Lesson Plan

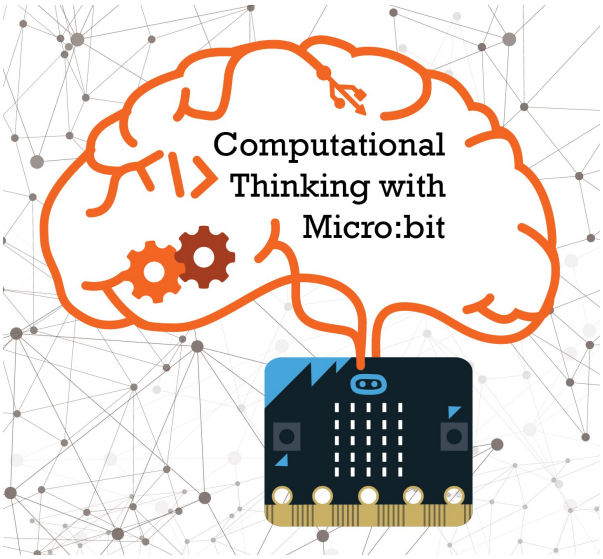
Creating an emotions tracker with the Micro:bit

Programme: ICT Module **Level:** Secondary 1

Theme / Challenge Statement:	**Students will learn the programming concept of input-process-output through programming the Micro:bit to communicate their emotions.**

Summary

This lesson teaches students a core function of the Micro:bit, inputs and event handlers. Students will learn how to program the Micro:bit to display a different emotion based on which button is pressed (or any other input), and are free to customize and explore the different permutations possible.



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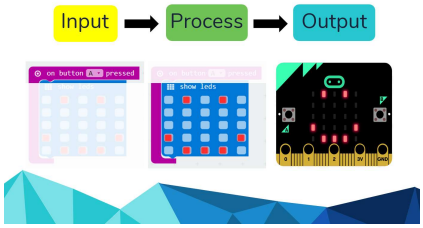
Prior Knowledge:	Students should already know: 1. Basic computer skills (turning on a computer, creating an account, logging in) 2. Basic Micro:bit knowledge (how to connect, download files, create code with makecode.microbit.org)
Learning Objectives:	By the end of the lesson, students should be able to: 1. Learn about the input-process-output 2. Understand fundamental programming terms like inputs and event handlers. 3. Be able to successfully program their Micro:bit into an emotions tracker.

Lesson Plan

Time	Teacher Activities	Purpose	Resources Needed
Introduction/Pre-activity			
5 minutes	Introduction to the lesson. Recap on previous concepts learnt if any. Instruct students to log in to the computers and collect their Micro:bits.	To let students understand the objectives of the lesson as well as expected behaviour.	Powerpoint Slides, Computers, Micro:bits
Lesson development/Main activities			
Input-Process-Output model 5 minutes	Introduce the idea of input-process-output. Show how inputs on the Micro:bit fall directly under the model.  Slide 8	Students to recognize the input-process-output system in computers and how they are applicable to the Micro:bit	Powerpoint Slides, Computers, Micro:bits
Coding demonstration 10 minutes	Demonstrate how inputs work in block-based programming. With the enclosing blocks. Show how inputs can be differentiated and segregated.	Students to learn how to code inputs into the Micro:bit.	Powerpoint Slides, Micro:bits, Computers
Practice 15 minutes	Provide students with the task of applying what they have learned about inputs into creating their emotions tracker. Also give students a bonus challenge where they can attempt a more complicated or difficult variation of the project.	Students to try to create their project. Students are encouraged to experiment after they have completed the tasks given.	Powerpoint Slides, Micro:bits, Computers
Feedback and Evaluation 10 minutes	To provide feedback to students on their code and if there are errors or mistakes.	Students to learn from the feedback given and understand their work done.	Powerpoint Slides, Micro:bits, Computers
Closure and consolidation/Post-activity			
Summary 15 minutes	A quick recap and summary of the programming concepts learnt and used.	Students to reflect on what they have learnt.	Powerpoint Slides

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Please send this template, together with any additional resources, e.g. Powerpoint slides, worksheets and .hex file, to: digital_maker@imda.gov.sg.

Contributed by:

Name of School: Nan Hua High School

Name of Teacher (Optional):

Date: