Lesson Plan – Micro:bit

Introduction to Loops

Code Playground

BARCLAYS

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Learning objectives

- "I can explain what a loop is in computer programming, where I might use one and for what purpose"
- 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 demonstrate a range of basic problem solving skills by building simple programs to carry out a given task, using an appropriate language."

Resources

- Laptops or desktop computers
- Micro:bits (one per computer)
- https://microbit.org
- Music and Enough space to dance!

Main activity

What is a loop? What do we think a loop is used for in computer programming?

In computer programming, a loop repeats a section of code until a certain condition is met, so that we don't have to repeat ourselves or build long lists of the same code over and over again.

Before the class put this into practice with Scratch, we can test this with dancing. For this part of the lesson, you will need to think of a dance routine that is both repetitive and familiar to the children. You could use:

- The Macarena
- The cha-cha slide
- YMCA
- The chicken dance
- Gangnam style

Ask the children to work in pairs. One child should be the dancing robot and the other should be the computer programme which tells the robot how to dance. Play a section of music that will allow the dance routine to be played out at least twice and ask one child per pair to call out instructions to their partner for the chosen dance routine until the music stops.

For the computer programmers, what was difficult about this activity? What could you change about the programme to make it simpler? [e.g. repeat 4 times/repeat until music stops. This would be a loop.

There are loop blocks that we can use to simplify our code. Ask the children to code their sprite to move in a square. They may want to give their instructions out loud to their partner first, to help identify the repetition and where the loop is required.

Can they code any other patterns using loop blocks?

Differentiation

Lower Ability/ASN

Use the micro:bit flashcards to separate the blocks that will be required for this lesson

Higher Ability/Extension

Plenary

Have the class play each other's animations and give feedback

Did everyone use the same loop blocks?

Assessment Questions

Can you identify any loop blocks we can use to code the micro:bit?

What is the main purpose of a loop?