

ADVANCED MICRO:BITS – OVERVIEW

Overview

This unit reintroduces students to the BBC micro:bit. The unit revises the general computing concepts of inputs and outputs. It revises students' understanding of the main input mechanisms of the micro:bit (microswitch buttons and the accelerometer) and the main output interface (the LED array).

In this unit, students will develop their understanding of simulations as they learn to program the micro:bit to simulate the classic game of 'rock, paper, scissors' before applying that knowledge to build a simulation of a magic 8 ball. They will develop their understanding of logic statements and variables.

National Curriculum

The areas of the National Curriculum and the key computing concepts covered in this unit are outlined in the table below:

Knowledge and understanding	Computing concepts
To write and debug programs that accomplish specific goals.	Debugging
To simulate physical systems.	Simulation
To solve problems by decomposing them into smaller parts.	Decomposition
To use sequencing and repetition in programs.	Sequencing and repetition
To work with variables.	Variables
To work with inputs and outputs.	Inputs and outputs
To work with randomisation.	Randomisation

The Computing Curriculum

How the knowledge and understanding developed in this unit fits into the computing curriculum is outlined in the table below:

Prior Learning	Future Learning
EYFS Unit: Introduction to programmable robots	Year 5 Unit: Programming simulations
Year 1 Unit: Introduction to algorithms unplugged	Year 6 Unit: Scratch - Programming a computer game
Year 1 Unit: Programming virtual BeeBots	Year 6 Unit: Introduction to Python
Year 2 Unit: Debugging Algorithms	
Year 2 Unit: Programming using Scratch Jnr	
Year 3 Unit: Introduction to Scratch	
Year 3 Unit: Programming a quiz in Scratch	
Year 4 Unit: Introduction to micro:bits	
Year 4 Unit: Introduction to HTML	

Cross-curricular links and extension activities

This unit provides opportunities for cross-curricular links in maths. Students could use the skills they have learned to program a times-tables game. The micro:bit could display a multiplication problem with a suggested answer. The player would choose whether the answer was true or false. The program would then store whether the player had chosen the correct answer in a variable before displaying the next question. At the end of the game the player could find out their score.