\<Introduction to Electronic Components\>

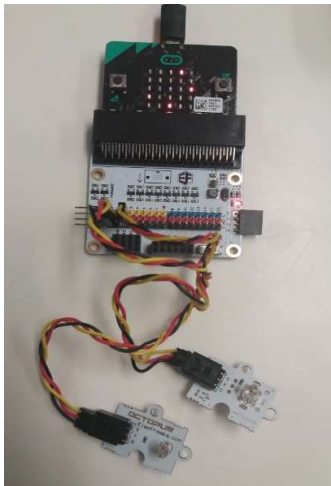**Subject:** ALP   **Level:**   Secondary 2
Unit:
Topic: Micro:bit

Summary

In this lesson, students will be introduced to basic concepts of electronics and learn how to assemble different circuits using a breakout board. Students will be handling and coding a Light Dependent Resistor, Light Emitting Diode and Passive Infrared Sensor.

Prior Knowledge:	Students should already know: 1. The different parts of micro:bit and their function 2. Understand the purpose of coding and the meaning of some block commands 3. Code using the javaScript block editor to show icons, changing the intensity of light and display of messages on the LEDs
Learning Objectives:	By the end of the lesson, students should be able to: 1. Understand the use of the breakout board 2. Understand the use of the Light Dependent Resistor in circuit 3. Understand the use of the Passive Infrared Sensor in circuit

Time	Teacher Activities	Purpose	Resources Needed
Introduction/Pre-activity			
10mins	Recap on micro:bit functions and basics of coding	To let students recap on basic concepts	

Lesson Plan

Lesson development/Main activities			
5 mins	Explain the use of breakout board	To let students understand how micro:bit applies to electronics	PowerPoint slides
10mins	Introduce the Light Dependent Resistor (LDR) and explain how resistance varies with light intensity	To allow students to familiarize with LDR and resistance	PowerPoint slides
15mins	Assemble a circuit with micro:bit and LDR and create a code to allow LED to be turned on in the dark.	To let students practice coding and assemble a circuit with LDR	Micro:bit, breakout board, electronic components, laptop
10mins	Introduce Passive Infrared Sensor (PIR) and explain its function	To allow students to familiarize with PIR	PowerPoint slides
10mins	Assemble a circuit with micro:bit and PIR and create a code to allow LED to be turned on when motion is detected.	To let students practice coding and assemble a circuit with PIR	Micro:bit, breakout board, electronic components, laptop
Closure and consolidation/Post-activity			
10 mins	Recap on the uses of the 2 sensors used during lesson – LDR and PIR and how the sensor activates the LED light.	Summarise the lesson	
	(Optional post-class activity)		

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: Bartley Secondary School
Name of Teacher (Optional):
Date:1 August 2018