

Information

Algorithms are explicit step by step instructions to complete a set task or achieve an objective. Humans use algorithms every day to complete tasks. When driving a car, putting a load of washing on, making food or a cup of tea. At its basic form, an algorithm is a set of instructions that will be followed. Algorithms enable digital systems to complete the required tasks. The complexity of algorithms increases as the task becomes more complicated. Functions help reduce the amount of content written to perform the algorithm.

Branching is the term given to show multiple options available for the task to be completed. The direction of the algorithm will change, depending on how the task is executed. E.g. The question 'Is it raining outside?' requires two options - an answer of yes or no. The answer to the question will influence the next commands, to bring an umbrella or not.

Providing options for the user to decide how to complete the task is called user input. The user controls the steps based on their input. This controls the direction of the algorithms. An example of user input is playing a game. The user controls the character and makes the decisions on the characters movements throughout the game.

Curriculum Expectation

Students will create algorithms using symbols, images or written English. They will move away from following sequenced steps to branching allowing user input to direct the flow of the instructions. These options can be through asking questions or providing multiple options. Visual programs will be used as another way to present the algorithms using digital platforms.

Video Resource

Click the image to open the video

Bill Gates explains how if statements can be used to provide users with options to decide how everyday common tasks are completed. The if statement demonstrates the use of branching.



Video Source: Hour of Code

ALGORITHMS


Explicit instructions to complete a task



If I turn left then...
If I turn right then...

BRANCHING

Branching shows multiple options and outcome for one command



Which box will you choose?

USER INPUT

User input controls the data and guides the direction of the algorithm.

Use branching as a way to present algorithms based on a set of options that will be influenced by user input.

