I can add programming blocks based on my algorithm										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				- I can test the programs I have created - I can use sprites that match my design				■					■	
Year 2	Robot Algorithms Learning Graph	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	-To describe a series of instructions as a sequence	-I can choose a series of words that can be enacted as a sequence - I can follow instructions given by someone else - I can give clear instructions	■									
			-To explain what happens when we change the order of instructions	-I can show the difference in outcomes between two sequences that consist of the same commands - I can use an algorithm to program a sequence on a floor robot - I can use the same instructions to create different algorithms	■									
			-To use logical reasoning to predict the outcome of a program	-I can compare my prediction to the program outcome - I can follow a sequence - I can predict the outcome of a sequence	■								■	
			-To explain that programming projects can have code and artwork	-I can explain the choices I made for my mat design - I can identify different routes around my mat - I can test my mat to make sure that it is usable	■			■					■	
			-To design an algorithm	-I can create an algorithm to meet my goal - I can explain what my algorithm should achieve - I can use my algorithm to create a program	■			■						
			-To create and debug a program that I have written	-I can plan algorithms for different parts of a task - I can put together the different parts of my program - I can test and debug each part of the program	■			■					■	

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
	Programming Quizzes Learning Graph	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.	-To explain that a sequence of commands has a start	-I can identify that a program needs to be started - I can identify the start of a sequence - I can show how to run my program									■	
			-To explain that a sequence of commands has an outcome	-I can change the outcome of a sequence of commands - I can match two sequences with the same outcome - I can predict the outcome of a sequence of commands									■	
			-To create a program using a given design	-I can build the sequences of blocks I need - I can decide which blocks to use to meet the design - I can work out the actions of a sprite in an algorithm				■					■	
			-To change a given design	-I can choose backgrounds for the design - I can choose characters for the design - I can create a program based on the new design				■					■	
			-To create a program using my own design	-I can build sequences of blocks to match my design - I can choose the images for my own design - I can create an algorithm				■					■	
			-To decide how my project can be improved	-I can compare my project to my design - I can debug my program - I can improve my project by adding features				■					■	
Year 3	**Sequencing Sounds** Learning Graph	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord,	-To explore a new programming environment	-I can explain that objects in Scratch have attributes (linked to) - I can identify the objects in a Scratch project (sprites, backdrops) - I can recognise that commands in Scratch are represented as blocks						■			■	
			-To identify that commands have an outcome	-I can choose a word which describes an on-screen action for my plan - I can create a program following a design									■	

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
	algorithm, bug, debug, code.		- I can identify that each sprite is controlled by the commands I choose									■	
		-To explain that a program has a start	-I can create a sequence of connected commands - I can explain that the objects in my project will respond exactly to the code - I can start a program in different ways									■	
		-To recognise that a sequence of commands can have an order	-I can combine sound commands - I can explain what a sequence is - I can order notes into a sequence									■	
		-To change the appearance of my project	-I can build a sequence of commands - I can decide the actions for each sprite in a program - I can make design choices for my artwork				■					■	
		-To create a project from a task description	-I can identify and name the objects I will need for a project - I can implement my algorithm as code - I can relate a task description to a design	■	■		■					■	
Events and Actions in Programs Learning Graph	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.	-To explain how a sprite moves in an existing project	-I can choose which keys to use for actions and explain my choices - I can explain the relationship between an event and an action - I can identify a way to improve a program						■			■	
		-To create a program to move a sprite in four directions	-I can choose a character for my project - I can choose a suitable size for a character in a maze - I can program movement						■			■	
		-To adapt a program to a new context	-I can choose blocks to set up my program - I can consider the real world when making design choices - I can use a programming extension									■	
		-To develop my program by adding features	-I can build more sequences of commands to make my design work - I can choose suitable keys to turn on additional features									■	

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				- I can identify additional features (from a given set of blocks)									■	
			-To identify and fix bugs in a program	-I can match a piece of code to an outcome - I can modify a program using a design - I can test a program against a given design				■					■	
			-To design and create a maze-based challenge	-I can evaluate my project - I can implement my design - I can make design choices and justify them				■					■	
Year 4	Repetition in Shapes Learning Graph	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.	-To identify that accuracy in programming is important	-I can create a code snippet for a given purpose - I can explain the effect of changing a value of a command - I can program a computer by typing commands	■								■	
			-To create a program in a text-based language	-I can test my algorithm in a text-based language - I can use a template to create a design for my program - I can write an algorithm to produce a given outcome						■			■	
			-To explain what 'repeat' means	-I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves - I can identify patterns in a sequence - I can use a count-controlled loop to produce a given outcome	■								■	
			-To modify a count-controlled loop to produce a given outcome	-I can choose which values to change in a loop - I can identify the effect of changing the number of times a task is repeated - I can predict the outcome of a program containing a count-controlled loop									■	
			-To decompose a task into small steps	-I can explain that a computer can repeatedly call a procedure - I can identify 'chunks' of actions in the real	■								■	

