Lesson plan – Micro:bit

Introduction to Micro:bit

Code Playground

BARCLAYS

Learning objectives

"I can control my micro:bit with a range of input actions to get my desired output action"

Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

"I understand the operation of a process and its outcome. I can structure related items of information."

"I can explore and comment on processes in the world around me making use of core computational thinking concepts and can organise information in a logical way."

Resources

- Laptops or desktop computers
- BBC Micro:bits (one per computer)
- https://microbit.org
- Some experience with a block based programming language is helpful, but not essential

Main activity

Ask the children to think about things around them that are controlled by different inputs, for example:

- Pressing a button to turn on the TV
- Putting your hands under a drier to start the hot air
- Unlocking your phone by holding it up to your face

Ask the children if they can think of some other examples with different inputs. Write them down on the board.
How do these things 'know' what to do when we press a button? We must programme them to perform a certain action each time they receive an input. This action is called the output.

Write the key words (input and output) on the board, or somewhere visible

Explain to the class that they will be controlling a micro-computer called a micro:bit – at this stage the micro:bits should be shared out in pairs or threes. Give the children some time to explore the device and discuss in their pairs what they think it can do.

Use the 'What is a micro:bit?' handout to explain its features.

The task for the class is to programme the micro:bit with two different inputs (the buttons and accelerometer features will be the focus here) to display different messages on the LEDs. Choosing to display a name is a good start.

The class should be guided to the micro:bit MakeCode editor. From here, the class should use the key words to guide them in creating their code, and natural curiosity should mean that code is created very quickly. Code should be tested on the on-screen emulator before downloading.

Use the 'pairing your micro:bit' handout to help the class download their code and test it works.

Differentiation

Lower Ability/ASN

Use the specific coding block flashcards for this activity, and separate them into inputs and outputs.

One input and one output block should be chosen to create the code

Higher Ability/Extension

Challenge the children to use as many different inputs as they can to deliver different outputs (messages)

Plenary

Have the children try out each other's' code – did they all use the same blocks? What was different?

Is there only one right way to complete the task?

Assessment Questions

Using the coding block flashcards that were relevant to the activity, ask the children which are inputs and which were outputs