

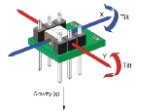
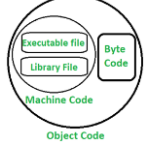
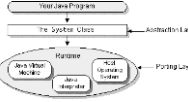
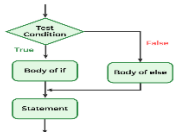
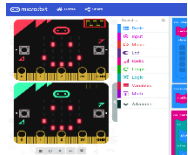
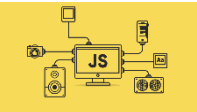
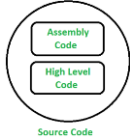
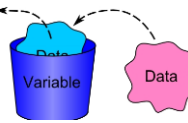
We are makers

Prior Knowledge

You may have interactive toys at home. You may have voice-activated speakers such as Alexa, Google Home etc.

Programming here builds on earlier programming work in Scratch, including **Unit 3.1: We are programmers**, **Unit 3.2: We are bug fixers** and **Unit 4.1: We are software developers**.

Key Vocabulary:

accelerometer		hardware component providing data on changes in motion, typically in three directions	micro:bit		simple, single board programmable computer with integrated input, output and network capabilities
algorithm		a sequence of precise instructions or steps (sometimes a set of rules) to achieve an objective	object code		a version of the program converted (compiled) into the detailed instructions to be followed by the computer's processor
Bluetooth		wireless digital communication protocol using low energy signals over short distances	runtime		the complete software environment (operating system, drivers, interpreter) needed for a program to run on particular hardware
if/else if/else		programming selection construct which indicates what code should be run depending on which one of multiple conditions are satisfied	simulator		software allowing one computer system to behave as another; in this case, the MakeCode editor includes an on-screen simulator of a micro:bit so that programs can be tested
JavaScript		text-based programming language, commonly used to power interactive web pages	source code		the program as written, in a language that can be understood by both the programmer and the computer
LED		light emitting diode, an electronic component that lights up when current flows in one direction	variable		let's computer programs store, retrieve or change simple data. Typically thought of as a particular location in the computer's memory that holds a specific item of data
makecode		block- and text-based editor from Microsoft, supporting a variety of hardware platforms including the micro: bit			

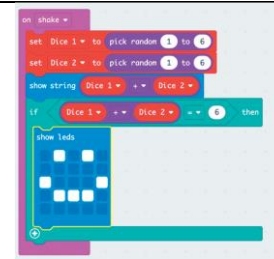
Key learning: How do we make a computer interact with the real world?



Session 1: A simple program to make text scroll across the display

What is a computer?

Can all computers be programmed?



Session 4: Creating a dice rolling game

Why is Micro: Bit a good platform for dice games?

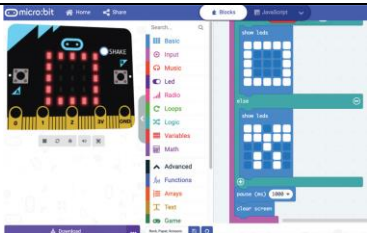


Session 2: Transferring code onto a micro:bit

How can we program a micro: bit?



Sessions 5 and 6: Planning and creating a micro:bit project (example here is a compass)



Session 3: Exploring the rock-paper-scissors game

What does an if/else if/else block do?

What other games can we simulate using micro:bit?

Key Applications (apps)



Next Steps

You will continue to develop programming in **Unit 5.1: We are game developers** and **Unit 6.6: We are AI developers**. You will return to the micro:bit and MakeCode for programming in **Unit 6.1: We are toy makers**.