Computing Progression Document – Based on NCCE curriculum document

	By the end of Year 2 pupils should be able to/know:	By the end of Year 4 pupils should be able to/know:	By the end of Year 6 pupils should be able to/know:
Programming	• Begin to understand an algorithm is a set of instructions to achieve a specific purpose • Describe a series of instructions as a sequence • Combine forwards and backwards commands to make a sequence • Combine four direction commands to make sequences • Combine four directions commands to make increasingly more complex sequences • Understand that we control computers by giving them instructions • Explain that a sequence of commands has an outcome • Understand that computers have no intelligence and we have to program them to do things • Choose a command for a given purpose • Explain that a sequence of commands has a start • Show a series of commands can be joined together • Explain what happens when we change the order of commands • Understand that the order of instructions in an algorithm is important • Understand that instructions in an algorithm need to be in order, clear and unambiguous • Give a sequence of instructions to a floor robot. The length of programs increasing over the course of the year. • Begin to debug instructions when floor robot does not reach the intended destination • Create a simple program on screen, correcting any errors, with a particular goal or purpose in mind (e.g. drawing a shape or moving a sprite from one place to another). • Use the word debug to correct mistakes in an algorithm	• Create a sequence of commands using a block language to produce a given outcome • Debug errors to accomplish specific goal • Work with others to decompose a problem into smaller steps in planning a project • Plan a program using a block language which includes appropriate loops to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goal • Independently decompose a problem into smaller steps in planning a project • Explain the order (sequence) of commands can affect the outcome (same commands, different order -> same or different outcome) • Identify different sequences can achieve the same outcome • Explain simple, sequence -based algorithm independently • Use logical reasoning to detect errors in programs • Identify patterns (repetition) in a sequence • Understand repetition in programming is also called looping • Identify a loop in a program • Understand, identify and justify when to use 'infinite' or 'count - controlled' loops • Explain the importance in instruction order in a loop • Explain an algorithm using sequence and repetition independently • Use logical reasoning to detect and correct errors in programs	• Plan a program which includes selection to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goal • Plan a program which includes variables to produce a given outcome • Debug errors in increasingly complex programs to accomplish specific goal • Plan a solution to a problem using decomposition • Solve problems using decomposition, tackling each part separately • Define that conditional statements (selection) are used in computer programs • Explain a loop can stop when a condition is met (number of times or event) • Explain a that program flow can branch according to a condition • Use a condition in an if…then… statement to produce a given outcome • Explain an algorithm using sequence, repetition and selection independently • Use logical reasoning to detect errors in increasingly complex programs • Define 'variable' as something that is changeable • Explain that a variable has a name and a value • Identify a variable in an existing program • Use a variable in a conditional statement to control the flow of a program • Clearly and concisely explain algorithms using sequence, repetition, selection and variables independently • Use logical reasoning to detect errors in increasingly complex programs

		• Evaluate the success of an algorithm • Begin to predict what will happen for a short sequence of instructions in a program • Understand that we control computers by giving them instructions • Predict the outcome of a sequence • Compare prediction to the program outcome		
Information Technology	Digital Research	N/A	• Search for information in a single site • Understand that search engines select pages according to keywords found in the content • Use a standard search engine to find information • Understand that search engines rank pages according to relevance	• Use filters to make more effective use of a standard search engine • Understand that search engines use a cached copy of the crawled web to select and rank results • Use of a range of search engines appropriate to finding information that is required • Understand that search engines rank pages based on the number and quality of inbound link
	Text	• Identify and find keys on a keyboard • Identify and find keys on a keyboard with increased confidence and speed • Type capital letters • Add and remove text using basic typing skills (including use of space bar, backspace to delete and basic, age appropriate punctuation) • Change font, style (bold, italic and underline) and size of text • Save work to the appropriate location (hard drive and Google Drive) • Save, print, retrieve and edit work from appropriate location (hard drive and Google Drive) independently • Begin to print, retrieve and edit work, with support • Upload images or movies to appropriate place (hard drive and Google Drive), with support	• Combine text and images to share a message • Consider how different layouts can suit different purposes • Type with increased confidence and speed using age appropriate punctuation • Use return to create paragraphs • Change orientation of text • Wrap text around an image • Recognise a document can be formatted with placeholders	• Recognise components of a webpage layout • Create a webpage including text, images, hyperlinks and embedded content • Understand the need for a navigation path
	Image	• Create/edit a drawing using a range of 'tools' such as brushes, pens, eraser, stamps and shapes, and set the size, colour and shape; • Add and resize images (including insert clip art/copy & paste an image)	• Change orientation of images • Use a computer to (further) manipulate images • Recognise images can be changed for different purposes	• Recognise an image is comprised of separate objects • Add, remove, modify and combine objects to create graphical drawing on a computer • Recognise objects are layered

