# Unit 4.2: We are makers

## 5 words to remember

**accelerometer:** a hardware component that provides data based on changes in motion, for example when a device is tilted or moved in a certain direction

**Bluetooth:** a wireless form of communication using low-energy signals over short distances

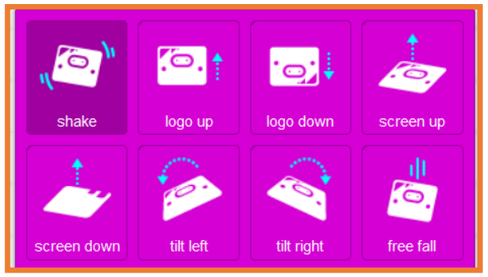
**LED:** stands for 'light emitting diode'; an electronic component that lights up

**micro:bit:** a small, single-circuit board, programmable computer with different inputs and outputs, which can be programmed

**simulator:** software that allows one computer system to behave as another; on-screen simulators allow programs to be tested before running them on a device

## Knowledge check: Accelerometer

The **micro:bit** contains an accelerometer, which detects motion changes. The micro:bit can be programmed based on any of these gestures:




**Test yourself:**

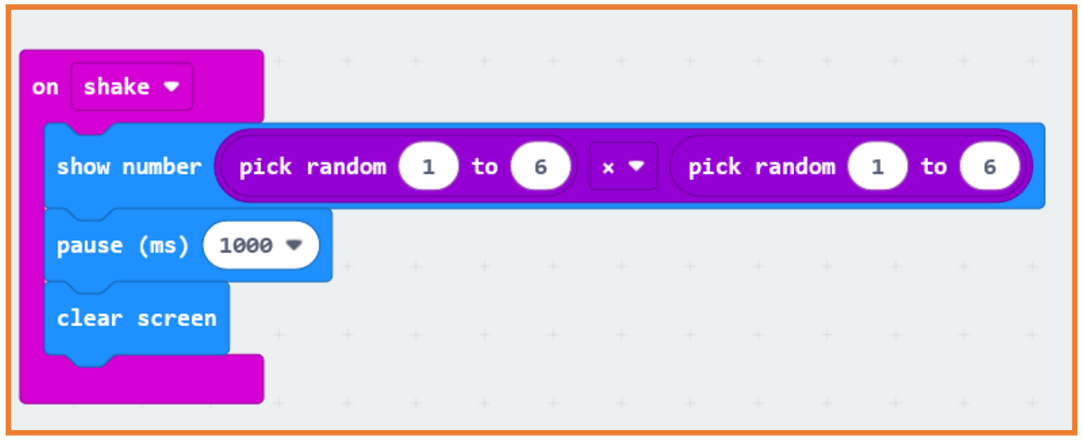
1. Hold a micro:bit and demonstrate these different movements**.**
2. Can you think of other devices that contain an **accelerometer**?

## Knowledge check: Debugging

A dice-game algorithm has been created for the micro:bit. It should show the total after the dice has been rolled twice, but some of the answers are over 12 so there is a an error in the code.

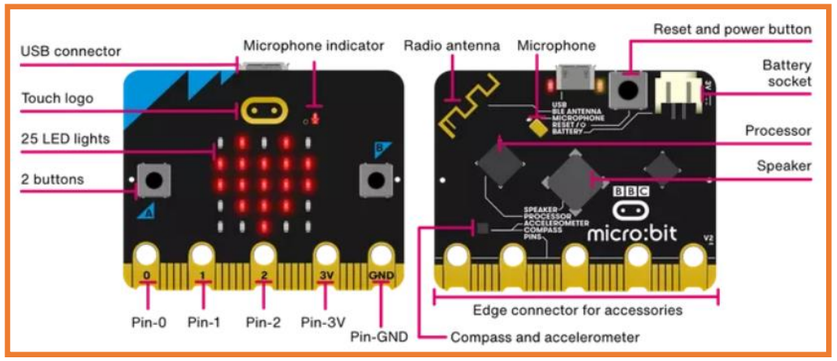
**Test yourself:** Check the code below line by line to understand the algorithm. Can you spot, explain and debug the error?

**Test yourself:** What is the purpose of the 'pause (ms) 1000' block?

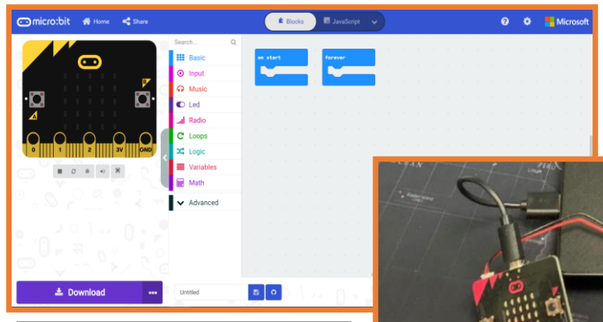



## Key takeaways

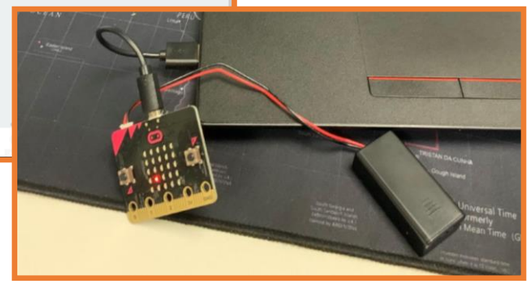
- ☐ The micro:bit is a small, single-circuit board, programmable computer. It includes different components such as an accelerometer, **LED** display, **Bluetooth** and input buttons.
- ☐ Some micro:bit models have more features, such as a touch sensor, microphone and speaker. Here are all the micro:bit features on the latest model:




- ☐ The micro:bit can be programmed using Microsoft MakeCode, which looks similar to Scratch.
- ☐ MakeCode programs can be downloaded to be tested on screen using a **simulator**, before downloading and transferring to the micro:bit via a USB cable or Bluetooth.




Microsoft MakeCode coding software and simulator



A battery-powered micro:bit device connected to a laptop via USB

- ☐ Algorithms can be implemented on the micro:bit to control its different inputs and outputs, for example the algorithm below shows that when the 'A' input button is pressed, the output results in the LEDs displaying a heart.