STEM Computing – Computer Science Progression Mapping 2021

	Content progression	Vocabulary progression	Skill progression.
Year 1	**PurpleMash** Unit 1.2 – Grouping & Sorting (Spring 2) Unit 1.4 – Lego Builders (Summer 1) Unit 1.5 – Maze Explorers (Summer 2) Unit 1.7 – Coding (Summer 2)	sort criteria instruction algorithm computer programme debug direction challenge arrow undo rewind forward backward right turn left turn action background code command event execute input output object properties run scale sound scene 'when clicked'	**Control (algorithms)** Children can control simple everyday devices to make them produce different outcomes **Understanding technologies (individual technologies)** Children show and awareness of the range of devices and tools they encounter in everyday life. **Understanding technologies (networks)** Children show an awareness that what they create on a computer or tablet device can be shown to others via another device (e.g printer, projector, Apple TV)
Year 2	**PurpleMash** Unit 2.1 – Coding (Autumn 1)	action algorithm background button collision detection debug design mode event key pressed nesting object predict timer properties test run text scale sequence scene sound 'when clicked/swiped'	**Control (algorithms)** Children can control a device, on and off screen, making predictions about the effect their programming will have Children can plan ahead **Understanding technologies (individual technologies)** Children shown an awareness of a range of inputs to a computer (IWB, mouse touch screen, microphone, keyboard, etc) **Understanding technologies (networks)**

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			Children begin to show an awareness that computers can be linked to share resources
Year 3	**<u>PurpleMash</u>** Unit 3.1 – Coding (Spring 2) Textease shape making (Spring 2)	action algorithm background alert command 'blocks of command' button collision detection debug develop execute event nesting object flow chart plan predict output repeat properties procedure sequence sound timer scene test values	**Control (algorithms)** Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen **Data logging (science and maths)** Begin to use a data logger to sense physical data (sound light and temperature) **Understanding technologies (individual technologies)** Begin to show discernment in their use of computing devices and tools for a particular purpose and explain why their choice was made. **Understanding technologies (networks)** **Digital Literacy Link** Children show an understanding that their password is the key to accessing a personalised set of resources and files (e.g My Documents) Children show an awareness of where passwords are critical in everyday use (e.g parents accessing bank details)

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Year 4	**PurpleMash** Unit 4.1 – Coding (Autumn 1) Unit 4.5 – Logo (Spring 2) Unit 4.8 – Hardware Investigators (Autumn 1)	action alert background button 'code block' command debug execute coordinates flow chart if/else nesting objects types predict 'number variable' prompt repeat 'repeat until' selection properties timer variable' variable value' logo BK FD RT LT repeat 'set PC' 'set PS' PU PD motherboard CPU RAM 'graphics card' 'network card' monitor speakers keyboard mouse	**Control (algorithms)** Children can engage in Logo based problem solving activities that require them to write procedures which they predict and test. Children can use control software to control devices (using output commands) or to stimulate this on screen. Predict and test their programs **Data logging (science and maths)** Children use a data logger, connected to the computer or remotely, to capture continuous or intermittent data readings Children can interpret the results **Understanding technologies (individual technologies)** Children use the tools available to them including those that are unfamiliar or new and use them for specific given purposes Children begin to show an awareness of specific tools used in working life **Understanding technologies (networks)** Children show and understanding of the school network and how it links computers to resources in school and beyond.

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			Children compare this with other networks they may encounter at home or in the wider world (e.g banks)
Year 5	**Autumn** **PurpleMash** Unit 5.1 – Coding (Autumn 1) Unit 5.5 – Game Creator (Summer 1)	action abstraction algorithm button called coordinates decomposition event if function nesting object repeat 'physical system' properties run score sequence simplify simulation variable tab timer animation computer game customise evaluation image instructions interactive screenshot texture perspective playability	**Control (algorithms)** Children can engage in Logo based problem solving activities that require them to write procedures which they predict, test and modify. Children can use control software to control devices (using output commands) or to stimulate this on screen. Predict and test and refine their programs. **Understanding technologies (individual technologies)** Children can make choices about the devices and tools they use for specific purposes and explain their choices in relation to the context. **Understanding technologies (networks)** **Digital Literacy Link** Children show an understanding of how filtering and monitoring tools affect their use of the school network and internet and compare this with their experience of access outside school.

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Year 6	**PurpleMash** Unit 6.1 – Coding (Autumn 2) Unit 6.5 – Text Adventures (Summer 2) Unit 6.6 – Networks (Spring 1) Unit 6.8 – Understanding Binary (Summer 1)	Action alert algorithm background button called debug command coorordinates developer decomposition event Flowchart function 'get input' 'if else' 'launch command' 'number variable' object nesting predict procedure prompt properties repeat run scene selection simulation string tab timer 'user input' variable 'text based adventure' 'concept map' debug sprite function internet 'world wide web' network router 'local area network' 'wide area network' network cables wireless Base 10 Base 2 binary bit byte decimal gigabyte (GB) denary digit 'machine code' integer kilobyte (KB) switch Megabyte (MB) nibble terabyte (TB) transistor variable	**Control (algorithms)** Children can independently create sequences of commands to control devices in responses to sensing (i.e use inputs as well as outputs) Children can design, build, test, evaluate and modify the system; ensuring that it is fit for purpose **Data logging (science and maths)** Children are able to identify their own opportunities for data logging and carry out their own experiments Children can check and question results and are able to spot trends in data and identify when problems may have occurred **Understanding technologies (individual technologies)** Children can evaluate the tools and devices available to them including those that are unfamiliar or new and use these to solve a range of given and self-devised problems Children can demonstrate an awareness of the appropriateness of outcomes depending on choices tools and devices **Understanding technologies (networks)**

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			Digital Literacy Link Children show an understanding of how filtering and monitoring tools affect their use of the school network and internet and compare this with their experience of access outside school. Repeat from Year 5