		• Explain why tools were chosen and used • Capture/edit photograph using a range of 'tools'	• Use the most appropriate tool for a particular purpose • Consider the impact of changes made on the quality of the image	• Recognise that objects can be modified in groups • Consider the impact of choices made • Create 3D graphical objects on a computer • Alter the view of a 3D space • Modify 3D objects • Combine 3D objects to create desired effect • Apply blank 3D objects as placeholders to create holes
	Multimedia	• Use software to create and edit digital music for a purpose • Explain and begin to justify why tools were chosen and used	• Understand animation is a sequence of drawings or photographs • Relate animated movement with a sequence of images • Plan an animation • Review and improve an animation • Evaluate the impact of adding other media to an animation • Press/tap buttons to start and stop recordings • Recognise recorded audio is stored as a file • Edit and alter recorded audio • Layer sounds • Save/export an audio file • Consider the results of editing choices made	• Identify the features of a good video • Plan a video production using a story board • Use a computer to make a video • Recognise a video can be improved through editing • Consider the impact of changes made on the quality of the video
	Data Handling	• Label objects • Identify that objects can be counted • Count objects with same properties • Compare groups of objects • Describe objects in different ways • Recognise that objects can be counted and compared using tally charts • Select objects by attribute and make comparisons • Recognise objects can be represented as pictures • Create a pictogram • Explain that information can be presented using a computer	• • Identify object attributes needed to collect relevant data • Create a branching database • Identify objects using a branching database • Compare information shown in a pictogram with a branching database • Explain that data can be used to answer questions • Collect data using a digital device • Recognise that a sensor can be used as an input device for data collection • Use a larger data set to find information • Use a computer program to sort data by one attribute • Export information and present data in a table and a graph	• Use a form to collect information • Navigate a flat -file database • Apply knowledge of a database to ask and answer real -world questions • Design a structure for a flat -file database • Choose tools to select and analyse data to answer questions • Select an appropriate graph to visually compare data • Choose suitable ways to present information • Identify questions that can be answered using data • Create a spreadsheet for a purpose • Apply a formula that can be used to produce calculated data

				• Recognise data can be calculated using different operations • Evaluate results in comparison to the question asked • Choose suitable ways to presents data
Digital Literacy	Online Safety		• See separate document for Digital Literacy using Common Sense Media	
	Computing Systems and Networks	• Identify technology • Identify a computer and its main parts • Use a mouse in different ways • Identify information technology in the home • Identify information technology beyond school • Explain how information technology benefits us • Recognise the uses and features of information technology • Continue to practise mouse skills independently	• Explain how a computer network can be used to share information • Explore how digital devices can be connected • Recognise the physical components of a network • Explain how digital devices function • Identify input and output devices • Describe how networks physically connect to other networks • Recognise how networked devices make up the internet • Describe how content can be added and accessed on the World Wide Web • Recognise how the content of the WWW is created and shared by people • Describe the current limitations of World Wide Web media	• Explain that computers can be connected together to form systems • Recognise the role of computer systems in our lives • Recognise how information is transferred over the internet • Explain how sharing information online lets people in different places work together • Contribute to a shared project online • Evaluate different ways of working together online