

Year 4 Programming

Prior Learning (Y3):

Learners begin by moving a sprite in four directions (up, down, left, and right). Learners are introduced to programming extensions, through the use of Pen blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines.

Key Vocabulary

Vocabulary to use from KS1 and Y3: Algorithm, program, command, debug, logical reasoning, sequence

Repetition	Repeating the execution of certain instructions (creating loops)
Decompose	Breaking down a program into smaller parts that are more manageable and easier to understand.
Count-controlled Loops	When the number of repetitions to occur is already known
Infinite Loops	A sequence of instructions that, as written, will continue endlessly

Key Unit Specific Vocabulary:

Scratch; Show; Hide; Forever; Wait; Game; Design;

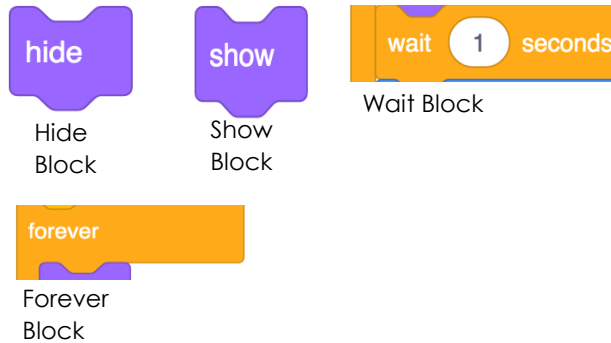
Key Questions:

- What is the difference between infinite loops and count-controlled loops?
- How to modify an infinite loop in a given program?
- How do I design a game using repetition?
- How can I refine the algorithm in my design?

Current Learning (Y4):

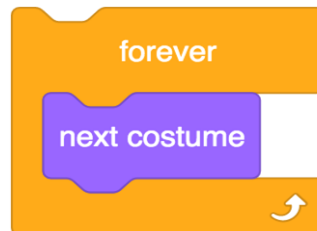
Learners will explore the concept of repetition in programming using the Scratch environment. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.

Scratch New Blocks



Infinite Loops in Programming

Infinite loops are commands repeated over and over again, without an end point. In Scratch this is called the '**Repeat Forever**' block.

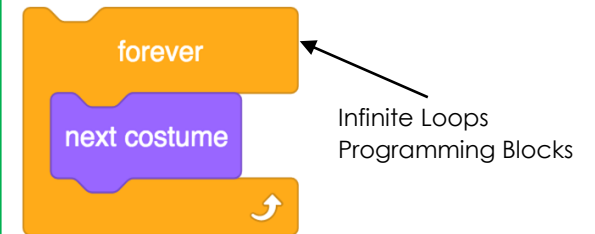
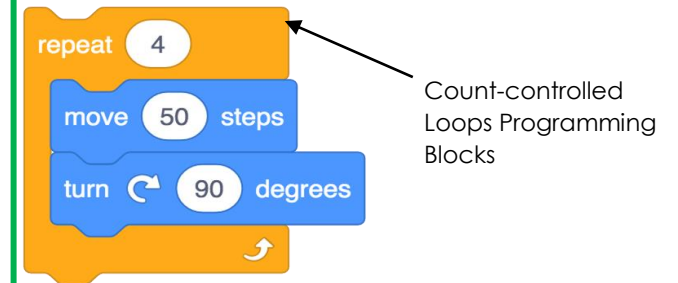


Future Learning (Y5):

Learners develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if... then... else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They represent this understanding in algorithms, and then by constructing programs. They learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program.

Scratch Repetition Blocks

There are two types of repetition used in Scratch, these are:



The repetition blocks in Scratch are usually **orange**.