Year 4 Red Kites Computing Summer 2

Programming

Repetition in games

Key Vocabulary	Definition
algorithm	A set of instructions to perform a task.
animate	The process of giving the illusion of movement.
code	Information given to a computer.
debug	Finding out errors in a program.
duplicate	
evaluate	Discuss an outcome- did it do what we had hoped?
infinite loop	An action that never stops.
modify	Change something in some way.
programming	Writing a set of instructions for a computer to follow.
refine	Improve an outcome.
repeat	Doing an action, a given number of times.
value	A numerical value entered into a cell or database field.

Repetition in Scratch

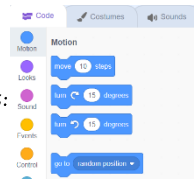
Scratch is a program that we can use in order to code our own stories, animations and games. We can use repeat and loop operator blocks in order to make our programs more logical and efficient. These help to run code continuously or for a set number of times. We use algorithms to sequence movements, actions and sounds in order to program effective animations. In day-to-day life, we use many patterns of repetition. This may include things like; brushing your teeth, performing a dance routine, creating a piece of music, finding a clapping rhythm. It is important to write clear, efficient instructions:

I need to finish my dinner if I want to have dessert. I have 5 forkfuls left. What do I need to do to get this completed?

Put food on fork
Put fork in mouth
Eat food
} Repeat 5 times

Main Areas of Scratch

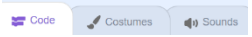
The Blocks Palette (on the left) contain all of the different blocks: puzzle piece commands which control the animation.



Code Area (in the middle) is where the blocks are placed to create a program.

Stage with Sprite (right) is where the output of the program is presented. The sprite is the character.

Attributes: There are three attributes of the sprite which we can change to make our animation:



Code, Costumes, Sounds.

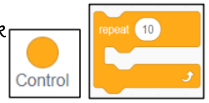
Event Blocks: Event blocks are coloured yellow and are used to sense different events that happen e.g., the green flag being clicked.

Action Blocks: Action blocks include 'Motion' blocks, 'Sound' blocks and 'Looks' blocks. They make the sprite move, make sounds and change appearance

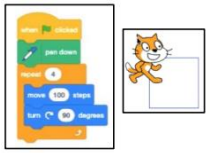
Loops and Repetition

Pen Drawing in Scratch: Select the 'add extension' icon in the bottom left corner. Then select 'pen.' This allows you to draw with your sprites.

The Repeat Block: Select 'code' and then the 'control' blocks (orange). Here you will find the repeat block. It should be placed around the command blocks that you want to repeat. The number of times something is repeated can be typed into the white area.



Creating Shapes: Selecting 'pen down' (in the 'operators' blocks) can be followed by use of the motion blocks to determine the line that will be drawn (e.g. 'move 10 steps'). Turning a number of degrees changes the direction of the pen. Placing the repeat block around this motion code can allow more complex shapes to be drawn.



Count-Controlled/Infinite Loops: We can control the number of 'loops' of a command with the number typed into the 'repeat' block. The 'forever' block makes a command continue infinitely (forever).

Event Managing and Efficiency

It is important to ensure that programs are coded and labelled in easy to understand, userfriendly ways.
Using the 'events' blocks logically can help to make programming easy to use. e.g. when 's' key pressed a square is drawn, when 'h' key is pressed a hexagon is drawn.
Efficiency is about getting the right result in the easiest way possible, wasting little time or effort.
Use of the repeat and loop tools should help to create efficient programming.