Windermere Primary School

Progression map: Computing							
Intent: The computing curriculum has undergone enormous changes in recent years. At Windermere we recognise the importance of developing an enquiring IT literate mind that will be able to take on the digital challenges of a workplace in ten to fifteen years' time, which we can barely imagine. Our curriculum aims to provide the pupils with the problem solving skills to be digitally literate across a wide range of devices and software.							
Summer	**EYFS**	**KS1**		**KS2**			
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Skills	**Creating media- digital writing** To use letters, numbers, backspace and the space key on the keyboard (purple mash) Produce labels for the classroom Learn to login to the school network **Data and information- grouping data** Group objects in different ways **Barefoot** **Boats ahoy** **Super space**	**Creating media- digital writing** To use letter, number, and Space keys to enter text into a computer To use punctuation and special characters To select text To use the Backspace key to remove text To position the text cursor in a chosen location To use Undo To choose options to achieve a desired effect To change the appearance of text on a computer **Programming B- Introduction to animation** Choose a series of words that can be enacted as a program Choose a series of commands that can be run as a program	**Robot algorithms** Choose a series of words that can be enacted as a sequence Choose a series of instructions that can be run as a program Create a program Trace a sequence to make a prediction Run a program on a device Debug a program that I have written **Programming quizzes** Choose a series of words that can be enacted as a sequence Explain what happens when we change the order of instructions Choose a series of commands that can be run as a program Trace a sequence to make a prediction	**Programming A- sequencing sounds** Build a sequence of commands Combine commands in a program Order commands in a program Create a sequence of commands to produce a given outcome **Programming- events and actions in programs** Build a sequence of commands Combine commands in a program Order commands in a program Create a sequence of commands to produce a given outcome	**Programming- repetition in shapes** List an everyday task as a set of instructions including repetition Use an indefinite loop to produce a given outcome Use a count-controlled loop to produce a given outcome Plan a program that includes appropriate loops to produce a given outcome Recognise tools that enable more than one process to be run at the same time (concurrency) Create two or more sequences that run at the same time **Programming- repetition in games**	**Programming- selection in physical computing** Create a condition-controlled loop Use a condition in an 'if...then…' statement to start an action Use selection to switch the program flow in one of two ways Use a condition in an 'if...then...else…' statement to produce given outcomes **Programming- selection in quizzes** Choose a condition to use in a program Create a condition-controlled loop Use a condition in an 'if... then…' statement to start an action	**Programming- variables in games** Identify a variable in an existing program Experiment with the value of an existing variable Choose a name that identifies the role of a variable to make it easier for humans to understand it Decide where in a program to set a variable Update a variable with a user input Use an event in a program to update a variable Use a variable in a conditional statement to control the flow of a program Use the same variable in more than one location in a program

		Run a program on a device	Test a prediction by running the sequence Create and debug a program that I have written Run a program on a device		List an everyday task as a set of instructions including repetition Use an indefinite loop to produce a given outcome Use a count-controlled loop to produce a given outcome Plan a program that includes appropriate loops to produce a given outcome Recognise tools that enable more than one process to be run at the same time (concurrency) Create two or more sequences that run at the same time	Use selection to switch program flow Use 'if... then... else…' to switch program flow in one of two ways	**Programming- sensing movement** Identify a variable in an existing program Experiment with the value of an existing variable Choose a name that identifies the role of a variable to make it more usable (to humans) Decide where in a program to set a variable Update a variable with a user input Use an event in a program to update a variable Use a variable in a conditional statement to control the flow of a program Use the same variable in more than one location in a program
Knowledge	**Creating media- digital writing** Recognise that a keyboard is used to type letters and numbers Recognise that backspace deletes Recognise how the space bar works	**Creating media- digital writing** Recognise that a keyboard is used to enter text into a computer Recognise that the Shift key changes the output of a key Recognise that text can be changed	**Robot algorithms** Describe that a series of instructions is a sequence Explain what happens when we change the order of instructions Recall that a series of instructions can be issued before they are enacted	**Programming A- sequencing sounds** Explain that programs start because of an input Explain what a sequence is Identify that a program includes sequences of commands	**Programming- repetition in shapes** Relate what 'repeat' means Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves Explain that we can use a loop command	**Programming- selection in physical computing** Explain that a condition can only be true or false Relate that a count-controlled loop contains a condition Compare a count-controlled loop with	**Programming- variables in games** Define a 'variable' as something that is changeable Identify examples of information that is variable, for example, a football score during a match Explain that a variable can be used

