Beech Hill Primary School Knowledge Organiser

Topic: Computing	Year group	Term
Computer Science : Micro Bits	Year 3	Spring 2 6 sessions

Background knowledge
A BBC MicroBit is a pocket-sized codeable computer. It has 25 red LEDs that light up, flash messages etc. It has two programmable buttons. It can be used as a games controller (e.g Kodu). It has an on board motion detector, a built in compass and Bluetooth connectivity. See: 10 Activities for the BBC MicroBit by CAS

What should I already know?
Children have learned to make things happen in a sequence, creating simple animations and simulations by using time blocks. Children can write code with 'if statements', which select different pieces of code to execute depending on what happens to other objects. They can design apps of their own using if statements.

National Curriculum Objectives / Key Skills	The Journey
<u>Subject intent</u> To stay safe online and understand the positives and negatives of being online. Develop basic computing skills to prepare for the world of work. To design, write and debug programs using sequences and variables. To explain how some simple algorithms work and to detect and correct errors in algorithms and programs with support. I can create programs that use sequences and variables to achieve given goals. I can explain how my algorithm works and begin to detect errors with support.	1. Children are introduced to the MicroBit and how to connect it. They will learn how to create a simple flashing heart using loops, practising how to download a code with adult support. 2. Children learn to input commands: Children make a scrolling name badge. Can they, as an extension, make a conversation between two microbits. ("Hi" "How are you?") 3. They create a smiley face, using the buttons on the MicroBit for the first time, then make it appear on the MicroBit by downloading and dragging or pasting the .hex file with greater independence. 4. Animal animation. To create an animated image which scrolls by using multiple different light patterns and directions.

	5. Children create a dice emulator using variables. When the MicroBit shakes, it chooses a random number. Can the children then change in the input command from shake to something else, like a button press. 6 . To create a sunlight sensor using input / output. Make the MicroBit respond to a stimulus.

Outcomes
An overview of what children will know / can do Working towards: With support from an adult or my friends, I can create a simple programmes to make the LEDs on my MicroBit respond. I can sometimes spot when things are not working as they should. Expected: Children can work with a partner write and debug codes for a piece of hardware. They will use different input commands, conditionals and variables. Exceeding: Children can take the lead in writing and debugging codes for a piece of hardware. They will use different input commands, conditionals and variables, and can predict and experiment with what happens when these are changed.

Key Vocabulary	Timeline / Diagrams
Algorithm - a set of instructions which can be given to complete a task both on hardware and unplugged activities. Conditional – a part of the code that will only happen "if". Debug – to spot errors and correct them. Input – the numbers you put into the variables. Instructions – to tell someone or a device what to do. LED – a light emitting diode. Program – to give instructions to a person or device. Variable - An object used to store a simple piece of information, such as a score or the time taken.	

Key people / places
The first visible-spectrum (red) LED was developed in 1962 by Nick Holonyak, Jr. while working at General Electric.  

Assessment questions / outcomes
1. What are the lights called on a MicroBit? 2. Which one of the blocks do you need to make your name scroll on the MicroBit? 3. What different ways (inputs) can you make the dice pick a number? 4. How can you make the MicroBit show two different messages? 5. Which block do we use to make a picture appear on the MicroBit?