



Computing: Route Explorers: 2: Autumn

National Curriculum Objectives

Understand what algorithms are: how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions

Create and debug simple programs

Use logical reasoning to predict the behaviour of simple programs

Prior Learning

In Year 1:

Understood simple algorithms through unplugged activities before moving to sequencing activities on digital devices

Future Learning

In Year 2:

Write simple instructions to move a turtle along routes

In Year 3:

Create routes for screen turtles. Coding using angles of turn and repetition.

Key Questions

What does a 2Go command include? A direction and a distance

If your commands take the turtle on the wrong route, how do you get back to the start? Click on the rewind button, and then debug the code.

How do you work out the distance for a command? Count the grid squares the turtle must move

How many commands can be in a program? Up to 10

Substantive Knowledge (key facts, dates and concepts)

The combination of a direction and a distance is known as a command in 2Go

Commands can be input into 2Go to control the movement of a screen turtle in four directions

Planning a route is important to perform more than one command in a sequence

A list of instructions for a route is the algorithm

Errors (bugs) occur because commands may have been input incorrectly

Fixing the errors is called debugging

Disciplinary Knowledge (thinking and working like a)

Input commands in 2Go

Input purposeful commands in 2Go to move the turtle in a specific direction towards a goal

Use techniques such as finger movements to plan a route

Input several commands into a sequential algorithm layout and run this code to move the turtle along a programmed route

Reset the turtle to the starting position to re-run the code

Plan the route by writing the algorithm first and then inputting the commands

Make logical attempts to debug code for routes

Reset, debug and re-run the code to test routes

Knowledge organiser

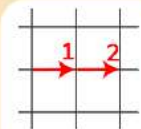
Key Resources



Key Images



Direction commands



Distance commands



Undo



Command layouts/algorithms



Rewind

Algorithm

A set of instructions in order.

Coding

Creating instructions for a computer, telling it what to do, step-by-step.

Computer Bug

Bug is the word used to describe an error in the way that a computer program works.

Command

An action such as, turn left'.

Debugging

To find and remove bugs (errors) from a computer program.

Direction

The path that something travels. For example, a robot moving forwards or backwards.

Sequence of lessons

1 Sticky Knowledge What is an algorithm? Which of these lists of technology are mostly found outside? (prior learning) Intent To use the direction keys in 2Go to move the turtle along the route.	2 Sticky Knowledge What is a command? Which arrow key would make the person move to the wolf? (last lesson) Which of these can you control when making a line using digital art tools? (prior learning) Intent To use the units of distance along with the direction keys in 2Go to move along a route	3 Sticky Knowledge What is a route in 2Go? In the last session what did a o command contain? (last lesson) Where is your work saved in Purple Mash? (prior learning) Intent To write instructions to complete more than one step of a route at once
4 Sticky Knowledge What is a command in 2Go? Which of these would you use to create a route following an algorithm in 8 steps? (last lesson) Which icon do you use to add instructions to games that you make? (prior learning) Intent To build up instructions for a longer route		