	Data and information-grouping data	Recognise that the appearance of text can be changed Recognise that text can be edited Consider the impact of choices made **Programming B-Introduction to animation** Enact a given word Recall words that can be enacted Predict the outcome of a command on a device List that commands can be used on a given device Explain what a given command does Match a command to an outcome Recognise how to run a command (press a button) Choose a command for a given purpose Understand that a program is a set of commands a computer can run Recall that a series of instructions can be issued before they are enacted Build a sequence of commands in steps Combine commands in a program	Recognise that you can predict the outcome of a program **Programming quizzes** Describe a series of instructions as a 'sequence' Recall that a series of instructions can be issued before they are enacted Use logical reasoning to predict the outcome of a program	Identify that the sequence of a program is a process Explain that the order of commands can affect a program's output Identify that different sequences can achieve the same output Identify that different sequences can achieve different outputs **Programming-events and actions in programs** Explain that programs start because of an input Explain what a sequence is Identify that a program includes sequences of commands Identify that the sequence of a program is a process Explain that the order of commands can affect a program's output Identify that different sequences can achieve the same output Identify that different sequences	in a program to repeat instructions Identify patterns in a sequence Identify a loop within a program Explain that in programming there are indefinite loops and count-controlled loops Explain that an indefinite loop will run until the program is stopped Explain that you can program a loop to stop after a specific number of times Identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' Justify when to use a loop and when not to Explain the importance of instruction order in a loop Recognise that not all tools enable more than one process to be run at once **Programming-repetition in games** Relate what 'repeat' means Identify everyday tasks that include	a condition-controlled loop Explain that a condition-controlled loop will stop when a condition is met Explain that when a condition is met, a loop will complete a cycle before it stops Explain that selection can be used to branch the flow of a program Explain that a loop can be used to repeatedly check whether a condition has been met Explain the importance of instruction order in 'if...then...else...' statements **Programming-selection in quizzes** Explain that a condition can only be true or false Relate that a count-controlled loop contains a condition Compare a count controlled loop with a condition-controlled loop Explain that a condition-controlled loop will stop when a condition is met	in a program, eg 'score' Define a program variable as a placeholder in memory for a single value Explain that a variable has a name and a value Recognise that the value of a variable can be used by a program Recognise that the value of a variable can be updated Define the way that a variable is changed Recognise that a variable can be set as a constant (fixed value) Identify that variables can hold numbers (integers) or letters (strings) Explain the importance of setting up a variable at the start of a program (initialisation) Explain that there is only one value for a variable at any one time Explain that if you change the value of a variable, you cannot access the previous value (cannot undo)

				can achieve different outputs	repetition as part of a sequence, eg brushing teeth, dance moves Explain that we can use a loop command in a program to Repeat instructions Identify patterns in a sequence Identify a loop within a program Explain that in programming there are indefinite loops and count-controlled loops Explain that an indefinite loop will run until the program is stopped Explain that you can program a loop to stop after a specific number of times Identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' Justify when to use a loop and when not to Explain the importance of instruction order in a loop Recognise that not all tools enable more than one process to be run at once	Explain that when a condition is met a loop will complete a cycle before it stops Explain that selection can be used to branch the flow of a program Explain that a loop can be used to repeatedly check whether a condition has been met Explain the importance of instruction order in 'if... then... else...' statements	Explain that if you read a variable, the value remains Explain that the name of a variable is meaningless to the computer Explain that the name of a variable needs to be unique **<u>Programming-sensing movement</u>** Define 'variable' as something that is changeable Identify examples of information that is variable, e.g. a football score during a match Explain that a variable can be used in a program, e.g. 'score' Define a program variable as a placeholder in memory for a single value Explain that a variable has a name and a value Recognise that the value of a variable can be used by a program Recognise that the value of a variable can be updated Define the way that a variable is changed

							Recognise that a variable can be set as a constant (fixed value) Identify that variables can hold numbers (integers) or letters (strings) Explain the importance of setting up a variable at the start of a program (initialisation) Explain that there is only one value for a variable at any one time Explain that if you change the value of a variable, you cannot access the previous value (cannot undo) Explain that if you read a variable, the value remains Explain that the name of a variable is meaningless to the computer Explain that the name of a variable needs to be unique
Vocabulary	**<u>Creating media- digital writing</u>** keyboard, keys, type, letters, numbers, space bar, space, backspace, delete **<u>Data and information- grouping data</u>**	**<u>Creating media- digital writing</u>** word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font,	**<u>Robot algorithms</u>** Instruction, sequence, clear, unambiguous, algorithm, program order, prediction, design, route, mat, debugging, decomposition	**<u>Programming A- sequencing sounds</u>** scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion,	**<u>Programming- repetition in shapes</u>** program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled	**<u>Programming- selection in physical computing</u>** microcontroller, components, connection, infinite loop, output component, motor,	**<u>Programming- variables in games</u>** variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, test, debug,

	group, property, label, colour, size, shape,	undo, redo, font, format, compare, typing, writing **Programming B- Introduction to animation** ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, command, **Start** block, run, program, programming area, background, delete, reset, algorithm, predict, effect, change, value, instructions, program, background, appropriate,	**Programming quizzes** Sequence, command, program, run, start, command, outcome, predict, blocks, sprite, algorithm, blocks, design, actions, project, blocks, design, modify, change, build, match, compare, debug, features, evaluate	turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, stage, costume, backdrop, design, algorithm, bug, debug **Programming- events and actions in programs** motion, event, sprite, algorithm, logic, move, resize, algorithm, extension block, pen up, set up, pen, design, event, action, debugging, errors, setup, design, code, setup, test, debug, actions,	loop, value, trace, decompose, procedure **Programming- repetition in games** scratch, programming, sprite, blocks, code, loop, repeat, value, block, forever, infinite loop, count-controlled loop, costume, repetition, animate, costume, event block, duplicate, modify, design, sprite, algorithms, refine, evaluate	repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, input, output, selection, condition, action, debug **Programming- selection in quizzes** selection, condition, true, false, count-controlled loop, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug, question, answer, task, design, input, implement, test	improve, evaluate, share **Programming- sensing movement** Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, variable, navigation, step counter, algorithm, design, task, plan, create, code, test, debug
Key Questions	**Creating media- digital writing**	**Creating media- digital writing**	**Robot algorithms**	**Programming A- sequencing sounds**	**Programming- repetition in shapes**	**Programming- selection in physical computing**	

	How can I write on a computer? **Data and information- grouping data** How can I sort objects in different ways?	How can I make changes to text? What are the similarities and differences between writing on paper and on a computer? **Programming B- Introduction to animation** How can I run my program? What happens when I change a value? What is a sprite? How can I add programming blocks?	Why are clear instructions important? What happens when we change the order of instructions? What choices were made for my mat design and why? What will my algorithm do? What does 'debug' mean? **Programming quizzes** How can objects be represented? How can objects be organised by attribute?	**Programming- events and actions in programs**	**Programming- repetition in games**	**Programming- selection in quizzes**	