Progression of Knowledge - Computing

	Prior Learning	Knowledge at the end of the topic	Vocabulary
Rec Aut	Experience in every day life of when: automatic doors, hand driers. Scanning prices at the supermarket. The streetlights come on automatically when it gets dark.	Children can Interact with adults and their peers and explore their environment using Cameras and ipads to capture still and moving images.	Tablet Camera record
Rec Spr	Interact with screens e.g. tablets, phones.	Children can experiment with programs on screens, tablets or interactive white board to communicate their ideas. Children can explore ways of making and listening to sounds using simple apps or recording devices like talk tins	Tablet Record screen
Rec Sum	Children listen to music and stories on audio devices. Children use remote controls within their homes	Children can talk about their online world and work as part of a group or class and understand and follow the rules. Children can make a simple programmable toy move. Children can plan their own simple routes using forward and turning arrows.	E safety Controller Route
Year 1 – Aut 1 Computing systems and networks - Technology around us: To recognise	Children can Interact with adults and their peers and explore their environment using Cameras and ipads to capture still and moving images.	Technology around us • To know that technology helps us. • To know different types of technology. • To know the main parts of a computer.	Technology Computer Keyboard Mouse Screen

technology in school and using it responsibly.		• To be able to use a keyboard and mouse. • To know how to use technology safely.	
Year 1 – Aut 2 Creating Media - Digital painting - Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	Children can experiment with programs on screens, tablets or interactive white board to communicate their ideas.	Digital painting • To know that computers can be used to create art. • To know how to use shape, fill and line tools and select different colours to create a piece of art. • To know the difference between painting on a computer and painting with brushes.	Art Tools Paint Filter Brush Mouse Keyboard brush
Year 1 – Spr 1 Programming A - Moving a robot: Writing short algorithms and programs for floor robots, and predicting program outcomes.	Children can make a simple programmable toy move.	Moving a robot: • To know commands that can be used on a device. • To know how to put commands together to make a program. • To build a sequence of commands to make a program. • To be able to spot an error in a simple program and correct.	Commands Sequence Error Program Algorythm
Year 1 – Data and Information – Spr 2 - Grouping data:	Children put objects into their own groups giving reasons for their choices.	Grouping data: • To know attributes of different objects. • To know how group sets of objects into different labels.	Properties Sort Attributes Data

Exploring object labels, then using them to sort and group objects by properties		• To know that objects can be grouped according to different attributes.	
Year 1 – Creating Media – Sum 1 - Digital writing: Using a computer to create and format text, before comparing to writing non-digitally.	Children can experiment with programs on screens, tablets or interactive white board to communicate their ideas.	Digital writing: • To know that a keyboard enters text onto a computer. • To know how to use the shift key. • To know how to change text and change the appearance of text. • To know how to delete text and use undo.	Media Word Word Processing Format Font Text
Year 1- Programming B – Sum 2 - Programming animations: Designing and programming the movement of a character on screen to tell stories.	Children can plan their own simple routes using forward and turning arrows.	Programming animations: • To know how to move Sprites on screen. • To know a range of commands that can be used to move a Sprite. • To be able to put together a range of commands to run a program.	Sprites Commands Program
Year 2- Computing systems and networks -	Technology around us: To recognise technology in school and using it responsibly.	Information technology around us: • To know and recognise different computers in school.	Information Technology System Computer E-safety

Information technology around us: Identifying IT and how its responsible use improves our world in school and beyond.		- To know that a computer is part of information technology. - To know and recognise IT within school and outside of school. - To know how IT helps us. - To know how rules about IT can help us and keep us safe.	
Year 2 – Creating media - Digital photography: Capturing and changing digital photographs for different purposes.	Digital painting: Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	Digital photography: - To know how to take a photo with a digital device. - To know how to take a good photograph. - To know how to change a photograph once it has been taken.	Art Tools Photograph Digital Camera Edit
Year 2 – Programming A - Robot algorithms: Creating and debugging programs, and using logical reasoning to make predictions.	Moving a robot: Writing short algorithms and programs for floor robots, and predicting program outcomes.	Robot algorithms: - To know that a series of instructions is a sequence. - To know the outcome of a program by looking at the commands. - I know how to design algorithms, test them and then debug them.	Commands Sequence Error Program Algorythm Instruction Debug