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
			world - I can use a procedure in a program	■								■	
		-To create a program that uses count-controlled loops to produce a given outcome	-I can design a program that includes count-controlled loops - I can develop my program by debugging it - I can make use of my design to write a program									■	
Repetition in Games Learning Graph	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.	-To develop the use of count-controlled loops in a different programming environment	-I can list an everyday task as a set of instructions including repetition - I can modify a snippet of code to create a given outcome - I can predict the outcome of a snippet of code				■					■	
		-To explain that in programming there are infinite loops and count controlled loops	-I can choose when to use a count-controlled and an infinite loop - I can modify loops to produce a given outcome - I can recognise that some programming languages enable more than one process to be run at once	■								■	
		-To develop a design that includes two or more loops which run at the same time	-I can choose which action will be repeated for each object - I can evaluate the effectiveness of the repeated sequences used in my program - I can explain what the outcome of the repeated action should be				■					■	
		-To modify an infinite loop in a given program	-I can explain the effect of my changes - I can identify which parts of a loop can be changed - I can re-use existing code snippets on new sprites									■	
		-To design a project that includes repetition	-I can develop my own design explaining what my project will do - I can evaluate the use of repetition in a project				■					■	

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				- I can select key parts of a given project to use in my own design				■					■	
			-To create a project that includes repetition	-I can build a program that follows my design - I can evaluate the steps I followed when building my project - I can refine the algorithm in my design				■					■	
Year 5	Selection in Physical Computing Learning Graph	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	-To control a simple circuit connected to a computer	-I can create a simple circuit and connect it to a microcontroller - I can explain what an infinite loop does - I can program a microcontroller to make an LED switch on			■						■	
			-To write a program that includes count-controlled loops	-I can connect more than one output component to a microcontroller - I can design sequences that use count-controlled loops - I can use a count-controlled loop to control outputs			■						■	
			-To explain that a loop can stop when a condition is met	-I can design a conditional loop - I can explain that a condition is either true or false - I can program a microcontroller to respond to an input			■						■	
			-To explain that a loop can be used to repeatedly check whether a condition has been met	-I can explain that a condition being met can start an action - I can identify a condition and an action in my project - I can use selection (an 'if…then…' statement) to direct the flow of a program									■	
			-To design a physical project that includes selection	-I can create a detailed drawing of my project - I can describe what my project will do - I can identify a real-world example of a condition starting an action			■	■					■	
			-To create a program that controls a physical computing project	-I can test and debug my project - I can use selection to produce an intended			■	■					■	

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				outcome - I can write an algorithm that describes what my model will do										
	Making Quizzes Learning Graph	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator	-To explain how selection is used in computer programs	-I can identify conditions in a program - I can modify a condition in a program - I can recall how conditions are used in selection										
			-To relate that a conditional statement connects a condition to an outcome	-I can create a program with different outcomes using selection - I can identify the condition and outcomes in an 'if... then… else...' statement - I can use selection in an infinite loop to check a condition										
			-To explain how selection directs the flow of a program	-I can design the flow of a program which contains 'if… then… else…' - I can explain that program flow can branch according to a condition - I can show that a condition can direct program flow in one of two ways										
			-To design a program which uses selection	-I can identify the outcome of user input in an algorithm - I can outline a given task - I can use a design format to outline my project										
			-To create a program which uses selection	-I can implement my algorithm to create the first section of my program - I can share my program with others - I can test my program										
			-To evaluate my program	-I can extend my program further - I can identify the setup code I need in my program - I can identify ways the program could be improved										
Ye	Variables in Games	variable, change, name, value, set, design,	-To define a 'variable' as something that is changeable	-I can explain that the way a variable changes can be defined										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
Learning Graph	event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare		- I can identify examples of information that is variable - I can identify that variables can hold numbers or letters										
		-To explain why a variable is used in a program	-I can explain that a variable has a name and a value - I can identify a program variable as a placeholder in memory for a single value - I can recognise that the value of a variable can be changed										
		-To choose how to improve a game by using variables	-I can decide where in a program to change a variable - I can make use of an event in a program to set a variable - I can recognise that the value of a variable can be used by a program										
		-To design a project that builds on a given example	-I can choose the artwork for my project - I can create algorithms for my project - I can explain my design choices										
		-To use my design to create a project	-I can choose a name that identifies the role of a variable - I can create the artwork for my project - I can test the code that I have written										
		-To evaluate my project	-I can identify ways that my game could be improved - I can share my game with others - I can use variables to extend my game										
Sensing Movement Learning Graph	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction,	-To create a program to run on a controllable device	-I can apply my knowledge of programming to a new environment - I can test my program on an emulator - I can transfer my program to a controllable device										
		-To explain that selection can control the flow of a program	-I can determine the flow of a program using selection - I can identify examples of conditions in the										

