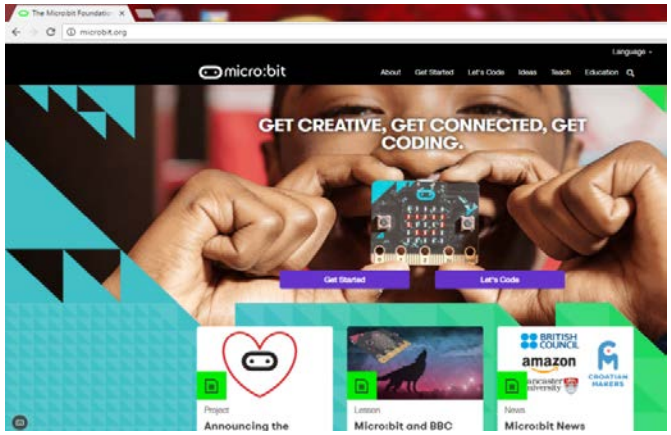
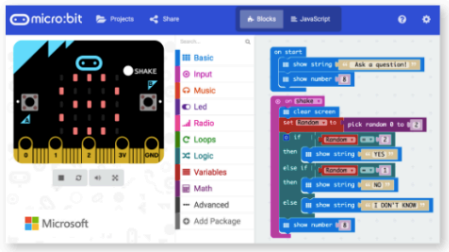
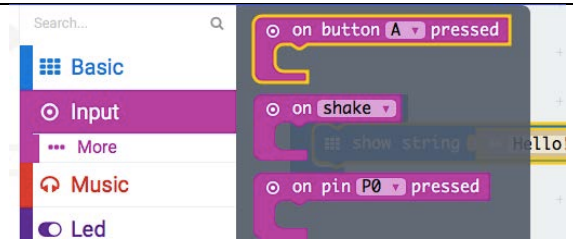
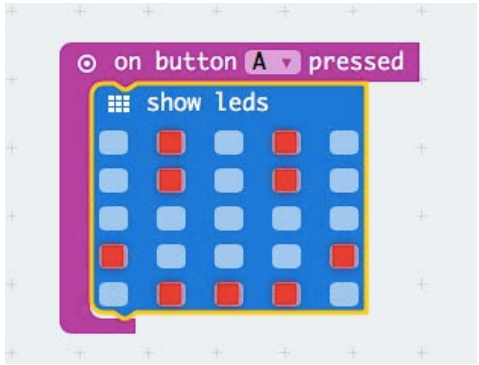
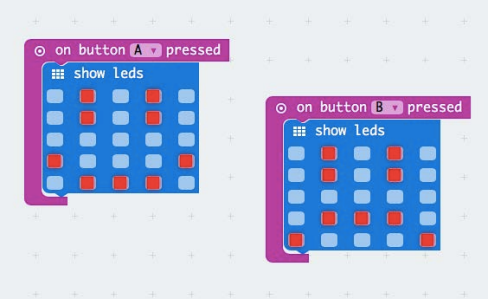
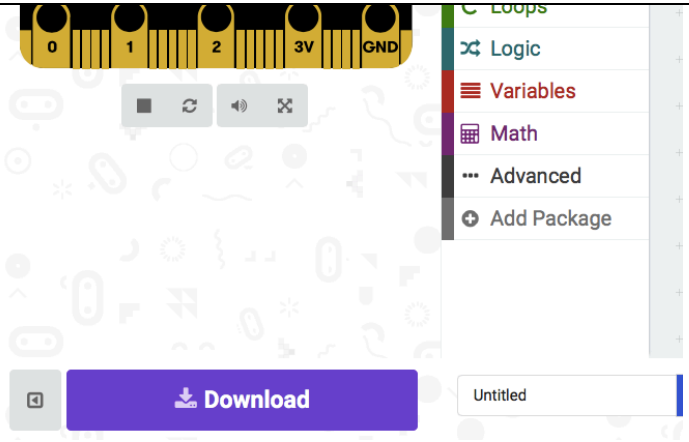
Contributed by Beacon Primary School (CAA 12 April 2017)