Year 2 – Data and Information - Pictograms: Collecting data in tally charts and using attributes to organise and present data on a computer	Grouping data: Exploring object labels, then using them to sort and group objects by properties	Pictograms: • I know how to use a tally chart to collect data. • To know that people and animals can be described by different attributes. • To know how to show and present data in pictogram form. • To know some information that should not be shared.	Properties Sort Attribute Data Tally Chart Pictogram E-safety
Year 2 - Creating media - Making music: Using a computer as a tool to explore rhythms and melodies, before creating a musical composition	Digital writing: Using a computer to create and format text, before comparing to writing non-digitally.	Making music: • To know that humans make music. • To identify that there are patterns in music. • I know that music is a sequence of notes. • To know how to use a computer to create music for a purpose.	Rhythm Melody Composition Media Patterns Notes sequence
Year 2 - Programming B - Programming quizzes: Designing algorithms and programs that use events to trigger sequences of code to make	Programming animations: Designing and programming the movement of a character on screen to tell stories.	Programming quizzes: • I know how to predict the outcome of a sequence of commands. • I know how to change the outcome of a sequence of commands. • I know how to work out what will be the actions of a sprite in an algorithm. • I know how to change the background and characters on a design to create a new design.	Sequence Commands Edit Sprite Program Algorithm Design

an interactive quiz.			
Year 3 - Computing Systems and networks - Connecting computers: Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	Information technology around us: Identifying IT and how its responsible use improves our world in school and beyond.	Connecting computers: • I know that digital devices accept inputs and produce outputs. • I can recognise a range of input devices. • I know the role of a switch, server and wireless access point in a network. • I can recognise digital and non digital devices. • I know that a computer network is made up of a number of devices. • I can identify networked devices in school.	Inputs Processes Outputs Device Network Switch Server Wireless access point Digital
Year 3 –Creating Media - Stop-frame animation: Capturing and editing digital still images to produce a stop-frame animation that tells a story	Digital photography: Capturing and changing digital photographs for different purposes.	Stop-frame animation: • I know that an animation is made up of a sequence of images. • I know that a capturing device needs to be in a fixed position. • I know how an onion skinning tool can be used to review subject position. • I know how to remove frames in an animation. • I know how to add media to enhance an animation. • I know how to export an animation.	Capturing Editing Stop-frame animation Animation Export

Year 3- Programming A - Sequencing sounds: Creating sequences in a block-based programming language to make music.	Robot algorithms: Creating and debugging programs, and using logical reasoning to make predictions.	Sequencing sounds: • Know that a program includes sequences of commands. • To know that the sequence of a program is a process. • I know how to order commands in a program. • I know how to create a sequence of commands to create sounds when keys are pressed. • To know how to adapt a piece of music.	Block based programming Sequence Algorithm Creating Debugging Process adapt
Year 3 –Data and information - Branching databases: Building and using branching databases to group objects using yes/no questions.	Pictograms: Collecting data in tally charts and using attributes to organise and present data on a computer	Branching databases: • I know how to produce yes or no answers about the attribtes of an object. • I know how to select an attribute to separate two objects. • I know how to retrieve information from a branching database. • To be able to use the AND command to relate to two levels of a branching database.	Branching databases Data Attribute Retrieve
Year 3 - creating Media - Desktop publishing: Creating documents by modifying text, images, and page layouts for a	Making music: Using a computer as a tool to explore rhythms and melodies, before creating a musical composition	Desktop publishing: • I know how to add placeholders to a document. • I know how to add text and images (including rotating and resizing) to a document. • I know how to design different layouts to suit different purposes.	Desktop Publishing Modify Image Layout Tool Rhythm Melody Composition