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
	navigation, design, task, algorithm, step counter, plan, create, code, test, debug.		real world - I can use a variable in an if, then, else statement to select the flow of a program										
		-To update a variable with a user input	-I can experiment with different physical inputs - I can explain that checking a variable doesn't change its value - I can use a condition to change a variable										
		-To use a conditional statement to compare a variable to a value	-I can explain the importance of the order of conditions in else, if statements - I can modify a program to achieve a different outcome - I can use an operand (e.g. <>=) in an if, then statement										
		-To design a project that uses inputs and outputs on a controllable device	-I can decide what variables to include in a project - I can design the algorithm for my project - I can design the program flow for my project										
		-To develop a program to use inputs and outputs on a controllable device	-I can create a program based on my design - I can test my program against my design - I can use a range of approaches to find and fix bugs										

Data and Information

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
EYFS	Introduction to Data	sort, categorise, objects, pictogram, popular, branch database	To sort and categorise objects.	I can sort and categorise objects. I can use language related to sorting and categorising.										
			To sort into objects upon a given category.	I can sort myself in relation to others (e.g. smallest to tallest, eye colour) I can work with others to sort and organise ourselves. I can choose my own category to sort a group of my peers.										
			To response to yes/no questions	I can answer a question with yes by listening carefully. I can answer a question with no by listening carefully.										
			To explore and understand the concept of branch databases	I can record my results. I can explain ways of sorting. I can identify a way of sorting is called a branch database										
			To interpret a basic pictogram	I can draw a simple picture of each fruit. I can answer questions using yes or no. I can identify which fruit is the most popular. I can identify which fruit is the least popular.										
Year 1	Grouping Data Learning Graph	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	-To label objects	-I can describe objects using labels - I can identify the label for a group of objects - I can match objects to groups										
			-To identify that objects can be counted	-I can count a group of objects - I can count objects - I can group objects										
			-To describe objects in different ways	-I can describe an object - I can describe a property of an object - I can find objects with similar properties										
			-To count objects with the same properties	-I can count how many objects share a property										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				- I can group objects in more than one way - I can group similar objects										
			-To compare groups of objects	-I can choose how to group objects - I can describe groups of objects - I can record how many objects are in a group										
			-To answer questions about groups of objects	-I can compare groups of objects - I can decide how to group objects to answer a question - I can record and share what I have found										
Year 2	Pictograms Learning Graph	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	-To recognise that we can count and compare objects using tally charts	-I can compare totals in a tally chart - I can record data in a tally chart - I can represent a tally count as a total										
			-To recognise that objects can be represented as pictures	-I can enter data onto a computer - I can use a computer to view data in a different format - I can use pictograms to answer simple questions about objects										
			-To create a pictogram	-I can explain what the pictogram shows - I can organise data in a tally chart - I can use a tally chart to create a pictogram										
			-To select objects by attribute and make comparisons	-I can answer 'more than'/'less than' and 'most/least' questions about an attribute - I can create a pictogram to arrange objects by an attribute - I can tally objects using a common attribute										
			-To recognise that people can be described by attributes	-I can choose a suitable attribute to compare people - I can collect the data I need - I can create a pictogram and draw conclusions from it										
			-To explain that we can present information using a computer	-I can give simple examples of why information should not be shared - I can share what I have found out using a computer										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				- I can use a computer program to present information in different ways					■	■				■
Year 3	**Branching Databases** Learning Graph	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.	-To create questions with yes/no answers	-I can create two groups of objects separated by one attribute - I can investigate questions with yes/no answers - I can make up a yes/no question about a collection of objects					■					
			-To identify the attributes needed to collect data about an object	-I can arrange objects into a tree structure - I can create a group of objects within an existing group - I can select an attribute to separate objects into groups					■					
			-To create a branching database	-I can group objects using my own yes/no questions - I can select objects to arrange in a branching database - I can test my branching database to see if it works					■	■				
			-To explain why it is helpful for a database to be well structured	-I can compare two branching database structures - I can create yes/no questions using given attributes - I can explain that questions need to be ordered carefully to split objects into similarly sized groups				■	■	■				
			-To plan the structure of a branching database	-I can create a physical version of a branching database - I can create questions that will enable objects to be uniquely identified - I can independently create questions to use in a branching database					■	■				
			-To independently create an identification tool	-I can create a branching database that reflects my plan - I can suggest real-world uses for branching				■	■					