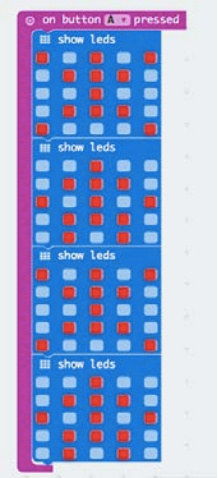
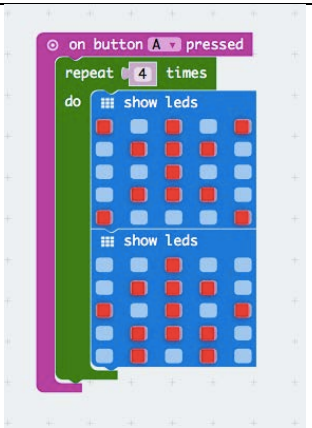
Level:	Primary 2		
Name of Module:	Micro:bit (Enrichment programme)		
Lesson Title:	Emoji		
Lesson Number:	2	**Duration:**	60 min
Objective(s) of Lesson:	After completing the lesson, students will be able to code the micro:bit 1. To display an image on the 5x5 LED 2. To display an animation using the LED		
SEL	Relationship Management - Respect and appreciates his/her friends - Appreciates and accepts differences in opinions		
Resources:	Laptop (with internet access), micro:bit		

Time and Activity	**Description**	**Remarks**
Introduction to Coding 1 min	Recall that coding is a language that allows us to give computers and devices instructions.	

Introduction to hardware 4 minutes	Students to be in pairs. 1 computer to each pair 2 sets of micro:bits to each pair Introduce parts of the microbit - The main board - USB cable (power and programming) - Battery for power If the USB cable is plugged in, there is no need to connect the battery.	*Students may need some practice connecting the battery and USB cable to the main board.* *Teachable moments: In pairs, students may always provide help to each other. Highlight such behaviour and emphasise that more of such positive behaviour should happen during the lesson.*
Preparation 5 min	1. Students to log in to the URL **microbit.org** 2. Click on "Let's Code"	

	3. Select Javascript Block Editor “Let’s Code”.	 
Activity 1: Emoji 10 minutes	1. Click the “Input” tab in the middle. 2. Select **On button A pressed** and drag it to the coding page. 3. Click the “Basic” tab and select **Show LEDs** and drag it into the coding page. 4. Click and hold the **show LEDs** and drag it into the **On button A pressed**. T: What do you think we just did to the code? How different is it? T: Try it out in the simulator. 5. Download into the micro:bit and try it out. Extension: Can you put in more inputs?	 

		
Programming micro:bit 5 min	1. Click “Download”, a file will be downloaded to the downloads folder (may be different on various devices) 2. Connect the micro:bit via the USB cable. It will show up as a “thumb drive” named **“MICROBIT”**. 3. Drag the downloaded file into “**MICROBIT**”. An orange light on the micro:bit will start blinking. 4. Once the orange light stops blinking, the micro:bit is programmed. Students should see their name displayed on the 5x5 LED. 5. Students can disconnect their programmed micro:bit and connect the battery to walk around with their new “Name Tags”. (if time permits)	

Activity 2: Animated emoji 10 minutes	1. Ask students to think of a person doing a jumping jack (might have to demonstrate to them) 2. Drag in more **show LED** place them in line under one input T: What do you think will happen when I press button A? T: The top image will show, then the second, third and last image. How many images will we see? 3. Try your own images, and make your own animation.	
Activity 3: Repeats 15 minutes	Since there is a **pattern**, can we **repeat the pattern** a few times? 1. Click “Loops” tab and select **repeat 4 times** and drag it out to the coding page. 2. Insert **repeat 4 times** below **on button A pressed.** 3. Move the first 2 LED patterns into **repeat 4 times**. T: What do you think will happen now? Let’s try it out. 4. Download into their micro:bits and show to their friends.	
Conclusion	T: We justused the microbit to make the LED move, this is	

5 minutes	called animation. Moving images. T: Did you manage to create your own animations? T: Did you see anything interesting from your friends and their animations? T: We have different interests and opinions, and we should appreciate our friends and their opinions. We can't all be like same things.	
Pack up 5 min	Return all equipment and materials.	