specified purpose.			Placeholder Rotate resize
Year 3- Programming B - Events and actions in programs: Writing algorithms and programs that use a range of events to trigger sequences of actions.	Programming quizzes: Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.	Events and actions in programs: • I know what a sequence is. • I know that a program includes sequences of commands. • I know the relationship between an event and an action. • I know how to match a piece of code to an outcome.	Algorithm Code Interactive Event Action outcome
Year 4 - Computing systems and networks - The internet: Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Connecting computers: Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	The internet: • I know the internet is a global network of networks. • Know that the world wide web is made of websites and webpages. • Know the function of routers. • Know then function of a web browser. • Know that some websites allow you to create your own content where others don't. eg. Scratch, Newsround. • To know why security is needed on the internet and begin to know about the reliability of content.	Internet Network System Webpage Routers Web browser Securtity Internet safety

Year 4 – Creating Media - Audio editing: Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Stop-frame animation: Capturing and editing digital still images to produce a stop-frame animation that tells a story	Audio editing: - Know how to record their voice and ensure the recording is clear. - Know that output devices are needed to play audio. - I know how to edit the length of a sound clip to remove unneeded sounds. - I know how to add background music at an appropriate volume.	Media Audio Capturing Editing Stop-frame animation Record Output device
Year 4 – Programming A - Repetition in shapes: Using a text-based programming language to explore count-controlled loops when drawing shapes.	Sequencing sounds: Creating sequences in a block-based programming language to make music.	Repetition in shapes: - I know how to make repeating patterns. - I know how to use pen up and pen down commands. - I know how to use simple loops to repeat sequences. - I know the difference between infinite loops and count controlled loops. - I know how to debug a program. - To know why loops are used.	Repeat Loop Pen up and pen down Infinite loop Count controlled loop Debug
Year 4 – Data And information - Recognising how and why data is collected over time, before using data	Branching databases: Building and using branching databases to group objects using yes/no questions.	Data logging: - Know a range of different sensors that can be used with a computer. - Know that different sensors can be used as input devices.	Data Information Database Sensors Input device Table graph

loggers to carry out an investigation.		• Know that data can be collected instantly and also over a period of time. • To know how to present data on a computer in a table or as a graph.	
Year 4 – Creating Media - Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	Desktop publishing: Creating documents by modifying text, images, and page layouts for a specified purpose.	Photo editing: • Know how to combine two images. • I know that computer images can be changed and some images are fake. • I know how to rotate, flip and crop images. • I know how apply filters and effects to a photograph to change how it looks. • I know how to draw, add text and borders to a photograph.	Media Manipulate Digital image Modify Layout Combine Rotate Flip crop
Year 4- Programming B - Repetition in games: Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	Events and actions in programs: Writing algorithms and programs that use a range of events to trigger sequences of actions.	Repetition in games: • I know how to create an algorithm show, hide and move blocks. • I know the difference between infinite loops and count controlled loops. • I know how to modify loops. • I know when to choose an infinite loop and when to use a count-controlled loop.	Block based programming Count controlled loop Infinite loop Algorithm
Year 5 - Computing	The internet: Recognising the internet as a network of networks including the	Sharing information:	

systems and networks - Sharing information: Identifying and exploring how information is shared between digital systems.	WWW, and why we should evaluate online content.	- I know that computers can be part of a system in an electronic device. - I know that computers can communicate with other devices. - I know how information is transferred across the internet. - I know that data is transferred in packets. - I know that connections between computers allow us to work together.	
Year 5 – Creating Media - Video editing: Planning, capturing, and editing video to produce a short film.	Audio editing: Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Video editing: - I know how to plan a storyboard to plan a video production. - I know that digital devices can capture video using a camera. - I know how to pan left and right and tilt up and down. - I know that video can be improved through editing. - I can edit a section of video by splitting, deleting and applying effects. - I know how to identify the features of a good video.	
Year 5 – Programming A - Selection in physical computing:	Repetition in shapes: Using a text-based programming language to explore count-controlled loops when drawing shapes.	Selection in physical computing: - I know how to create a simple circuit connected to a computer. - I know the difference between a count-controlled loop and a condition-controlled loop.	