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
				databases - I can work with a partner to test my identification tool										
Year 4	Data Logging Learning Graph	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	-To explain that data gathered over time can be used to answer questions	-I can choose a data set to answer a given question - I can identify data that can be gathered over time - I can suggest questions that can be answered using a given data set										
			-To use a digital device to collect data automatically	-I can explain what data can be collected using sensors - I can identify that data from sensors can be recorded - I can use data from a sensor to answer a given question										
			-To explain that a data logger collects 'data points' from sensors over time	-I can identify the intervals used to collect data - I can recognise that a data logger collects data at given points - I can talk about the data that I have captured										
			-To recognise how a computer can help us analyse data	-I can explain that there are different ways to view data - I can sort data to find information - I can view data at different levels of detail										
			-To identify the data needed to answer questions	-I can plan how to collect data using a data logger - I can propose a question that can be answered using logged data - I can use a data logger to collect data										
			-To use data from sensors to answer questions	-I can draw conclusions from the data that I have collected - I can explain the benefits of using a data logger - I can interpret data that has been collected using a data logger										

	Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
					AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
Year 5	Flat File Databases Learning Graph	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	-To use a form to record information	-I can create a database using cards - I can explain how information can be recorded - I can order, sort, and group my data cards					■	■				
			-To compare paper and computer-based databases	-I can choose which field to sort data by to answer a given question - I can explain what a field and a record is in a database - I can navigate a flat-file database to compare different views of information				■	■					
			-To outline how you can answer questions by grouping and then sorting data	-I can combine grouping and sorting to answer specific questions - I can explain that data can be grouped using chosen values - I can group information using a database					■					
			-To explain that tools can be used to select specific data	-I can choose multiple criteria to answer a given question - I can choose which field and value are required to answer a given question - I can outline how 'AND' and 'OR' can be used to refine data selection					■	■				
			-To explain that computer programs can be used to compare data visually	-I can explain the benefits of using a computer to create charts - I can refine a chart by selecting a particular filter - I can select an appropriate chart to visually compare data					■	■				
			-To use a real-world database to answer questions	-I can ask questions that will need more than one field to answer - I can present my findings to a group - I can refine a search in a real-world context					■	■				
Year	Spreadsheets	data, collecting, table, structure, spreadsheet, cell, cell reference,	-To create a data set in a spreadsheet	-I can collect data - I can enter data into a spreadsheet - I can suggest how to structure my data					■					

Unit Name	Vocabulary	Learning Objective	Substantive Knowledge/Success Criteria	Taxonomy									
				AL	CM	CS	DD	DI	ET	IT	NW	PG	SS
Learning Graph	data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.	-To build a data set in a spreadsheet	-I can apply an appropriate format to a cell - I can choose an appropriate format for a cell - I can explain what an item of data is					■					
		-To explain that formulas can be used to produce calculated data	-I can construct a formula in a spreadsheet - I can explain which data types can be used in calculations - I can identify that changing inputs changes outputs					■	■			■	
		-To apply formulas to data	-I can apply a formula to multiple cells by duplicating it - I can calculate data using different operations - I can create a formula which includes a range of cells					■	■			■	
		-To create a spreadsheet to plan an event	-I can apply a formula to calculate the data I need to answer questions - I can explain why data should be organised - I can use a spreadsheet to answer questions					■	■				
		-To choose suitable ways to present data	-I can produce a chart - I can suggest when to use a table or chart - I can use a chart to show the answer to questions		■			■	■				

Adapting the Computing Curriculum

The Computing Curriculum has been written to support all pupils, with units containing a number of scaffolding activities and utilising effective pedagogies to ensure high quality teaching. However, adaptations may need to be made to enable some pupils, for example those with special educational needs and disabilities (SEND), to access lessons fully. The following principles can be used to help make adaptations that benefit all learners. It is important therefore to identify the needs pupils need support with. For example – A child has poor working memory that means that following instructions is more difficult.

1. Identify essential learning and misconceptions: Determine the key learning in each unit that every child should know. Provide repeated opportunities for pupils to revisit this content in different ways. Identify any likely misconceptions and address these explicitly in lessons. For example, in the year 1 Moving a Robot unit, pupils might struggle with right and left turns and what this looks like for the Bee-Bot, so it is worth spending extra time modelling and practising this.

