Ambition - Community - Equality

Computing
Programming Progression

	Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6
NC	**Using Beebots**	**Using Beebots**	**Programming A – Moving a robot** **Programming B – Programming animations** **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**	**Programming A – Robot algorithms** **Programming B – 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 safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**	**Programming A – Sequencing Sounds** **Programming B – Events and actions in programs** **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** **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**	**Programming A – Repetition in Shapes** **Programming B – 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** **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**	**Programming B – Selection in Quizzes** **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** **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** **Microbit computing/DT project: programming project Designing a gadget that either responds to changes in light level or temperature** **https://microbit.org/lessons/data-handling-unit-summary/**	**Teach Computing Programming A – Variables in Games** **Teach Computing Programming B – Sensing (Lessons 1-4) Then Micro:bit computing/DT project Children can choose between:** Simple door alarm | micro:bit (microbit.org) Simple tilt alarm | micro:bit (microbit.org) Pressure switch alarm | micro:bit (microbit.org) **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** **Select, use and combine a variety of software (including internet services) on a range of**

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Concrete knowledge/skill progression	I can make a Bee Bot move with support	I can use simple instructions to guide a Bee Bot	**Programming A:** **I can compare forwards, backwards, left and right turns.** **I can predict the outcome of a sequence of forwards, backwards, left and right commands.** **I can use two different programs to get to the same place.**	**Programming A:** **I can follow a sequence.** **I can predict the outcome of a sequence.** **I can use an algorithm to program a sequence on a floor robot.** **I can create an algorithm to meet my goal.** **I can test and debug each part of the program**	**Programming A:** **I can recognise that commands in Scratch are represented as blocks.** **I can identify that each sprite is controlled by the commands I choose.** **I can create a sequence of connected commands.** **I can build a sequence of commands.**	**Programming A:** **I can explain the effect of changing a value of a command.** **I can test my algorithm in a text-based language.** **I can predict the outcome of a program containing a count-controlled loop.** **I can use a procedure in a program.**	**Micro:bit DT/Computing project** **I know that mechanical and electrical systems have an input, process and output** **I know how more complex electrical circuits and components can be used to create functional products** **I know how to program a computer to monitor changes in the environment and control their products** **I understand what data is, how to classify it and how it might be used.** **I can write a simple program using sensors** **I can use a micro:bit to collect data** **I can write a problem using that uses data as a condition** **I can write a program to use a micro:bit as a digital assistant**	**Programming A:** **I can identify examples of information that is 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.**

			Programming B: **I can use commands to move a sprite.** **I can use a Start block in a program.** **I can find blocks that have numbers and change their value.** **I can add and delete sprites.**	**Programming B:** **I can identify the start of a sequence.** **I can predict the outcome of a sequence of commands.** **I can work out the actions of a sprite in an algorithm.**	**Programming B:** **I can explain the relationship between an event and an action.** **I can program movement.** **I can match a piece of code to an outcome.** **I can evaluate my project.**	**Programming B:** **I can choose when to use a count-controlled and an infinite loop.** **I can evaluate the use of repetition in a project.** **I can identify which parts of a loop can be changed and explain the effect of my changes.**	**Programming B:** **I can identify conditions in a program.** **I can create a program with different outcomes using selection.** **I can identify the outcome of user input in an algorithm.** **I can show that a condition can direct program flow in one of two ways.** **I can test my program, share it with others and identify ways in which it can be improved.**	**Micro:bit computing/DT project** **I can use variables to control an output.** **I can identify and correct bugs in a program.** **I can refine a program to improve its efficiency.** From DT… I know that mechanical and electrical systems have an input, process and output. I know how more complex electrical circuits and components can be used to create functional products I know how to program a computer to monitor changes in the environment and control their products
Vocabulary			**Floor robot/BeeBot, direction, command, forwards, backwards, left, right, turn, program, debug** **Sprite, block, algorithm, background, delete**	**Sequence, unambiguous, predict, code** **Outcome, project**	**Programming environment, objects, backdrops, attribute, motion, event block, sound, costume** **Event, navigate, bug, evaluate**	**Code snippet, text-based language, repeat, pattern, count-controlled loop, decomposition, procedure,** **Infinite loop, output, animation**	**Microbit, program, input, output, algorithm, sequence, variable, connection, positive, negative** **Storyboard, binary question**	**Variables, simulation, 'use-modify-create' model, letters (strings), event** **Analogue, digital, selection, LEDs, sensor, trigger, audio, visual, device**
Software/Hardware	**Beebots**	**Beebots**	**BeeBots, Scratch Jr.**	**BeeBots, Scratch Jr.**	**Scratch**	**Logo, Scratch**	**Micro:bit, scratch, Makecode editor**	**Scratch, Crumble controller**