Lesson Plan

P3 Project Work

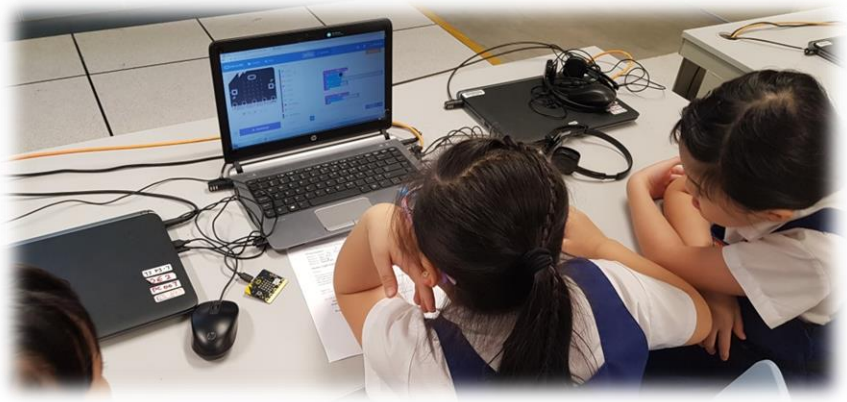
Programme: **Level:** Pri 3

P3 micro:bit programme

Theme / Challenge Statement:
care for community

Summary

The number of cyclists hurt or killed in traffic accidents has been rising over the past three years. Last year, 17 cyclists or their pillion riders were killed in accidents, up from 15 each in 2014 and 2013, according to the latest statistics from the Traffic Police.
After going through the Micro:bits training, your group members and you have decided to create a device incorporating Micro:bits to help increase the safety of the cyclists or pedestrians.



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Prior Knowledge:	Students should already know: 1. Basic coding skills for Micro:bits to create messages and images using micro:bits 2. Science concepts for Materials.
Learning Objectives:	By the end of the lesson, students should be able to: 1. Understand the importance of road safety and their family members' road safety. 2. Enhance their interpersonal and communication skills. 3. Solve real world problems using Micro:bits.

Lesson Plan

Time	Teacher Activities	Purpose	Resources Needed
Introduction/Pre-activity			
1 Period / 30mins (Introduction)	❖ Form teachers to follow groupings of Science Lab session for PW (ensure a mixed ability grouping), assign roles (1 ensure PW booklet is done properly, leader to ensure participation, 1 ensure program done properly, 1 ensure prototype created properly , everyone will present, program and create prototype). ❖ Give out PW booklet to each group. ❖ Explain objectives of Project Work ❖ Go through the global awareness and cross cultural skills ❖ Go through the problem scenario ❖ Explain to the students about the end products that they need to produce ❖ Emphasise the importance of Copyright on ideas and research	To let students understand the objectives of accomplishing the tasks and let everyone in the group to be meaningfully occupied.	P3 project work booklet
Lesson development/Main activities			
1 Period (Setting ground rules)	❖ Explain the importance of harmonious teamwork and respect for peers and teachers. ❖ Go through and get students to complete pages on team work and work allocation ❖ Describe the conduct required for good teamwork and set ground rules. ❖ Give out 2 survey forms to each student to complete it (1 by themselves and 1 by a parent) and collect back latest by same week	To let students know the importance of teamwork and setting of ground rules for that. Survey forms are given for students to create bar graphs based on information collected on what students and parents view about road safety. The survey results serve as a motivation for students to embark on this project.	- P3 project work booklet - Survey forms
1 Period (Brainstorming)	❖ Ask the students to reread the problem once more ❖ Explain to the students the requirements of their project and the expected	Brainstorming of what the students want to create using micro:bit.	- P3 project work booklet

	end-product and how they will be assessed. ❖ Students will start to brainstorm their type of device taking into account what they have learnt during the Micro:bit training ❖ Students will also think of the type of materials needed to create the prototype device as they apply the concept on 'Materials' ❖ Teachers will tell students to bring reusable materials like sponge, styrofoam, cardboard, straps, aluminium foil, scotch tape and also scissors. Each micro:bit will already be enclosed in a ziplock bag. If students suggest to bring other items out of this list, do ensure that it does not break easily like glass bottle etc.		
2 Periods (Coding and testing of device)	❖ Bring students to Computer lab/use the mobile cart in the classroom. ❖ Each group will receive a Micro:bit from the teacher ❖ Students to code the Micro:bit ❖ Teacher to go around and monitor students' progress and coach them if necessary. ❖ Ask the students to look through the coding again and edit their work. ❖ Make sure that they save their work on a regular basis. ❖ Tell the students to save their work from the micro:bit drive into their thumbdrive	Programming of Micro:bit device using laptops.	- P3 project work booklet - Laptops
2 Periods (Prototyping and presentation)	❖ Create the device using the materials chosen by the group. ❖ Test their device to see if it works as intended. ❖ If it does not work, repeat step 2, 3 or 4 again. ❖ Students to present their prototype device to the class during gallery walk	Creating of device using Micro:bit	- reusable materials like sponge, styrofoam, cardboard, straps, aluminium foil, scotch tape and

	(1 member to present verbally or present using Power Point slides done at home)		also scissors. - Each micro:bit will already be enclosed in a ziplock bag.
Closure and consolidation/Post-activity			
1 Period (Group reflection)	Students to write down about challenges/improvements to be done and do a group reflection.	Group reflection	- P3 project work booklet

List of Projects (4 projects) created by Students			
Project 1	<Creating a Micro:bit necklace to alert other road users of the pedestrian user by displaying words and images>  < >	Resources Needed -reusable materials like sponge, styrofoam, cardboard, straps, aluminium foil, scotch tape and also scissors. - Each micro:bit will already be enclosed in a ziplock bag.	Remarks / Tips to be shared
Project 2	<Creating a Micro:bit belt to alert other road users of the pedestrian user by displaying words and images >  < >	Resources Needed - reusable materials like sponge, styrofoam, cardboard, straps, aluminium foil, scotch tape and also scissors. - Each micro:bit will already be enclosed in a ziplock bag.	Remarks / Tips to be shared

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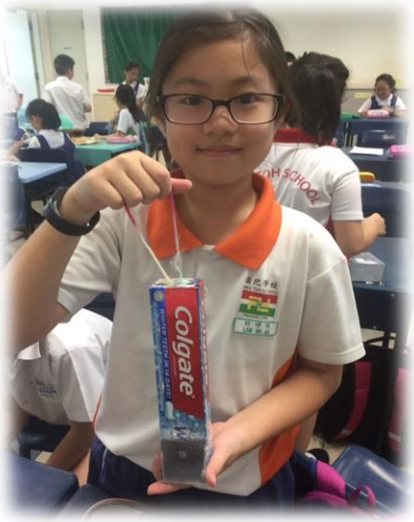
Project 3	<Creating a Micro:bit wrist band to alert other road users of the pedestrian user by displaying words and images>  < >	- reusable materials like sponge, styrofoam, cardboard, straps, aluminium foil, scotch tape and also scissors. - Each micro:bit will already be enclosed in a ziplock bag.	
Project 4	<Creating a Micro:bit lamp to alert other road users of the pedestrian user by displaying words and images>  < >	- reusable materials like sponge, styrofoam, cardboard, straps, aluminium foil, scotch tape and also scissors. - Each micro:bit will already be enclosed in a ziplock bag.	

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

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