

Year 6: Programming B

KEY VOCABULARY:

Microbits

Variables in games:

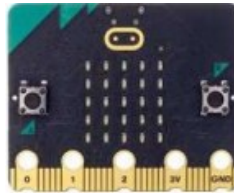
Programming is when we make a set of instructions for computers to follow.

Micro:bits are small computers that perform different actions based on programs written on computer software. Programs are then downloaded to the micro:bit. - Micro:bits have a range of input sensors that can be used as input triggers for different codes to run.

Output devices on Micro:bits (e.g. LED displays) can be programmed to display words, pictures and numbers.

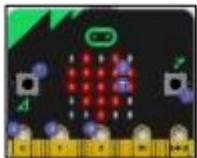
The basics:

What is a Micro:bit? A micro:bit is a pocket-sized computer. We can write programs on our computers which can then be transferred to micro:bits to run. -Micro:bits have an LED light display, buttons, sensors and many input/output features that we can program.



The Parts of a Micro:bit Front

1. A and B buttons: make things happen.
2. LED Display: shows words, pictures, numbers.
3. Light Sensor: Measures the light that falls onto the micro:bit.
4. Input and Output Pins: Connects the micro:bit to other devices.



The Parts of a Micro:bit Rear

5. Temperature Sensor
6. Compass
7. Accelerometer – Detects movement
8. Radio Communication – to communicate with other micro:bits and devices.
9. USB Port – Connects device to computer.
10. Reset Button
11. Battery Socket – to power from the computer.
12. Processor – The 'brain' of the device.



Using Micro:bit Software

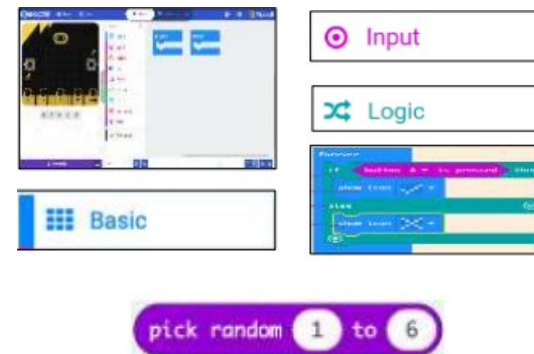
-Software Interface: Just like other programming software, the micro:bit interface has programming blocks and a programming area. The emulator gives a simulation for testing code.

-Basic Blocks: Can be used to do things like display images, text and pictures on the LED display. They should be placed into the 'on start' or 'forever' blocks.

-Input Blocks: Enables the user to create 'triggers' using different parts of the micro:bit device, e.g. 'on button ... pressed.'

-Logic Blocks: Allow conditions to be set. E.g. 'If, then, else' blocks allow us to set actions for when certain conditions are met (true), and alternative actions for when they are not met (false).

-Math Blocks: Includes numbers and sums in programs. The 'pick random number' block can allow different codes to run dependent on the random number generated.



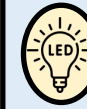
Accelerometer : a device that measures the vibration



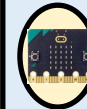
Condition : are basic "if, then" logic statements that modify how code is executed.



Emulator : is hardware or software that enables one computer system (called the host) to behave like another computer



LED : a semiconductor diode which glows when a voltage is applied



Micro:bit : is an open source hardware ARM-based embedded system



Motion : the action or process of moving



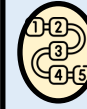
Programming: a technological process for telling a computer which tasks to perform in order to solve problems



Random : unspecified action



Sensor : a device that detects events or changes in its environment and sends the information to



Sequence : to combine things in a particular order