

# Algorithms

## What is an Algorithm?

An algorithm is a step by step series of instructions which if executed correctly, will result in a specific outcome. We use algorithms all the time without realising it! Algorithms can involve day-to-day processes such as following a cake recipe, or making a cup of tea. By breaking procedures down into precise steps, and in order, we create **Algorithms**.

## Why is it important to understand Algorithms?

Algorithmic thinking is an element of Computational Thinking – a type of thinking that computer scientists believe can be developed by practicing a combination of skills which allows for us to gain a better understand of the workings of a computer, skills such as; logic, problem solving and decomposition.

Pupils need to understand algorithms, because having the ability to simplify will help pupils with learning how to use programming languages such as Scratch.

A common misconception that pupils have, is that they think computers are amazing and intelligent machines, but in-fact, they are very silly! They are indeed amazing, but the reason for their cleverness is down to us humans and our ability to **program** computers and *make* them do fantastic things. A program is essentially a collection of algorithms compiled together, which are then repeated a number of times.

## Quick Task!

Ask pupils in your class to write step by step instructions from the classroom to the head teachers' office.

How many of them got the process completely right, without missing any instructions?

This task allows us to understand the important of not missing out steps, as doing so could result in a different outcome. The same would happen if we missed out a command whilst programming a computer or a robot.

Many children struggle with this way of thinking, however practising this way of thinking will inevitably help them in time for when they start their own programming.