

Woodley Primary School – Knowledge Organiser

Science Focus:	Computer Science	Year 3	Ongoing
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Key Vocabulary	
Spelling	Definition
Logic	Predicting and analysing
Evaluation	Making judgements
Algorithm	A list of steps and rules to finish a task.
Patterns	Spotting and using similarities
Decomposition	Breaking down into parts
Tinker	Change things and see what happens
Debugging	Finding and fixing problems in an algorithm or program
Collaborating	Working together
Bug	Part of a program that does not work correctly
Program	An algorithm that has been coded into something that can be run by a machine
Sequencing	Putting commands in correct order so computers can read the commands
Binary	A way of representing information using only two options
Loop	The action of doing something over and over again
Repeat	Do something again
Condition	A statement that a program checks to see if it is true or false. If true, an action is taken. Otherwise, the action is ignored
Conditionals	Statements that only run under certain conditions
Event	An action that causes something to happen

Prior Knowledge	
What I should already know ...	
EYFS:	Completes a simple program on a computer Interacts with age-appropriate computer software
Year 1:	Sequencing – directional language, clicking, dragging, dropping, simple algorithms using programmed directional language and debugging Events – create a story Loops – simple repeats Digital Citizenship – going places online safely following rules
Year 2:	Sequencing - how to build on understanding of algorithms and how to debug Events – the events add variety to algorithms Loops – how to use repeat loops, comparing efficiency of different algorithms, create own images using loops Impacts of computing – how to exercise empathy and creativity by sketching app to address needs of imaginary user Digital citizenship – understand that we leave a digital footprint

Possible Experiences
Lego WeDo—create and programme a spy robot with a motion sensor and motor

What I will know at the end of the unit	
Objectives for the unit:	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 Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
Key Skills:	<ul style="list-style-type: none"> • How to develop sequential algorithms, systematically identify errors in pre-existing code and debug (inc. incorrect loops, missing blocks, extra blocks, errors in sequence), introduction of new blocks inc. moving forward by specific number of pixels and turn by specific degrees. • That events make programs interactive, to build a game using event handlers to detect mouse clicks and object collisions • How to use loops to build big structures faster and traverse mazes more efficiently, introduce more actions in to loops such as 'collect' • Some understanding of how binary translating can translate something 'real life' to a series of on and offs • To create visualisations of data and use this to reason and predict • How to build a game from scratch using loops, sequence, debugging and events (end project).

Facts:	<p>How to develop sequential algorithms, systematically identify errors in pre-existing code and debug (inc. incorrect loops, missing blocks, extra blocks, errors in sequence), introduction of new blocks inc. moving forward by specific number of pixels and turn by specific degrees.</p> <p>That events make programs interactive, to build a game using event handlers to detect mouse clicks and object collisions</p> <p>How to use loops to build big structures faster and traverse mazes more efficiently, introduce more actions in to loops such as 'collect'</p> <p>Some understanding of how binary translating can translate something 'real life' to a series of on and offs</p> <p>To create visualisations of data and use this to reason and predict</p> <p>How to build a game from scratch using loops, sequence, debugging and events (end project).</p>
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