

Year 4 Summer 1: Knowledge Organiser – Computing

Unit 11: Microbits



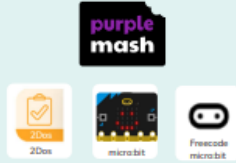
Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.11 micro:bit

Key Learning

- To understand how sensor inputs from the accelerometer can be used to detect movement, such as when a step is taken.
- To understand how variables can be used to keep track of things in a program.
- To understand how inputs, outputs and computer code work together to make control systems.
- To understand what logic is and how it can be used to make different outputs happen according to different inputs.
- To be able to make a control system and game.

Key Resources



Key Vocabulary

Accelerometer

A sensor that detects movement.

Data

A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Gestures

A type of input where the micro:bit is moved in different ways such as tilting, dropping, shaking.

Infinite loop

A loop that runs forever.

Light sensor

An input that senses the level of light in the real world.

Logic

How computers make decisions based on whether things are true or false.

Selection

Selection is a decision command. When selection is used, a program will choose which bit of code to run depending on a condition.

Sensor

An input that senses things in the real world, such as movement, temperature, and light levels.

Simulation

A program that models a real-life situation. They let you try things out that would be too difficult or dangerous to do in real life.

Variable

A named area in computer memory. A variable has a name and a value. The program can change this variable value. Variables are used in programming to keep track of things that can change while a program is running.



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Key Images



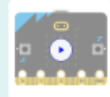
Open, close or share a file.



Save your work.



USB transfer.



Test code using simulator.



An event triggered by a gesture which adds 1 to the variable 'steps' and outputs this number.



Logic - IF/ELSE.



A variable called 'dicensumber' set to random number 1 to 6

Key Questions

How can sensors, code and outputs work together?

When using micro:bit a user can program the device to sense the environment around it. When particular environmental conditions are met such as the accelerometer detecting movement, code written can then trigger an output response such as displaying a message.

What examples can you think of a good use for variables when programming micro:bits?

Variables are places in a computer memory that store information and can have their content changed by a program. An example of this might be creating a variable that stores the number of times a micro:bit's accelerometer is triggered. Each time the accelerometer is triggered, the variable count is changed and then this number is outputted to the micro:bit LED.