

COMPUTING – Computer Science

| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|-----------------------------------|---|---|--|--|--|---|---|
| Statutory Information (NC) | | <p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p>Create and debug simple programs</p> <p>Use logical reasoning to predict the behaviour of simple programs</p> | | <p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> | | | |
| Programming | <p>To show an interest in technological toys with knobs and pulleys or real objects (30-50)</p> <p>To know how to operate simple equipment (30-50)</p> <p>Complete a simple program on a computer (40-60)</p> | <p>Follow and give instructions (forward, backwards, whole, half and quarter turns)</p> <p>Begin to know how to control and programmable toy</p> <p>Write an algorithm relating to real life context</p> | <p>Plan and enter a sequence of instructions (distance and turns)</p> <p>Write an algorithm to produce a shape</p> <p>Use repeat in a real life context</p> | <p>Begin to understand and use logo type commands</p> <p>Use a sequence of logo commands for a purpose</p> <p>Use repeat to write a program</p> <p>Write an algorithm using logo to achieve an outcome</p> <p>Write a program in which an object is used to trigger an action</p> | <p>Use repeat to improve efficiency</p> <p>Write procedures using logo commands (draw polygons, letters and shapes)</p> <p>Use sensors to trigger and action</p> | <p>Use looping and repeat until a condition is met in programs</p> <p>Group commands to create procedures</p> <p>Write programs in which an input controls an output</p> <p>Create a program to simulate a real life system</p> | <p>Plan an algorithm using flow chart notation and use it to write a program</p> <p>Create variables in a program</p> <p>Use sensors to measure an input and trigger a procedure</p> <p>Control on screen mimics/physical devices using more than one input</p> |
| Debugging | To show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images (30-50) | Debug a sequence of instructions/algorithm | Edit a given algorithm to achieve a different outcome | Debug a program written in logo commands | Test and improve given programs | Plan, write, debug and test programs using selection structures | Edit programs using procedures to improve efficiency |
| Reasoning | | <p>Predict the effect of a given instruction</p> | <p>Understand the term sequence</p> <p>Find an alternative algorithm to one already given</p> <p>Explain why a sequence needs to be changed</p> <p>Predict and test the outcome of a given algorithm</p> | <p>Use visual programming language to explain what a given program does</p> <p>Explain how an algorithm solves a problem</p> | <p>Define variables eg to draw shapes on screen/to create a score in a game</p> | <p>Use understanding of internal angles to program more complex shapes</p> | Use selection structures in a program |
| Provision | | Beebots J2E | Probots Scratch Junior | Textease Turtle Kodu | Scratch J2E Logo | Flowol J2E | Scratch Kodu |
| Vocabulary | | <i>Sequence, program, algorithm, edit, debug, control, distance, direction, turn, predict, precise</i> | <i>predict, debug, program, instructions, sequence, algorithm, edit</i> | <i>Predict, program, instruction, debug, repeat, procedure, subroutine, angle, turn, input, output, sequence, sprite, movement, direction, position, algorithm</i> | <i>Predict, sequence, sprite, movement, rotate, direction, position Repeat, procedure, algorithm, logo, program, precise, instructions</i> | <i>Input, output, program, repetition, selection, sequence, debug, switch, sensor, variable, control, simulation Scratch, debug, algorithms, sprite, block script, predict, broadcast, subroutine, procedure,</i> | <i>Sequence, program, control, distance, direction, turn, predict, precise, algorithm, debug, repeat, selection, subroutine, flow chart</i> |