2. Pre-teach key vocabulary: Pre-teach the essential vocabulary for each unit, provide learners with a word list supported by images and use the vocabulary regularly throughout the unit with a consistent definition. Concentrate on a small number of terms and consider using a graphic organiser to highlight relationships between concepts, e.g. the Frayer model.

3. Create step-by-step instructions: Break down complex tasks and routine skills for using software and hardware into smaller steps and create pictorial instructions for children to follow. For example, in the year 2 Digital Music unit, you can adapt the Chrome Music Lab song maker help card handout to create a sequence of instructions for making their own composition.

4. Provide templates: In Creating Media or Data & Information unts, support task completion by providing a template for pupils to modify – removing the fear of the blank page and helping to build confidence. For example, in the year 2 Pictograms unit, pupils can continue to use the minibeast template rather than set up their own pictogram.

5. Consider non-computing barriers: Consider if difficulties in other areas, such as writing or maths, present barriers to completing a task and if so, modify the task to help mitigate these. For example, in the 'What can you tell me' task within the year 2 Pictograms unit, allow pupils to dictate sentences into a digital version of the worksheet rather than writing them down.

6. Use the PRIMM framework or Parson's problems: In programming units, add extra scaffolding using PRIMM and Parson's problems (A Parson's Problem is a task in which learners are given all of the blocks or lines of code needed to solve a problem, however, the lines have been jumbled so that they are no longer in the correct order. Learners are asked to reorganise the code into the correct order to perform a specific task.). Some pupils may not be able to create a program, but they can practise reading and exploring code in a working program, then modify it to make it more personalised. For example, in the year 1 Programming Animations unit you could provide learners with the code to make the rockets move as a Parson's problem to put together in the correct order. The aim is to remove these scaffolds as children develop their skills, but some learners may not become fully independent.

7. Harness pupils' special interests: Increase engagement and make learning more relevant by incorporating pupils' special interests. This is also important in terms of culturally relevant pedagogy. For example, in the year 1 Programming Animations unit, pupils could make different animals race, or another form of transport.

8. Use unplugged activities and the semantic wave: We can use unplugged activities to help make computing concepts more relevant and understandable for learners. However, it is very important to 'repack' the knowledge of the abstract concept so that learners understand what it means in a wider context and they can use the technical language. For example, in the year 1 Moving a Robot unit pupils work in pairs to develop their understanding of algorithms. One pupil directs their 'robot' partner by giving precise instructions on where to move. Children then need to see the link between instructing their 'robot' partner and how this transfers to pressing buttons on a Bee-Bot, whilst also practising using the key language in context. Pupils with SEND may need repeated examples and smaller steps to repack the knowledge.

9. Support planning: Break down the planning process into smaller parts which can be ticked off as each one is completed, and provide a planning scaffold for learners where required. For example, when planning out algorithms for the Bee-Bot, use a scaffold with the clear and go commands already included and provide command cards to slot into the gaps in between.

10. Reinforce digital skills: A significant barrier to accessing the whole computing curriculum is a lack of key digital skills, for example being able to log on to a computer and use the keyboard effectively. Time spent revisiting digital skills across all units is important to develop fluency. Some pupils may also benefit from extra time to practise these skills in small groups, or may need image-supported help sheets to support specific repeated tasks, such as saving work.

It is important that your adaptations are informed by effective formative assessment to identify any gaps in learning and the approach which may support with these. A further resource which can support you is the Universal Design for Learning Framework from CAST which outlines a number of approaches to include all learners in lessons by providing multiple means of engagement, representation, action and expression.

The 6Cs and Computing

How our 6Cs will be evident through our computing curriculum		
Character	Citizenship	Communication
Children will develop perseverance and resilience, solving real-world problems and debugging their solutions.	Children will learn to use technology safely and responsibly. They will use technology to learn about issues affecting their community and the wider world. They will design technological solutions to real-world problems.	Children will use IT to present and communicate their learning. They will use internet technologies to communicate, adapting their modes of communication appropriately.
Collaboration	Creativity	Critical thinking
Children will work collaboratively to solve problems and design digital artefacts. They will make use of communications technologies to collaborate more effectively.	Children will be given lots of opportunities to identify problems, and then have chance to design and make programs and digital artefacts that solve them, incorporating their knowledge of algorithms and programming.	Children will use the processes of Computational thinking to logically analyse and solve real-world problems. They will learn to evaluate the reliability of information they find online and analyse it critically.