

Algorithms

Algorithms

- An **algorithm** is a **sequence** of step-by-step **instructions** to solve a problem.
- Algorithms can be written in code, or be a **sequence** of **BLOCKS**

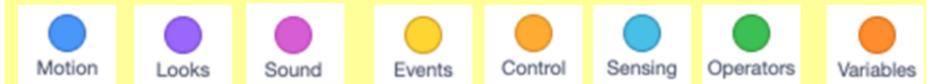
A computer algorithm



Key Terms

Instructions	Detailed information about how something should be done or operated.
Execute	When you create a program for a computer, you give it a set of commands to execute.
Sequence	The order the instructions need to be in.
Selection	Logic commands used to alter the flow of the program.
Loop/Iteration	A programming structure that repeats (iterates) a sequence of instructions.
Repeat	The block that makes an instruction happen more than once.
Variables	A changeable value which is stored by the program.
Subroutines	In computer programming , a subroutine is a sequence of program instructions that perform a specific task.
If block	- allows us to check a condition and perform an operation if the condition evaluates to 'true'.
Debugging	Finding errors in our code.
Abstraction	Taking away all the information that isn't needed.
Decomposition	Breaking down a problem.
Count-controlled	Count-controlled iteration will execute the commands a set number of times.
Condition-controlled	Condition-controlled will execute the commands until the condition you set is no longer being met.

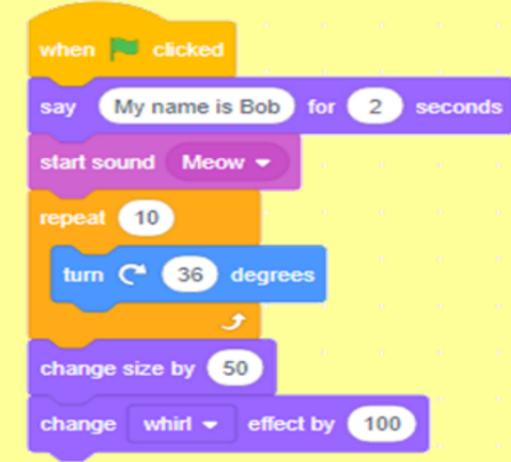
Scratch blocks and Programme examples



We can use **algorithmic prediction** to guess what will happen. My **Sprite** is going to get bigger!



The **repeat loop** in this example, will move ten times. This is **more efficient** than writing out ten **commands**.



The **turn # degrees block** will turn my sprite. This **algorithm** will turn my **sprite** in a circle

Scratch

Word	Definition	Image
Sprite	The name of a character in Scratch	
Costume	An alternate appearance of a sprite.	
Turn # # degrees	How far to the left or right you want to move your sprite. # is replaced with the number	
Block	A single instruction in our algorithm	



Trinity TV

For more help, visit Trinity TV and watch the following videos:

Trinity TV > Year 7 > Computer Science > Term 4

<https://scratch.mit.edu>