# COMPUTING SKILL PROGRESSION - PROGRAMING

***"Technology will never replace great teachers but technology in the hands of great teachers is transformational."***
***~ George Couros***

| EYFS | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 | YEAR 6 |
|---|---|---|---|---|---|---|
| I can engage with my teacher and peers in a small group to program a toy.<br><br>I can begin to talk about what happened. | Pupils will be taught to 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 | | Pupils will be taught to 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 | | | |
| | I can give instructions to my friend and follow their instructions to move around.<br><br>I can describe what happens when I press buttons on a beebot.<br><br>I can press the buttons in the correct order to make my beebot do what I want.<br><br>I can describe what actions I will need to do to make something happen and begin to use the word 'algorithm'.<br><br>I can begin to predict what will happen for a short sequence of instructions.<br><br>I can begin to use software/apps to create movement and patterns on a screen.<br><br>I can use the word 'debug' when I correct mistakes when I Program. | I can give instructions to my friend (using forward, backward and turn) and physically follow their instructions.<br><br>I can tell you the order I need to do things to make something happen and talk about this as an algorithm.<br><br>I can program a robot or software to do a particular task.<br><br>I can look at my friend's program and tell you what will happen.<br><br>I can use programing software to make objects move.<br><br>I can watch a program and spot where it goes wrong so that I can debug it. | I can break an open-ended problem up into smaller parts.<br><br>I can put programming commands into a sequence to achieve a specific outcome.<br><br>I keep testing my program and can recognise when I need to debug it.<br><br>I can use repeat commands.<br><br>I can describe the algorithm I will need for a simple task.<br><br>I can detect a problem in an algorithm which could result in it not working. | I can use logical thinking to solve an open-ended problem by breaking it up into smaller parts.<br><br>I can use an efficient procedure to simplify a program.<br><br>I know that I need to keep testing my program while I am putting it together.<br><br>I can use a variety of tools to create a program.<br><br>I can recognise an error in a program and debug it.<br><br>I can recognise that an algorithm will help me sequence more complex programs.<br><br>I recognise that using algorithms will also help solve problems in other learning such as maths, science and design technology. | I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.<br><br>I can refine a procedure using repeat commands to improve a program.<br><br>I can use a variable to increase programming possibilities.<br><br>I can change an input to a program to achieve a different output.<br><br>I can use 'if' and 'then' commands to select an action.<br><br>I can use logical reasoning to detect and debug mistakes in a program.<br><br>I use logical thinking, imagination and creativity to extend a program. | I can deconstruct a problem into smaller steps, recognising similarities to solutions used before.<br><br>I can explain and program each of the steps in my algorithm.<br><br>I can evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm.<br><br>I can recognise when I need to use a variable to achieve a required output.<br><br>I can use a variable and operators to stop a program.<br>I can use different inputs (including sensors) to control a device or onscreen action and predict what will happen.<br><br>I can use logical reasoning to detect and correct errors in algorithms and programs. |