		• I know how to use an if... then... statement to create a condition-controlled loop.	
Year 5 – Data and Information - Flat-file databases: Using a database to order data and create charts to answer questions	Data logging: Recognising how and why data is collected over time, before using data loggers to carry out an investigation.	Flat-file databases: • I know that a database exists on a computer and its purpose is to organise data so information can be searched and sorted. • Know the difference between an AND and OR search. • Know the advantages of creating a graph using a computer. • To know how to answer questions through the use of a database.	record field
Year 5 –Creating media - Vector drawing: Creating images in a drawing program by using layers and groups of objects.	Photo editing: Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	Vector drawing: • Know that a vector drawing comprises separate objects. • Know how to add object to a vector drawing. • Know how to work in layers. • Know how to use alignment and size guides. • Know that vector images can be scaled without loss of quality.	
Year 5 – Programming B - Selection in quizzes:	Repetition in games: Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	Selection in quizzes: • Know that a loop can stop when a condition is met. • Know that program flow can branch according to a condition.	

Exploring selection in programming to design and code an interactive quiz.		• Know how to modify a count-controlled or event –controlled loop. • Know how to use an if... then... statement to produce an outcome. • Know that a loop can be used repeatedly until a condition is met.	
Year 6 – Computing Systems and networks - Internet communication: Recognising how the WWW can be used to communicate and be searched to find information	Sharing information: Identifying and exploring how information is shared between digital systems.	Internet communication: • Know why search engines exist and know there are a number of search engines and compare results from different ones. • Know that search terns need to be chosen carefully. • Know the role of web crawlers. • Know that search results are ordered and this is known as ranking. • Know that some information isn't searchable. •	
Year 6 – Creating media - Internet communication: Recognising how the WWW can be used to communicate and be searched to find information	Video editing: Planning, capturing, and editing video to produce a short film.	Webpage creation: • Know the relationship between HTML and visual display. • Know that web pages can contain different media types. • Know that web pages are written by people. • Know that a website is a series of hyperlinked web pages.	

		• Know how to create a web page with altered text, embedded media and hyperlinks. • Know about using copyrighted material.	
Year 6 – Programming A - Variables in games: Exploring variables when designing and coding a game.	Selection in physical computing: Exploring conditions and selection using a programmable microcontroller.	Variables in games: • Know that a variable is something that is changeable. • Know how to define a variable. • Know that a variable can be used by a program. • Know that a variable can change value or can be fixed. • Use a variable in a conditional loop.	
Year 6 – Data and information - Introduction to spreadsheets: Answering questions by using spreadsheets to organise and calculate data.	Flat-file databases: Using a database to order data and create charts to answer questions	Introduction to spreadsheets: • Know that there are different software tools to work with data. • Know that formulas can be used to produce calculated data. • Know that data can be calculated using different operations. • Know that changing inputs will change outputs. • Know how to duplicated formulas.	
Year 6 – Creating Media - 3D modelling: Planning, developing, and evaluating 3D computer models	Vector drawing: Creating images in a drawing program by using layers and groups of objects.	3D modelling: • Know how to create 3D objects using a computer program and be able to duplicate them. • Know the differences when working in 2D and 3D.	

of physical objects.		• Know how to re-size, rotate, re-colour objects in 3D. • Know how to group objects.	
Year 6- Programming B - Sensing: Designing and coding a project that captures inputs from a physical device.	Selection in quizzes: Exploring selection in programming to design and code an interactive quiz.	Sensing: • Know what a variable is know that it is changeable. • Know examples of information that is variable eg. Football score. • Know how to define a variable with a name and value for letters (strings) and numbers (integers). • Know how to see variables in existing programs. • Know how to choose appropriate names for variables and know that these need to be unique. • Know that the value of variable can change.	