Maryland Computing Progression Map

Computing Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	**Pupils to…** Give commands/instructions e.g. forward, backwards, go, stop, when using simple software/hardware Make choices about the buttons/icons to press, touch or click on when using simple software/hardware.	**Building on prior learning, children will:** Predict what will happen for a simple sequence of instructions (algorithm) Investigate how algorithms work Make an algorithm/program to achieve a simple outcome Improve a simple algorithm by identifying basic errors (bugs) and correcting (debugging)	**Building on prior learning, children will:** Predict what will happen in an algorithm using logical reasoning. Investigate the way algorithms need precise, unambiguous instructions to work Make algorithms that solve a problem, using simple drawings or diagrams to plan the solution Improve algorithms, using debugging skills such as checking back through their plan and algorithm.	**Building on prior learning, children will:** Predict what will happen for a more complex sequence of instructions which uses repetition. Investigate how a problem can be solved by decomposing it into smaller steps and by planning a solution. Make algorithms that solve problems which use sequences and repetition. Improve more complex algorithms by identifying mistakes (bugs) and correcting (debugging)	**Building on prior learning, children will:** Plan the solution to a problem by decomposing into smaller parts e.g. with a flow diagram, storyboard or other plan Investigate how algorithms work and identity the purpose of the different parts of an algorithm Make programs which use sequences, repetition and inputs and outputs when necessary. Improve a program by debugging systematically	**Building on prior learning, children will:** Plan efficient solutions to problems that include controlling or simulating physical systems, using decomposition to solve the problem Make programs using more complex algorithms, selecting when to use sequences, selection, (if, then), repetition and a range of inputs and outputs Investigate how algorithms work on different platforms, by comparing one block-based code language to another *(e.g. Micro:bit, MakeyMakey)* Improve code by systematically testing and debugging it, with an understanding of logic and syntax bugs	**Building on prior learning, children will:** Plan efficient solutions to problems that include controlling or simulating physical systems, using decomposition to solve the problem Make programs using more complex algorithms, selecting when to use sequences, selection, (if, then), repetition and a range of inputs and outputs Understand how sensors can be used to measure input in order to activate a procedure or sequence. Investigate how algorithms work on different platforms, by comparing one block-based code language to another *(e.g. Scratch, Python)* Debugging quickly and effectively to make a program more efficient. Remixing existing code to explore a problem
Information Technology	**Pupils to…** Manage a device by correctly closing websites or apps and safely turning on and off. Input commands using the spacebar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe) Experience simple apps and software and use these to present ideas.	**Building on prior learning, children will:** Save work when the saving location has been set by an adult. Manage a device by logging in, logging out, (shutting down where appropriate) and knowing the main parts of a computer. Input commands with increasing fluency using the space bar, backspace, enter, caps lock, letters, numbers and common symbols/punctuation on a keyboard on any device (including on a tablet). Input commands with increasing fluency using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe) Experience a range of simple apps and software and use these to create and present ideas. Evaluate their work by saying what is good about it.	**Building on prior learning, children will:** Save and retrieve work using an appropriate file name Manage a device by navigating a range of software and using simple passwords Input commands by using both hands on a keyboard on any device (including on a tablet), understanding where home keys are and using a wide range of letters, numbers and symbols. Input commands using a mouse, with an understanding of the difference between left and right click OR use finger control to interact with a tablet (double tap, swipe, pinch zoom) Experience a wide range of apps and software and use these to create and present ideas. Evaluate what is good about work and how it could be improved.	**Building on prior learning, children will:** Save and retrieve files on the school network (a shared drive like GoogleDrive), understanding that information can be saved in different places (an individual device, a local network or the cloud) Manage various devices correctly, navigating a wide range of apps and software and using individual passwords. Input commands using a keyboard on any device (including on a tablet) with increased fluency, using efficient shortcuts where possible i.e. Shift + ‘letter’ instead of Caps Lock Create, modify and present work using different software/apps. Evaluate their work and improve its effectiveness. Use technology to present and interpret given data, identifying simple patterns or trends.	**Building on prior learning, children will:** Save and retrieve work independently on the school’s Cloud system Use a wide range of input devices fluently, such as keyboards, mice and/or touchscreens Create, modify and present work to accomplish specific goals using a variety of software on a range of digital devices. Evaluate their work and improve it, based on their own, and other people’s views. Use technology to collect, present and interpret data, using a range of different graphs/charts.	**Building on prior learning, children will:** Understand the difference between cloud based saving and other programs, which need to be manually saved. Use input devices fluently, such as keyboards, mice and/or touchscreens to navigate a system, using shortcuts on a keyboard (Ctrl + B, U, I, S, P) Create, modify and present work with a combination of software to achieve a specific goal, using built in functions that help the user such as spellchecker, dictate Evaluate their work and improve it, understanding how various forms of media e.g. photos, video and sound, can aid this. Use a range of tools within computer based software to evaluate and analyse data i.e. sort, order and group in a database	**Building on prior learning, children will:** Use search tools within a system to find saved work. Use input devices fluently, such as keyboards, mice, touchscreens and voice commands to enter data in a system. Create, modify and present content using a combination of software (including internet service) on a range of digital devices which solves problems, with a regard to audience, atmosphere and user needs. Evaluate and refine their work, explaining their choices and the impact it has. Use different functions within computer-based software to present, evaluate and efficiently analyse data i.e. tables, charts, graphs and formulas in a spreadsheet.

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Digital Literacy	In addition to our Online Safety curriculum (Education for a Connected World), pupils to… Recognise technology that is used at home and in school. Understand what a computer is and the different uses of computers i.e. learning, communicating, finding information, playing games etc.Reception	**Building on prior learning, children will:** Recognise that devices can be connected Understand the ways devices are used in the classroom and at home Use a search engine to find information	**Building on prior learning, children will:** Recognise that devices can be connected via networks. Understand the ways devices are used in the workplace and the wider world. Use keywords in a search engine to find information.	**Building on prior learning, children will:** Begin to recognise the different parts of a school network e.g. WIFI point, server Use an online communication system e.g. email, and understand the opportunities this offers. Use search operators i.e. + - to filter information in a search engine	**Building on prior learning, children will:** Recognise different parts of a school or office network e.g. server, switch, router, client, WIFI point. Use an online collaboration system e.g. blogging, and understand the opportunities this offers. Use a wider range of search operators i.e. “ ” ~ define: to efficiently find information in a search engine	**Building on prior learning, children will:** Recognise different parts of a school or office network e.g. server, switch, router, client, Wi-Fi point, and explain the purpose of each. Use online communication and collaboration tools for different purposes Use a search engine efficiently by filtering and begin to understand how results are selected and ranked	**Building on prior learning, children will:** Recognise the different services that computer networks can provide i.e. the World Wide Web Use a range of online communication and collaboration tools independently and explain the benefits and limitations of each. Use a search engine efficiently by filtering and deepening their understanding of how results are selected and ranked.